



## ORIGINALES

### Nursing process to men with laryngeal cancer based on Neuman model

Processo de enfermagem para homens com câncer de laringe fundamentado no modelo de Neuman

Proceso de enfermería para hombres con cáncer de laringe fundamentado en el modelo de Neuman

\*de Oliveira, Patrícia Peres \*\*Amaral, Juliana Gimenez \*\*\*Rodrigues, Andrea Bezerra \*\*\*\*da Silva, Myria Ribeiro \*\*Onofre, Priscilla Sete de Carvalho \*da Silveira, Edilene Aparecida Araújo

\*PhD in Nursing. Assistant Professor at the Federal University of São João del-Rei. Divinópolis-MG, E-mail: [pperesoliveira@ufsj.edu.br](mailto:pperesoliveira@ufsj.edu.br) \*\*PhD in Nursing. Assistant Professor at the University Paulista. São Paulo-SP \*\*\*PhD in Nursing. Assistant Professor of Nursing at the Federal University of Ceará. Fortaleza-CE \*\*\*\* Nurse. MSc in Health Sciences. Assistant Professor at the State University of Santa Cruz. Ilhéus-BA. Brazil.

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### ABSTRACT

The **objective** was to operate the nursing process proposed by Betty Neuman men with laryngeal cancer in identifying stressors and coping patterns triggered in cancer experience. Exploratory, descriptive, qualitative study used as a theoretical model of the Betty Neuman with 30 men undergoing treatment for cancer of the larynx, belonging to a support group, located in São Paulo, Brazil. Customers have provided some nursing diagnoses caused by stressors identified and related to the treatment of laryngeal cancer. From this, drew up the goals and nursing outcomes that enabled coping with stressful forces and the restoration of lines of defense, yielding satisfactory interventions to minimize the stress experienced. It was found that the difficulties of treatment of laryngeal cancer could be solved with a nursing practice focused on attention and dialogue, relying on sound scientific method.

**Keywords:** Nursing theory; Nursing care; Neoplasms

### RESUMO

**Objetivou-se** operacionalizar o processo de enfermagem, proposto por Betty Neuman, para homens com câncer de laringe, visando a identificação de estressores e padrões de enfrentamento deflagrados

na vivência da neoplasia maligna. Trata-se de um estudo exploratório-descritivo, qualitativo, utilizou como referencial teórico o Modelo de Betty Neuman com 30 homens em tratamento para câncer de laringe, pertencentes a um grupo de apoio, localizado no estado de São Paulo, Brasil. Os clientes apresentaram alguns diagnósticos de enfermagem ocasionados pelos estressores identificados e relacionados ao tratamento do câncer de laringe. A partir disso, traçaram-se as metas e resultados de enfermagem que possibilitaram o enfrentamento das forças estressoras e a reconstituição das linhas de defesa, obtendo-se intervenções satisfatórias na minimização do estresse vivenciado. Verificou-se que as dificuldades do tratamento do câncer de laringe podem ser solucionadas com uma prática de enfermagem voltada para atenção e diálogo, apoiando-se em um método científico adequado.

**Palavras chave:** Teoria de enfermagem; Cuidados de enfermagem; Neoplasias

## RESUMEN

**El objetivo** fue operar el proceso de enfermería propuesto por Betty Neuman para hombres con cáncer de laringe para la identificación de los factores de estrés y patrones de enfrentamiento desencadenados en la vivencia de la neoplasia maligna. Se trata de un estudio exploratorio, descriptivo, cualitativo, se utilizó como referencial teórico el Modelo de Betty Neuman con 30 hombres sometidos a tratamiento de cáncer de laringe, que pertenecen a un grupo de apoyo, que se encuentra en São Paulo, Brasil. Los clientes han proporcionado algunos diagnósticos de enfermería causados por factores de estrés identificados y relacionados con el tratamiento de cáncer de laringe. A partir de esto, se elaboraron los objetivos y resultados de enfermería que permitieron hacer frente a los factores estresantes y la restauración de las líneas de defensa, obteniéndose intervenciones satisfactorias para minimizar el estrés experimentado. Se encontró que las dificultades de tratamiento del cáncer de laringe se pueden resolver con una práctica de enfermería centrada en la atención y el diálogo, basándose en un método científico adecuado.

**Palabras clave:** Teoría de Enfermería; Cuidados de enfermería; Neoplasias

## INTRODUCTION

Laryngeal cancer is one of the most insidious types affecting the structures of the head and neck, and represents about 25% of malignancies that affect that region, and 2% of all tumors. Brazil has a significant occurrence of laryngeal cancer when confronted to other countries in Latin America: about 8,000 new cases and 3,000 deaths from the disease affect, every year, the Brazilian population<sup>(1)</sup>. It is more common in men over 60 years, but the incidence rate is increasing, especially in young adults (men and women younger than 40). Survival rates for some cancers in the head and neck are more than 50%<sup>(2)</sup>.

As a result, the quality of life of people with head and neck cancer, and how they adapt to life after treatment, are becoming more and more important. Unfortunately, people's lives can change a lot after the treatment of head and neck cancer, due to the change in their appearance, or changes in the way they talk and eat<sup>(3)</sup>. In addition, this group of sick is known to have high rates of smoking and alcohol use<sup>(4)</sup>.

