

Nursing Approach Based on the Roy Adaptation Model in a Patient Undergoing Hemiglossectomy Surgery for Tongue Cancer

Dil Kanseri Nedeniyle Hemiglossektomi Olan Bireye Roy Uyum Modeline Temellendirilmiş Hemşirelik Yaklaşımı

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Cite this article as: Gürlek Kısacık Ö, Çiğerci Y. Nursing approach based on the roy adaptation model in a patient undergoing hemiglossectomy surgery for tongue cancer. HEAD 2019;16(3):268-275.

Ethics Committee Approval: Ethics committee approval was received for this study from the Aiyon Kocatepe University Clinical Research Ethics Committee (04.07.2017; 2017/04-28).

Informed Consent: Verbal informed consent was obtained from patient who participated in this study.

Peer-review: Externally peer-reviewed.

Conflict of Interest: No conflict of interest was declared by the author.

Financial Disclosure: The author declared that this study has received no financial support.

Etik Komite Onayı: Bu çalışma için etik komite onayı, Aiyon Kocatepe Üniversitesi Klinik Araştırmalar Etik Kurulu'ndan alınmıştır (07.04.2017; 2F017/04-28).

Bilgilendirilmiş Onam: Çalışmaya katılan olgudan bilgilendirilmiş sözlü onam alınmıştır.

Hakem Değerlendirmesi: Dış bağımsız.

Çıkar Çatışması: Yazar çıkar çalışması olmadığını beyan etmiştir.

Finansal Destek: Yazar bu çalışma için finansal destek almadıklarını beyan etmiştir.

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ABSTRACT

The Roy Adaptation Model (RAM) is a model directly related to the nursing process. It provides a practical framework for the planning, implementation, and evaluation of nursing care. Roy's model is thought to be able to contribute to the nursing care of the individual who has undergone a hemiglossectomy. This article aims to explain the nursing care based on RAM given to a patient who had undergone a hemiglossectomy for tongue cancer and to assist nursing professionals in planning patient care. A case study of a 73-year-old female patient who had undergone a hemiglossectomy was prepared on the basis of medical documentation, an interview with the patient, and direct observation. The model's four areas of adaptation (physiological, self-concept, role function, and interdependence) were evaluated, and care problems which can be resolved by nursing care were identified. For each problem identified, analyses were conducted on stimuli that are in the conceptual framework of the model and could limit the ability of the individual to adapt. Each care problem identified for the patient was expressed using NANDA-I nursing diagnoses, and the nursing care of the patient was planned with the nursing process method. RAM is thought to be able to contribute to the nursing care of an individual who has undergone hemiglossectomy.

Keywords: Hemiglossectomy; nursing care plan; Roy Adaptation Model; tongue cancer.

Öz

Roy Adaptasyon Modeli (RAM) hemşirelik süreci ile doğrudan bağlantılı bir modeldir. Bu nedenle, hemşirelik bakımının planlanması, uygulanması ve değerlendirilmesi için pratik bir çerçeve oluşturmaktadır. Bu makalenin amacı, dil kanseri nedeniyle hemiglossektomi olan hastanın bakımında Roy Adaptasyon Modelinin (RAM) kullanımını açıklayarak, hasta bakımının planlanması konusunda hemşire yol gösterici olmaktır. Dil kanseri tanısıyla hemiglossektomi olan 73 yaşındaki bayan hasta için RAM'in hemşirelik bakımında kullanımını açıklayan bu vaka çalışması, hastadan sözlü ve yazılı izin alındıktan sonra hasta ile yapılan görüşme, gözlem yöntemi ve hastane kayıtlarından elde edilen bilgiler temelinde geliştirildi. Modelin dört uyum (fizyolojik, benlik kavramı, rol fonksiyon, karşılıklı bağımlılık) alanında hastanın verileri değerlendirilerek, hemşirelik bakımı ile çözüme ulaştırılabilecek bakım problemleri tespit edildi. Belirlenen her bir problem için, modelin kavramsal çerçevesinde yer alan ve bireyin uyum yeteneğini sınırlandırabilen uyarılara ilişkin analiz yapıldı. Hasta için tespit edilen her bir bakım problemi NANDA-I hemşirelik tanıları kullanılarak ifade edilip, hemşirelik süreci yöntemi ile hastanın hemşirelik bakımı planlandı. RAM'in hemiglossektomi uygulanan bireyin hemşirelik bakımına katkıda bulunabileceği düşünülmektedir.