Research conducted with individuals diagnosed with laryngeal cancer showed that both diagnosis as treatment are considered very stressful situations to men and can change his routine, precisely because it is an emotionally difficult experience that generates stress<sup>(4-7)</sup>. It is noteworthy that stressor, according to Betty Neuman<sup>(9)</sup>, are stimuli that act on the client, producing tension and may be present in the internal and external environment of the person, preventing the maintenance of his/her balance<sup>(8-9)</sup>. Thus, since the laryngeal cancer affects the patients' lives, the man faces the occurrence of stressful events, which require adjustment strategies and produce strong emotional impact, such as the uncertainty of healing, the fear of death in

addition to concerns about the activities of daily living<sup>(3,6)</sup>, which need more researches due to a number of conditions related to its occurrence in the globalized world.

In order to provide better adequacy of those men to the stress experienced, an individualized and systematized care is essential, in which the nurse's role, as a member of the multidisciplinary team is essential, based on the application of a healthcare practice supported by a scientific method. Therefore, this article proposes a nursing care for the man with malignant neoplasm of the larynx, based on the model of Betty Neuman.

The choice to implement the nursing process for those individuals with laryngeal cancer occurred because, given that the male population is more vulnerable to illness and has a life expectancy lower than women's, men's presence in health services is still small, thus, it is fundamental to get closer to men for the identification of nursing care that best suit their needs.

There is a lack of studies, in nursing area, focused on men and laryngeal cancer. Thus, this study may contribute to the knowledge of nursing professionals who care for people with malignant neoplasm of the larynx.

Given the complexity of the subject and the subjectivity involved in the daily lives of men, the question is: what are the stressors experienced by men with laryngeal cancer? And how those men face those stressors? Therefore, the objective was to operationalize the nursing process, proposed by Betty Neuman, for men with laryngeal cancer, in order to identify stressors and coping patterns triggered in the experience of the malignancy.

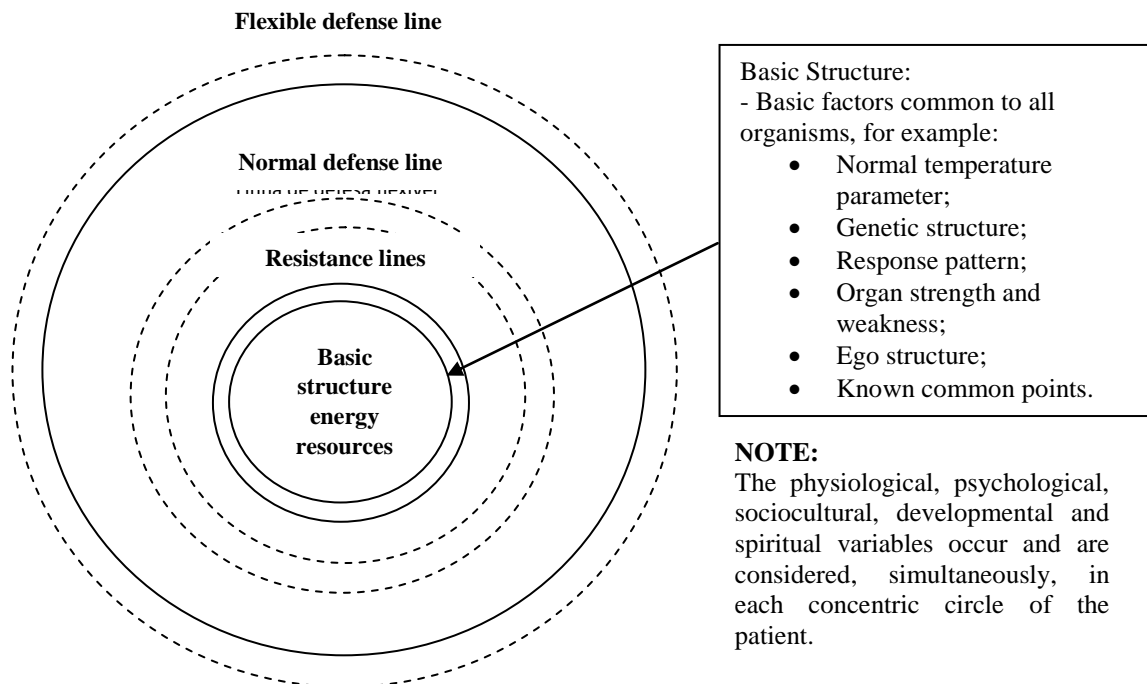
### **Theoretical framework**

Neuman's Theory is classified and based on concepts of Psychology, seeking to overcome the biomedical model, bringing a multi-dimensional look of the person who is in constant interaction with environmental stressors<sup>(8)</sup>, focusing on human needs for protection and relief of stressors, and the causes of stress could be identified and remedied by nursing interventions. There is need for dynamic equilibrium of human beings, provided by the identification of data and problems, goals and the use of the concept of prevention and intervention<sup>(8-9)</sup>.

For the Neuman's Systems Model, the person is an open system in contact with stressors, commonly reacting positively or negatively, and is described by five variables that interact: physiological, psychological, spiritual, developmental and sociocultural, which work harmoniously in relation to environmental influences, internal and/or external, determinants of stress on the individual<sup>(9)</sup>.

Fundamentally, the framework proposed by Neuman is the representation of the person, family or community through a basic structure and its energy resources, surrounded by a series of concentric circles, cognominated, from the center to the *resistance line ends*, *normal defense line* and *flexible defense line*, interacting with the environment in the face of stressors present or not<sup>(8-9)</sup>. The following graphic model shows it (**Figure 1**):

**Figure 1.** Graphical representation of the Systems Model of Betty Neuman.



**Source:** Adapted from Betty Neuman's Theory<sup>10</sup>

The two main elements of the model are the stressors and reactions to stressors, that is, the confrontation. Here, then, it is important to conceptualize some terms used in Neuman's model<sup>(9)</sup>, such as:

*Stressors* are forces of intrapersonal, interpersonal and extrapersonal nature, which have the potential to break the system balance. Intrapersonal are forces that occur within the individual; interpersonal happens in relations between one or more individuals; and extrapersonal are forces that occur outside the system, arising from socio-cultural, political and social processes<sup>(8-9)</sup>.

*Individual/ Man/ Customer* refers to the open system, which is permanently in contact with the environment, changing and moving, interacting with each other. It is multidimensional and compounded by variables<sup>(9)</sup>.

*Environment/ Surroundings* is a set of internal and external forces that surround the person all the time. It is multidimensional and dynamic, and includes the energy factors of the basic structure. The internal environment is the one relating to the person, and the external environment corresponds to the inter and extrapersonal, related to all that is external to the customer<sup>(9)</sup>.

Because each individual has a basic structure of energy resources, the *flexible defense line* in the model is represented by an external dotted circle constantly changing in response to the influences of psychophysiological and socio-cultural

changes, that is, it is a protective mechanism that involves and protects the *normal defense line* from the invasion by stressors.

The *normal defense line* is a continuous circle towards the core of the model, and represents a dynamic state of adaptation maintained by the individual over the time (defined as the health level of adaptation developed over time and considered normal for certain patient or system)<sup>(9)</sup>.

The *resistance line* is represented by broken-line circles around the model core, that is, basic energy structures. It consists of internal factors activated by the customer to its basic structure after the interference of a stressor not limited by the normal defense line<sup>(8)</sup>.

Nursing, for Neuman, has the main function of helping the client achieving and maintaining the system stability, because, when supporting the client, the nurse provides the link between the individual/environment/health and nursing itself, legitimizing those that are the nursing metaparadigms identified by Neuman's model<sup>(8-9)</sup> and described above.

In order to achieve or maintain the system balance, nursing interventions need to take place at all levels of prevention, namely, primary, secondary and tertiary, in which the nursing process is essential to maintain the well-being or protect its reconstitution<sup>(9-10)</sup>. The first walk of the process is called nursing diagnosis, and describes the elaboration of diagnosis from the identification of real and existing or potential stressors threatening the harmony of the person, being operated from a diagnostic investigation guide. The second stage consists of the nursing targets, that is, intervention strategies and negotiation between caregiver/client to achieve and maintain the system homeostasis. The third step are the nursing results presented by the individual and that validate the process or act as feedback for changes in interventions and targets set for the system<sup>(9)</sup>.

## METHODOLOGY

Descriptive-exploratory study, with qualitative approach, conducted with 30 men undergoing treatment for malignant neoplasm of the larynx, members of the Support Group for People with Cancer, located in the state of São Paulo, Brazil. It is a non-profitable entity, whose goal is to help people with cancer and their families by providing from medicines, prostheses, medical examinations, dietary supplements to psychological, physiotherapy, nutrition and legal care, as well as lectures and courses. They have six units in Brazil, three located in the state of São Paulo, two, in the state of Rio de Janeiro and one, in the state of Espírito Santo.

The criteria for selection were: men with laryngeal cancer who were attending one of the São Paulo units of the Support Group for People with Cancer. The inclusion criteria for participants were: being over 18 and being in treatment for malignant neoplasm of the larynx. The exclusion criteria were: men with laryngeal cancer who had no personal willingness to participate in the meetings at any time of the research, and inability to understand and/or answer questions posed by intellectual disability.

Data collection was conducted through four meetings with each participant, previously scheduled by phone, in a private room, at the unit of the Support Group for People with Cancer closest to their home, from October 2012 to November 2013. The first

meeting aimed to present the ethical and legal aspects of conducting the survey and invite them to participate in the same. At the second meeting, interviews were conducted with a semistructured diagnostic research guide, which were recorded after authorization, with an average duration of 90 minutes. In the third meeting, discussions were held, setting goals together between the nurses-researchers and the customer, as well as confirmation of interventions/activities previously established and specific guidance, when necessary, for each situation experienced by the participant. In the fourth meeting, the interventions/activities were implemented and evaluated; there was also a process of judgment of the men's responses about the stressors.

The applied semistructured diagnostic research guide contained four parts: the first part related to the sociodemographic characterization (age, education, household income, marital status, number of children). The second part related to lifestyle and treatment (smoking, alcoholism, treatment protocol, treatment phase). The third part contained the Parental Bonding Instrument (PBI), which investigates parental behavior until 16 years old, adapted and validated into Portuguese<sup>(11)</sup>, used to evaluate the variables of the theoretical framework development. The fourth part contained questions focused on identifying experienced stressors and coping patterns used by the customers. These three parts were prepared by the authors in order to enable the identification of all variables of the Neuman's model and the identification of intra, inter and extrapersonal stressors.