Anahtar kelimeler: Hemiglossektomi; hemşirelik bakım planı; Roy Adaptasyon Modeli; dil kanseri.

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Cancer, which is an important health problem today, is becoming increasingly prevalent both in Turkey and around the world. According to Globan data that was published in 2012 by the International Cancer Agency (IARC), it was estimated there were 14.1 million new cases and 8.2 million deaths, and 28 million patients with cancer overall in the world.⁽¹⁾ According to the cancer statistics in 2016, about ninety seven thousand men, sixty two thousand women and one hundred fifty nine thousand people suffer from cancer in total each year in Turkey.⁽²⁾ Oral and orofarangeal area cancers are the sixth most frequent types of cancer in the World.⁽³⁾ These types of cancers, along with the increasing incidence of an important disease group all over the world, 5000 new cases are added to the case of oral cancer every year.^(4,5) Tongue cancer is the most common type of cancer in the head and neck region. The anterior two thirds of the tongue is the most common site of oral cancer and constitutes about 40% of the cases of tongue cancer.⁽⁵⁾ In the United States, while oral cavity and pharyngeal cancers are constitute about 3% of new cancer cases in men, tongue cancer is most important types which constitute 40% of these cancer.^(3,6) Although tongue cancer is often seen in men over the age of 50 years, it is stated that there has been an increase in the proportion of young patients in recent years.^(4,7) Although there is limited data regarding head and neck cancer incidence in Turkey, in a study conducted by Başak et al.,⁽⁸⁾ the incidence of tongue cancer was 2.5% in men and as 1% in women was identified. According to Health Statistics Yearbook 2016 of Ministry of Health, the incidence of tongue cancer was 0.8% in males, 0.5% in females.⁽²⁾

One of the methods used in the treatment of tongue cancer is hemiglossectomy. This method causes a number of functional complications involving a deterioration of the patient's ability to swallow, chew and talk. These functional complications can be further exacerbated for patients especially in environments where the activities of eating, drinking and communication are most necessary, and they therefore affect patients' quality of life in a negative way. These losses of function due to the disease and the surgery cause life changes that require physical, psychological and social adaptation.^(9,10) Nursing care has an important place in helping the individual adapt to the changes experienced.⁽¹¹⁻¹³⁾ Following tongue cancer surgery, the purpose of the nursing care provided to the patient is to protect the patient from complications such as hemorrhage and infection which may occur due to the surgical intervention, as well as to improve the patient's ability to with to swallow, chew and speak, to assist in his/her adaptation to treatment, to enable daily life activities to be carried out and to improve quality of life.⁽¹⁴⁾ The nurse has important roles and responsibilities in fulfilling all these goals.

It is important to use models in nursing care in order to bring a scientific perspective into nursing and to guide nursing practices.⁽¹⁵⁾ The development and use of models in nursing discipline is a continuously growing field. The use of nursing models in clinical practice provides the opportunity for nurses to have more autonomy and responsibility in their practices.⁽¹⁶⁾

Nurses' providing holistic care in the care of patient is very important. Nurses can achieve in providing holistic care only with the use of nursing models. By using nursing models, basic concepts and relationships between concepts are determined, problems are identified and solutions can be developed. However, the use of nursing care models makes an important contribution to nurses in terms of providing an integrated and systematic care for patients.^(17,18,19)

Roy Adaptation Model (RAM) is one of the most commonly used conceptual frameworks in nursing practice, education and research; it guides nursing practices and can be applied to different nursing areas.⁽²⁰⁻²³⁾ The model emphasizes that the most important goal of nursing is to facilitate the adaptation of the individual, focuses on the adaptation of the individual to a changing environment, and guides evaluation of the individual's adaptation.⁽²⁴⁾ The model provides a solid and comprehensive theoretical perspective to nurses, especially in studies about the results of various medical treatments.⁽²⁵⁾ RAM provides the opportunity for nurses to evaluate their patients in an accurate and systematic way. Thus, it makes it possible to understand the personal and environmental factors which may affect nursing care at an early stage, and to provide individualized and holistic care at the same time.^(18,23-25)

Structuring the nursing care of patients who have undergone surgery for tongue cancer according to RAM facilitates the adaptation of these patients, who can suffer from many physical, psychological and social dysfunctions. RAM-based nursing care is a suitable model for patients who have undergone tongue cancer surgery because it focuses on the physiological, psychological and social integrity of individuals.