The project was approved by the Research Ethics Committee (COEP) of the University Paulista (Opinion No. 42640/12). Individual identification of respondents was kept secret by adopting the letter R followed by sequential number of the interviews.

The number of participants was considered sufficient when there was recurrence of information while considering, however, unique information taken into account in the search for the essence of the phenomenon in each one of the interviews, giving data saturation<sup>(12)</sup>.

After collecting the information and the fully transcribing the interviews, for the analysis of the elements, the thematic analysis was used as a strategy, a way to recognize the patterns within the data, in which the themes that emerge are formed into categories<sup>(13-14)</sup>. In this evaluation, there are different ways of approach, such as deductive, based on models of predetermined codes (template); and the inductive one, driven by data. In this study, the chosen method is a hybrid model, which comprises both deductive as the inductive approach<sup>(13)</sup>. Thus, firstly, the data are analyzed inductively, originating codes and initial themes, and, then, the template is applied. This research used the Neuman's Systems Model, in order to identify meaningful text units also deductively<sup>(14)</sup>. Finally, data were obtained in order to operationalize the nursing process proposed by Betty Neuman.

Thus, one sought to identify and classify the stressors experienced by men, developing, next, the nursing diagnosis, by drawing the goals and results to be achieved by customers, represented in **Table 1**.

**Table 1** - The nursing process according to Betty Neuman. São Paulo-SP, 2013.

Diagnostic investigation	1. Identification of the perceptions on stressors experienced by men with laryngeal cancer. 2. Stressor rating (extrapersonal, intrapersonal and interpersonal).
Nursing diagnosis	Preparation from the diagnostic investigation, observing the client's needs and the interventions needed to maintain the defense lines.
Nursing targets	Negotiation and definition of the nurse-and-clients system of nursing intervention strategies from diagnostics to obtain and maintain the system stability.
Nursing outcomes	1. Implementation of nursing interventions in the three modalities of prevention (primary, secondary and tertiary). 2. Negotiation with the client to change the intervention prescriptions if they have not achieved the necessary effects, observing the maintenance of the system balance and assessment of the achievement of targets.

**Source:** Adapted from Betty Neuman's Theory<sup>(9)</sup>.

Diagnosis, outcomes and interventions were compared with the literature and evaluated by the six authors of this article. It is noteworthy that all the researchers have more than ten years of practice in the profession, complete MSc and/or PhD courses, publications at conferences, books and/or indexed journals in the area of nursing diagnosis, outcomes and interventions in the past five years.

For defining the nursing diagnosis, one used the Taxonomy II of the *North American Nursing Diagnosis Association* (NANDA)<sup>(15)</sup>; the *Nursing Intervention Classification* (NIC)<sup>(16)</sup> and the *Nursing Outcomes Classification* (NOC)<sup>(17)</sup> for the nursing goals and outcomes, defining a standardized language that describes treatments performed by nurses in different situations.

Some speeches of the participants were presented descriptively, arranging the stressors, nursing diagnosis, goals and outcomes in frames.

## RESULTS

Below, data from the diagnostic investigation are described, according to the variables of the Betty Neuman's Systems Model:

*Sociocultural variables:* most men were between 45 and 65 years, married, with children, had low educational level, family income was less than five minimum wages;

discomfort in social situations, change in the interaction, after partial laryngectomy. The main concerns of the men related to this variable were:

*"[...] being unemployed. I'm afraid to get fired after returning from my sick leave [...]"* (R26).

*"[...] I got fired, I'm unemployed, we're facing a lot of financial difficulties [...] me and my family [...]"* (R27).

*"[...] I'm retired, I live with my wife, each one of us has a wage [...] it's difficult regarding Money, thank God there is this support group [...]"* (R3).

*"[...] I have difficulties in talking with my children and my wife about cancer, money [...] if I die, they won't be prepared to live by themselves"* (R16).

However, when identifying expectations, current coping patterns and likely future patterns of men, one researched the clients' initiatives to help in the current situation they were in and attend the Support Group for People with Cancer and the family were significant for all respondents:

*"[...] participating in the support group here helps me, I see other people who are going through the same I am [...] I also learn a lot"* (R24).

*"[...] what I do to help [...], I come to the support group, I think that's important for we exchange experiences* (R11).

*"[...] the family helps a lot [...] I don't know that well how to talk to my children and I see they feel the same, but, with a glance, I know they support me and that we are together"* (R19).

*Biological variables:* respondents reported feeling severe tiredness after teletherapy, in addition to erythema, slight skin flaking and swelling at the radiation site, and, regarding the treatment protocol, 20 men reported that the indicated protocol was the partial laryngectomy associated with radiotherapy; other ten customers reported only teletherapy, known as radiotherapy, as unveiled in the statements of the respondents:

*"Look, what affects me is this redness in my neck, everyone looks at it [...] it bothers and I feel this warmth in the neck, it hampers my routine [...] I use a handkerchief to work, but it heats up a lot, the feeling is bad [...] and I use the cream I was given in the radiotherapy every day"* (R23).

*"[...] this redness here (in the irradiated area) bothers all the time"* (R28).

All participants in the second and third study meetings were undergoing teletherapy. The radiodermatitis (presence of erythema, slight skin flaking and edema in the radiation site) was checked after anamnesis carried out by researchers in 17 of the respondents, with 12 clients with Grade I injury, for they presented hyperemia with the tonality varying from pink to shiny-red, two men with slight edema. Five other men presented radiodermatitis Grade II, as they showed skin flaking, redness and a slight burning sensation.



All customers said they were smokers, and two men are still smoking; two interviewees reported having been alcoholic, both have stopped drinking alcohol, for about a year.

Pale mucous membranes and body weight 20% below ideal were evidenced by the researchers in 23 men with laryngeal cancer; decreased appetite, weight loss since the start of radiotherapy, difficulty in swallowing and pain when eating, taste loss, dry mouth and little food acceptance:

*"[...] other difficulty I have is when I eat, the foods don't have the same taste, it hurts when I swallow, I'm eating only smooth food, fresh and crunchy bread, I can't even think about it"* (R5).

*"This dry mouth, difficulty to swallow [...] complicated"* (R7).

Tiredness after teletherapy was reported by 26 respondents:

*"[...] it's really difficult when I leave radiotherapy, I can't work, I get weak and very tired, I need to get back to my sales, but I can't, my daughter has been staying there for me*

*[...] I'm afraid she gets robbed there, alone"* (R1).

*"I get too tired, I just want to sleep, I don't have strength for nothing [...] when I leave radiotherapy"* (R19).

*"[...] depois da radioterapia, fico tão cansado, só quero uma cama para dormir"* (R6).

*"[...] olha eu fico muito fraco, cansado mesmo, difícil até ir dirigindo para casa"* (R29).

*Psychological variables:* both the difficulty with treatment, anxiety, fear of recurrence, as the acceptance with such a condition were observed, as follows:

*"Look, it's difficult for me to quit smoking, go every day to radiotherapy, I get too tired after radiotherapy, unable to work, not considering the surgery I underwent, look at the scar here"* (R8).

*"I get anxious, worried [...]; it's what I've been through, I get too anxious, but God will help, I pray every day"* (R30).

*"I was too worried about this radiotherapy [...] my mother used to cry all day thinking I was going to die soon. My wife used to cry, everybody used to cry, mourn and pray"* (R15).

*"I've never had something like this before [...], I'm afraid of not getting healed, or of this disease returning in other places [...], I get worried and anxious [...], God is helping me [...]"* (R9).

*"I'm not quite sure how I feel about it, lady [...] I know I try to stay at home so that I don't get to meet people I know [...] they will ask me why this scar, they will think I'll be dead soon [...] they will feel pity for me"* (R17).

*"[...] I get worried that the treatment will not work and the disease will return"* (R10).

*"I'm worried about my family [...] If I'm absent [...]"* (R13).

When asking men about previous problems already experienced by them, which they considered similar to laryngeal cancer, and how they dealt with them, the answers of the respondents who experienced it are described below:

*"[...] I've had a heart attack, got depressed after the surgery [...] faith helped me get back to normal life"* (R22).

*"[...] I've had a stroke, it was hard to depend on my wife [...] I attended physiotherapy [...] in the church, they prayed for me [...]"* (R14).

*Spiritual variables:* during all interviews, men always mentioned the name of God, saying He knows everything, but, regarding religious activity, most participants reported sporadic participation.

However, in an attempt to identify expectations, current coping patterns and possible future patterns of customers as the experienced stressors, which, according to the Betty Neuman's Systems Model, are essential in the evaluation of internal and external resources available for the search for the appropriate intervention, one asked about the client's initiatives to help in the current situation they were in, and spirituality was reported by every one of them, as can be exemplified in those statements:

*"I have a lot of faith, I pray and I feel calmer"* (R18).

*"I have faith in God that I'll get cured"* (R24).

*"[...] what I do to help [...], I pray, every day, every time I need"* (R21).

*"We did a novena at home, all neighbors attended it. It helped a lot, it was good"* (R2).

*"Faith helped me accept the problem, accept the treatment and believe in the cure"* (R25).

*"[...] I'm evangelical, in the church, they prayed for me, and I also prayed a lot"* (R4).

*Developmental variables:* with the application of the *Parental Bonding Instrument*, the so-called "great care", that is, parents who obtained high scores in care and low scores in overprotection/control was appointed for more than half of respondents. The "disaffection control" was described by eight men with laryngeal cancer, that is, parents with low scores in care and high scores in overprotection/control, and others six respondents reported "emotional control", that is, parents with high scores in care and overprotection/control.

Then, from the experience of men with malignant neoplasm of the larynx and related variables, it was possible to identify *intrapersonal stressors* (anxiety, uncertainty, fear, difficulty in coping in relation to treatment, dermatitis in the irradiated area, severe tiredness after teletherapy, lack of interest in food, taste and weight loss, pale mucous membranes), *interpersonal stressors* (family concern, social isolation and concern about the future capacity) and *extrapersonal stressors* (financial disadvantage, anxiety, cancer and unpredictability of the course of the illness), which affected the balance system of respondents.

Thus, through the stressors, six major nursing diagnosis were identified, as well as 13 nursing interventions, according to the NIC, in addition to 26 nursing targets (nursing activities, according to NIC) and 18 nursing results, based on the NOC.