Conceptual Framework: Roy Adaptation Model

Many different models have been developed by nursing theorists. One of these models is the RAM, whose focal point is adaptation to a disease and the new conditions related to the disease.^(26,27) The five main concepts of RAM are "adaptation", "person", "environment", "health" and "nursing".^(24,28) In the model, the terms are defined as follows: adaptation is the most important goal of nursing care; the person is a biopsychosocial being in continuous interaction with a changing environment; the environment includes focal, contextual and residual stimuli; health is the result of the adaptation process; and nursing is a body of knowledge, and the adaptation of this scientific knowledge into the practice of nursing. In RAM, the purpose of nursing is to ensure adaptation. Better adaptation during periods of health and disease improves the interaction between the environment and human systems and thus improves health and thus contributes to health, quality of life and end-of-life care.^(17,29)

According to RAM, a person is a biopsychosocial entity in constant interaction with a changing environment and which also has the ability to adapt to environmental stimuli, which can be categorized as focal, contextual and residual.^(29,30) Focal

stimuli are those to which an individual immediately responds; they attract the attention of the individual and cause the development of an adaptive response. Contextual stimuli are all other stimuli that contribute to the effect of the focal stimulus but do not directly cause behaviors, affect events or arise from the internal or external environment of the individual. Residual stimuli are defined as unknown environmental factors that affect the situation but whose effects are unclear. In order to plan nursing care in accordance with RAM, it is important to understand what stimuli are present and how they affect the individual. It is also important to plan care in this direction in order to facilitate the adaptation of the individual.^(17,24,29)

The adaptation of the individual to stimulus requires the use of coping mechanisms. In Roy model, innate and acquired coping mechanisms are classified into two subsystems, the "regulator" and the "cognator" subsystems. The regulatory subsystem includes the individual's neural, chemical and endocrine physical responses, while the cognator subsystem includes the individual's perceptual/information process, learning, decision-making, and emotional reactions.^(17,29-31) Roy defines the responses of the individual into the four modes of adaptation in which an individual uses his/her own coping mechanisms to help them adapt. In the model, the four modes of adaptation are defined as the "physiological mode, the "self-concept" mode, the "role function" mode and the "interdependence" mode.⁽³⁰⁻³²⁾

The physiological mode is related to an individual's physical responses to environmental stimuli and includes nine basic physiological requirements: oxygenation, nutrition, excretion, activity-rest, protection, the senses, fluid-electrolyte balance, and neurological and endocrine functions. The self-concept mode defines the mixture of beliefs and feelings an individual has about him/herself or others at a specific time.^(17, 24,29-32) The self-concept mode is defined in two dimensions, physical and personal. The physical self includes the body image and body sense of the individual while the personal self includes the thoughts, moral and ethical beliefs, and spirituality of the individual. The role function mode defines the roles the individual has in a society and those that society expects him/her to fulfil. The interdependence mode includes the relationships the individual has with other individuals who are important to him/her and the support systems available.^(17,24,29-32)

RAM defines health as the process by which the individual adapts to changes and maintains physical, social and psychological integrity.^(24,32) Roy describes nursing as the process of transferring theoretical scientific knowledge into nursing practice. In the model, the purpose of nursing is to ensure that an individual adapts to a stimulus by focusing on human behaviors in any of the adaptation modes specified in the model.⁽³³⁾ RAM also defines specific nursing activities that distinguish nursing from other disciplines, such as the "nursing process". In the model, the steps of the nursing process are defined as the "assessment of behavior", "assessment of stimuli",

"nursing diagnosis", "goal of setting", "nursing interventions" and "evaluation"(Table 1). In the model, nursing practices should primarily aim to assist adaptation to focal stimuli and secondarily to affecting stimuli. The effectiveness of nursing interventions on the individual is determined by observing behaviors after the interventions. The extent to which an individual's behaviors are oriented towards adaptation demonstrates the effectiveness of the initiatives applied.^(16,24,29,32)