Next, **Table 2** and **Table 3** show the nursing process based on the Neuman's Systems Model, as operationalized by researchers.

**Table 2.** The nursing process, Neuman's Systems Model, regarding the diagnosis of Unbalanced nutrition: smaller than the body's needs, Fatigue and Anxiety for men with laryngeal cancer. São Paulo-SP, 2013.

Stressors	Nursing Diagnosis	Nursing Targets	Nursing Outcomes
Lack of interest in food, taste loss, pale mucous membranes and body weight 20% below the ideal, related to impaired ability to ingest food, and biological factors. (Intrapersonal)	Unbalanced nutrition: smaller than the body's needs	Adapt the diet to the client's lifestyle; Guide food intake as preferences and nutritional value; Forward to the audiologist to assess the ability to swallow; Give preference to food with consistency that can be swallowed more easily (liquids with thickeners, creamy soups, purees) Measure weight weekly and compare weight change.	Nutritional status; Swallowing status; Body weight-mass.
Intense fatigue after teletherapy, increased need to rest (Intrapersonal)	Fatigue	Monitor fatigue as standardized scales (e.g.: numeric-analog type); Encourage alternate periods of rest and exercise; Control the activities and exercise; Assist the client to identify preferences for activities.	Will demonstrate or report that fatigue was mitigated to a tolerable level; Will adapt the lifestyle to the energy level; Will recognize the energy limitations; Will perform the most essential activities of daily life.
Anxiety, fear, apprehension, uncertainty (Intrapersonal)	Anxiety	Monitor the level of anxiety; List the features and specific people to ensure continued support; Talk about laryngeal cancer to know about the treatment and prognosis; Support the planning of measures to deal with reality; Reinforce the importance of home	Will express awareness of the feeling of anxiety; Will demonstrate or report that anxiety was mitigated to a tolerable level; Will identify healthy ways of coping and expressing their anxiety; Will demonstrate effective coping behaviors.

support as a means of continuing needs care.

**Tables 3.** The nursing process, Neuman's Systems Model, regarding the diagnosis of Impaired Skin Integrity, Tension of the caregiver role and Risk of feeling disabled for men with laryngeal cancer. São Paulo-SP, 2013.

Stressors	Nursing Diagnosis	Nursing Targets	Nursing Outcomes
Radiodermatitis stages I and II (intrapersonal)	Impaired skin integrity	Evaluate the irradiated area daily; Increase fluid intake (2 to 3 liters daily) <sup>21</sup> ; Avoid consumption of alcoholic beverages and smoking <sup>21</sup> ; Avoid exposing the irradiated area to the sun, heat and/or cold <sup>21</sup> ; Keep dry skin at the radiation site (except for the use of products) and free of irritation <sup>21</sup> ; Guide not to use any product on the site 2h before the sections of radiotherapy <sup>21</sup> ; Avoid itching, scratching, rubbing or brushing the treatment site; Wash the skin of the irradiated area with warm water, avoiding very long baths and very hot or very cold <sup>22</sup> water; Use hygiene products with neutral pH or for children <sup>21</sup> .	It will present hyperemia reduction, peeling and edema in the irradiated area; Demonstrate that radiodermatitis does not progress to stages III and IV; You should report that the radiodermatize has been attenuated to a supportable level..
Family concern, concern about the future capacity, social isolation. (interpersonal)	Tension of the caregiver role	Talk to the family about the importance of supporting the client. Facilitate communication between the client and his family. Identify the nature of spiritual support for the family.	Improve family coping in relation to the condition of the clients; Report an improvement of general well-being and ability to cope with the situation.

Financial disadvantage, anxiety, severe chronic disease, unpredictable course of the disease. (extrapersonal)	Risk of feeling disabled	Advise on the social rights of people with cancer. Encourage the expression of feelings. Discourage decision-making when the client is too stressed.	Demonstrate knowledge of the social rights of people with cancer. Report an improvement of coping and ability to handle the situation.
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## DISCUSSION

It is noteworthy that, at each discussed diagnosis, men with laryngeal cancer were considered as an individual and part of an open system, so that different perspectives could be built, which allowed, or not, the adoption of strategies to find the balance of the system.

### Unbalanced nutrition: smaller than the body's needs

The diagnosis of unbalanced nutrition: smaller than the body's needs deals with "insufficient nutrient intake to meet the metabolic needs<sup>(15)</sup>". In this study, this diagnosis was evidenced by the lack of interest in food, pale mucous membranes and body weight 20% below the ideal, related to impaired ability to swallow food and biological factors, caused by laryngeal cancer and teletherapy. It was experienced by most of the participants, given the set of stressors that affect their balance system and an ineffective coping by the client.

Interventions established with the clients, which formed the basis for the nursing targets and to achieve the results, were established from the *nutrition control* and *weight control, diet planning and nutrition monitoring*. It is noteworthy that, initially, the family's ability to meet the needs and ensure that the diet included foods rich in fiber and vitamins was determined.

The results of the NOC<sup>(17)</sup> established with the client were *nutritional status, swallowing status* and *body weight-mass*. The desired score was four (slightly compromised).

It was also necessary to develop a mutual agreement through which the objectives of the clients and the treatment were explained, and various means to promote adherence could be used, such as a manual of daily food to be completed by the client, telephone contacts, home visits, referral to other professionals and participation in self-help groups, available at the philanthropic institution where they attend<sup>(6-7)</sup>.

Therefore, the proposed nursing interventions and targets were considered approaches of *secondary prevention*, according to the model of Betty Neuman. This is due to the fact that the treatment of symptoms occurred after the response to stress factors (laryngeal cancer and teletherapy). The approach aimed to reduce the harmful effects of stressors and sought to strengthen the *resistance lines*.

## Impaired skin integrity

The impaired skin integrity diagnosis is defined as "modified epidermis or dermis"<sup>(15)</sup>, evidenced by the presence of erythema, slight skin flaking and edema at the radiation site, in most clients, known as radiodermatitis. Its grades vary, classified according to the scale of the RTOG (Radiation Therapy Oncology Group)<sup>(19)</sup> - Grade I: slight erythema, epilation and dry skin flaking; Grade II: erythema, which may be painful, moist local skin flaking and moderate edema; Grade III: moist skin flaking, confluent, and significant edema and Grade IV: ulceration, hemorrhage and necrosis.

It is noteworthy that all participants in the second and third meetings of the study, were undergoing teletherapeutic treatment. It uses ionizing radiation, which damage the cellular components, with DNA as the main target. Such therapy originates changes in the genetic material or mutation, as well as lead to changes in cell function until its death. Thus, ionizing radiation causes damage to all living, normal and malignant cells, resulting in side effects<sup>(18-19)</sup>.

The radiodermatitis occur with considerable frequency, and affect the well-being of people who are subjected to treatment with radiation. The consequences are numerous and include decreased quality of life due to local discomfort and possible interruption of treatment until healing of the skin in severe cases, which can be detrimental to the cure of the malignant neoplasm<sup>(7,20-23)</sup>.

Intervention established in accordance with the interviewees, which formed the foundation for the nursing targets, and in order to explore the results, occurred through the *conduct of radiotherapy*. The result of the NOC<sup>(17)</sup> established with the customer, was the *tissue integrity: skin and mucous membranes*. The score desired, as they were in teletherapeutic treatment was four (slightly compromised).

In this way, the implemented interventions focused on *secondary prevention* and *tertiary prevention*, according to Betty Neuman's Systems Model, that is, they came after the system reaction to the stressor, provided in terms of corrective actions for existing symptoms, in order to reduce identified harmful effects and to focus on strengthening the *normal defense* and *internal resistance lines*. *Tertiary prevention* occurred after treating the system through strategies of *secondary prevention*, and its purpose was to keep the system well-being and/or protect its reconstitution<sup>(9)</sup> (avoid increasing the radiodermatitis Grade), by implementing an active treatment plan that emphasized the rehabilitation and the use of available resources.

## Fatigue

The fatigue nursing diagnosis deals with the "overwhelming and prolonged sense of exhaustion and decreased capacity for physical and mental work at usual level"<sup>(15)</sup>, and can also be described as "a subjective feeling of exhaustion influenced by circadian rhythm, varying as the duration, frequency and degree"<sup>(7)</sup>. This study characterizes it by intense fatigue after teletherapy and increased need for rest, described by the interviewees. The cancer-related fatigue is a problem before, during and after treatment, and can continue to be a problem in cancer survivors<sup>(21)</sup>. Authors also claim that it affects the daily activities of affected people<sup>(18-19)</sup>.

The intervention established with the men of this study, which underpinned the nursing targets, and in order to obtain the results, were through *energy control*. As for the

results of the NOC<sup>(17)</sup> established with the clients were the *energy conservation* and *level of fatigue*. The expected target scores were, respectively, four (often shown) and four (light).

Therefore, the interventions/activities had *secondary prevention* approach, according to Betty Neuman, that is, stemmed after the system reaction to the stressor, provided in terms of corrective actions in relation to the existing symptoms in order to abbreviate identified symptoms, besides focusing on strengthening the *normal defense line*.

## **Anxiety**

The anxiety is "a subjective state in which the individual experiences a feeling of discomfort and restlessness, whose source is often unspecific or unknown to him"<sup>(15)</sup>. Most respondents reported having concern and apprehension about future uncertainties, both economic as the treatment failure and cancer remains or recurs in the near future. Those fears can also generate other intrapersonal stressors for those men, since the flexible defense line was shaken in response to physiological and psychological changes in its structure, being necessary to reconstitute the system by specific nursing interventions at the secondary level, since this level proposes the treatment of symptoms after the perception of the stressor in an attempt to strengthen the internal resistance lines<sup>(9)</sup>.

Studies show that several characteristics specific to cancer and its treatment can affect the mental and physical balance, leading to anxiety, such as limitations in daily activity and loss of self-esteem. The diagnosis of cancer is a catastrophic event in their lives, when they will have to start to deal with anxiety associated with a disease that can be fatal, and side effects from its treatment<sup>6-7</sup>.

The formulated interventions, according to NIC<sup>(16)</sup>, which formed the basis for the nursing targets mutually determined between the men and the nurses-researchers, occurred from the *anxiety reduction*, *improved coping* and *support group*. The results of the NOC<sup>(17)</sup> established with the client, were *anxiety coping* and *level* and the target scores were, respectively, five (consistently shown) and four (light).