Table 1. The Stages of the Nursing Process in the Roy Adaptation Model

Stages	Description
Step 1: Assessment of Behavior	Collection of objective and subjective data related to the behaviors of the patient resulting from the activation of coping mechanisms associated with the four adaptation modes in the model and determination whether the behaviors are compatible or ineffective.
Step 2: Assessment of Stimuli	Identification of focal, contextual, and residual stimulus that affect behaviors in order to clarify the etiology of problems that need nursing care.
Step 3: Nursing Diagnosis	Analysis of data which results in a statement reflective of the patient's adaptive state.
Step 4: Goal of Setting	Determination of patient's behaviors that indicates the solution to the patient's problems in adapting.
Step 5: Nursing Interventions	Intervention on focal and contextual stimulus to achieve care goals.
Step 6: Evaluation	Evaluation of the effectiveness of nursing interventions.

Aim of the Article

The aim of this study is to explain the use of RAM in the care of a patient who had a hemiglossectomy due to tongue cancer. It thus aims to guide nurses in how to help a patient to adapt, which is the most important goal of the nursing, using a model-based nursing process.

Ethical considerations

Before starting this study, approval was obtained from the Ethics Committee for Clinical Investigations of the Faculty of Medicine at Afyon Kocatepe University on the basis of information obtained from a patient interview, observation and hospital records after verbal and written consent had been obtained from the patient.

The Case

This case study explains the use of RAM in the nursing care of a 73 year-old female patient, Ms. P.G. who underwent hemiglossectomy after a diagnosis of tongue cancer. The patient, who had five children, was living with her daughter and son-in-law and was suffering from hypertension. Her brother had died due to diabetes. Ms. P.G. was illiterate and was a housewife. The patient attended a university hospital in

Table 2. Assessment of Adaptation Modes on postoperative 2nd between 10th day

Physiological Mode	
Physiological Activity	Ineffective / adaptive responses
Oxygenation	Respiration rate 20/min, respiratory sounds normal, no sputum, cough present, tracheotomy was performed to secure the respiratory function of the patient during the operation and 2 drains were placed in the area. Before the swallowing action, the patient was coughing and expressing a sense of breath cut off. Heart rate 80 beats/min, blood pressure 130/70mmHg, palpitation, no arrhythmia, normal circulation, no cyanosis.
Nutrition	On the second postoperative day, intestinal sounds and gas discharge started and enteral nutrition was started with 60 ml of food/30 ml of water by nasogastric tube. On the fifth postoperative day, the patient started oral nutrition, and she stated that she did not want to eat because she could not taste at the same time and she did not have an appetite. Salivary secretion was reduced, swallowing difficulty was present. No nausea-vomiting. Regarding poor oral hygiene, which is important in the development of tongue cancer, the patient has rarely brushed her teeth.
Elimination	On the 3rd postoperative day there was gas stasis and constipation in the patient with no problem in urinary excretion function. The patient was urinating 3-4 times a day, there was no pain or burning sensation while urinating.
Activity and Rest	The patient's response was slow, her activity was limited and she was usually bed-bound. She stated that there was a lack of energy and fatigue. The patient was restless, anxious and nervous because of her condition. She often woke at night and she did not experience regular sleep.
Protection	Skin integrity was normal, pain (level 5) in surgery area.
Senses	Senses of vision, smell, hearing were normal, no sense of taste.
Fluid and electrolytes	Consuming 1-2 liters of fluid a day, proper hydration and balanced
Neurological Function	Consciousness was full, person, place and time orientation was normal, reaction was slow.
Endocrine Function	Methods of coping with stress were inadequate, anxiety was present.
Self-Concept Mode	
Physical Self	Ms. P.G. thought that she would always have something missing since half of her tongue was removed. Due to the hemiglossectomy and tracheotomy, she frequently hid the change in her physical appearance by closing the mouth and covering her neck with cheesecloth.
Personal Self	Ms. P.G. stated that she ruminated about why this disease had happened to her and she felt desperate about the future. She thought that she would never return to health again.
Moral-Ethical Self	She said that she sometimes felt rebellious because of her situation, but she tried to find peace by praying to God and she said that she could now better understand the difficulties of cancer patients.
Role Function Mode	
Primary, Secondary, Tertiary Roles	Ms. P.G. was a mother and grandmother. She lived with her daughter because she had lost her husband, and at the same time she took care of her grandchildren. She thought that it would be a long time before she would be free of the problems caused by her illness. Because of her husband's death, she said that she was a burden to her children. She stated that she thought her son-in-law felt uncomfortable because she lived with her daughter. Ms. P.G. felt bad because she felt tired and exhausted from her illness and she could no longer help people around her; she felt useless.
Interdependence Mode	
Ms. P.G. hardly spoke because her voice was affected by the hemiglossectomy and tracheotomy. After that, she thought that she could not talk to anyone as before, that she would be difficult to understand when communicating with people and she would not be able to use her tongue like before. Ms. P.G. did not make eye contact and she did not want to talk. She felt uncertain and fearful about the future.	