Studies show that cancer and its treatment trigger deep emotional impact, remaining many of those feelings suppressed for some reasons not always known, and such effects have a significant psychosocial impact on those individuals and their families<sup>(3,6,18)</sup>. However, only the men themselves are able to feel the depth of those stressors in their lives.

The statements showed a tendency to uncertainty, regarding both the treatment, as the work, common in people with cancer<sup>(7)</sup> and suggest the need for early intervention, that is, *primary prevention*, according to Neuman<sup>(9)</sup>, preventing that such concerns destabilize the system, thus needing to strengthen the flexible defense line<sup>(8)</sup>.

## **Tension of the caregiver role**

This nursing diagnosis is defined as "difficult to play the role of family/significant people caregiver"<sup>(15)</sup> and was proposed due to reports of most respondents regarding their concern with family, about the future capacity and social isolation .

Interventions established with respondents, which formed the basis for the nursing targets, and in order to achieve the results, occurred from the *family support* and *improved socialization*. The results of the NOC<sup>(17)</sup> made with the clients were: *family coping* and *communication*; targeted scores were, respectively, five (consistently shown) and five (not committed).

Thus, the proposed interventions are approaches of *secondary prevention*, as the Betty Neuman's Model, that is, symptoms happened after the reaction to stressors. The action tends to reduce the harmful consequences of stressors and seeks to strengthen the *resistance lines*.

### **Risk of feeling disabled**

The nursing diagnosis risk of feeling disabled is the "vulnerability to the lived experience of lack of control over a situation, including a perception that one's actions do not affect, significantly, a result, which can compromise the health"<sup>(15)</sup>. The risk factors identified in men with malignant neoplasm of the larynx consisted of financial disadvantage, anxiety, cancer and the unpredictability of the course of the disease.

Interventions indicated for the respondents, which supported nursing targets, and in order to achieve the results, constituted by *early guidance* and *advice*. The results of the NOC<sup>(17)</sup> established with the clients were *coping* and *knowledge: cancer control*, target scores were, respectively, five (consistently shown) and five (extensive knowledge).

The implemented nursing interventions and targets constituted in *primary prevention* approaches, according to Neuman's Systems Model, that is, in order to reduce the possibility of meeting with other stressors (not shown by respondents). The aspect addressed to strengthen the *flexible defense line*.

In the search for understanding and coping with the illness, the disease, treatment, financial difficulties and other stressors, the integration of family and social support networks (friends, neighbors and support groups) was essential, for it assisted in the search for solutions in the context of knowledge and beliefs. The disease condition is always connected to the meaning of suffering because of the way the relationship between the body and the *self* is mediated by cultural symbols of religion, morals or spirit<sup>(6,23)</sup>.

Studies show that one of the ways of coping with cancer is directly linked to the strength of faith and religious beliefs<sup>(3,24)</sup>, that is, ways of expressing spirituality. The respondents' statements showed that religion and spirituality were important sources of support and occupied a prominent space in their lives and their families' lives. The relief of suffering happened in that faith allowed transformations in perspective by which the client and his family realize the serious illness.

When observing the data from this study, the clients demonstrated being with the *flexible defense line* little tough, for they showed changes due to physiological, psychological and social changes. Such line was enhanced and aggravated by the identified stressors. In addition to this, the *normal defense line* also appeared shaken, since men with malignant neoplasm of the larynx were trying to adapt to changing circumstances.



In this sense, the clients needed some interventions to enable the confrontation of the identified stressor forces and the reconstitution of the *flexible* and *normal defense lines*, thus protecting the *resistance line* and avoiding system imbalance as a whole. When comparing the results of this study with works done with patients with malignancy in treatment<sup>(3,4,6)</sup>, those works corroborate this research.

It is noteworthy to mention the limitations of the study, because, although covering the experiences of men with laryngeal cancer, this is not an absolute reality for all those who are living with the chronic condition and its treatment. The unpredictability of the course of the chronic illness may bring other charges and conflicts that should be considered and evaluated by health professionals to assist the individual with cancer and his/her family in direct actions to achieve the desired therapeutic success.

## FINAL THOUGHTS

In general, for man, the impact of diagnosis and treatment has focused on interactions, in the views of the world and himself, built over a lifetime. However, the confirmation of a serious and stigmatizing disease, such as cancer, was the triggering factor of feelings denoting suffering. One was concerned, primarily, to maintain the system stability through a thorough investigation of environmental stressors and other stressors and aid those men in order to maintain their optimal health.

In this study, the theoretical framework adopted, admittedly used to guide nursing practice in several areas, set up as an important exercise of capabilities analysis, revealing the group effort of nurses regarding the practical application of nursing theories, once it requires understanding them in relation to the essential conceptual components, of form, context and process, allowing the use of theoretical models according to the specific needs of customers who will receive the care, putting into practice the nursing process in an optimal and integral manner. The Neuman's Systems Model is considered a realistic model for its structure focused on the needs and causality.

The presence of stressors in customers affected by laryngeal cancer led to a reflection, by the authors, on the nurse's role as caregiver, who is often directing the care to the disease and not to the person. It also led to conjecture on the role of the family, who is responsible for the moral obligation to provide emotional support to the man in such delicate moment.

Thus, many of the customers' needs can be met without costs; only with attention and dialogue. One of the challenges of nurses is to provide humane care for men with malignancy focused on the attention and dialogue, relying on an adequate scientific method.

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