Afyonkarahisar on 13 February 2017 because of the growth of a wound on the left side of the tongue (which she had had for about 1 year) for the last 3 months. It was diagnosed as squamous cell carcinoma of tongue with a size of about 2 cm as a result of a biopsy. As a result of the diagnosis, a hemiglossectomy was performed as a surgical procedure on 14 February 2017. In the family history of Ms. P.G., her husband had had hypertension and her brother had had diabetes. The patient had no allergies to any known substance and there was no smoking or alcohol use, which are among the major etiologic factors in the diagnosis.

In the first stage of the study, objective and subjective data on the evaluation of the patient's behaviors resulting from the

copying mechanisms associated with the four adaptation modes in the model were obtained (Table 2). In the second stage, the stimuli defined as focal, contextual, and residual stimuli in the model-which caused specific behaviors in the patient and affected her adaptation, and which may affect nursing care, were defined to determine the etiology of the patient's problems. In the third stage, the level of the patients' adaptation according to the RAM was determined and nursing diagnoses were made from the data collected. The nursing diagnoses for Ms. P.G. in the four modes of adaptation of the model were determined and are presented in Table 3. In the fourth and fifth stages, the nursing goals and nursing interventions were determined. The effectiveness of the nursing interventions was evaluated by the observation of the patient's behaviors after the interventions

made in the previous stage of the study. The RAM-based nursing care plan for Ms. P.G. is presented in Figures 2,3,4 and 5.

Table 3. Ms. P.G.'s Nursing Diagnoses⁽³³⁾

Physiological Mode Nursing Diagnoses
• Acute pain related to previous surgery and anxiety (00132)*
• Impaired swallowing related to decreased saliva secretion, chewing difficulty and tracheotomy as secondary diagnosis (00103)*
• Impaired oral mucous membrane related to physical changes due to previous surgery and changes in nutritional patterns (00045)*
• Imbalanced nutrition: less than physical requirements related to loss of taste and appetite (00002)*
• Constipation related to changes in nutrition, secondarily to a lack of activity (00011)*
• Disturbed sleep pattern related to cancer diagnosis, surgery and anxiety (00198)*
• Impaired physical mobility related to reluctance to move, pain and fatigue due to cancer diagnosis and surgery (00085)*
• Risk of infection related to invasive procedures (surgery, drain, tracheotomy) and hospitalization (00004)*
Self-Concept Mode Nursing Diagnoses
• Body image disturbance related to loss of a part of the tongue due to surgical intervention and tracheotomy (00118)*
• Anxiety related to future uncertainty and fear of death (00146)*
Role Function Mode Nursing Diagnoses
• Ineffective role performance related to cancer diagnosis and treatment process (00055)*
Interdependence Mode Nursing Diagnoses
• Impaired verbal communication related to hemiglossectomy and tracheotomy (00051)*
• Risk of interrupt family processes related to the treatment process, and inadequacy of the support system as secondary diagnosis (00060)*

*NANDA International, Inc. Nursing Diagnoses: Definitions & Classification 2015–2017.

Application of the Roy Adaptation Model-Based Nursing Care Plan

Assessment of Behavior: Behaviors are classified into four categories; the physiological, role function, self-concept, and interaction modes. The evaluation of Ms. P.G. in terms of the the modes of adaptation is presented in Table 2.

Assessment of Stimuli: At this stage, the focal, contextual, and residual stimuli were identified in the four adaptation modes in the model (Figure 1,2,3,4,5). The patient underwent hemiglossectomy and accompanying tracheotomy due to tongue cancer and these were the focal stimuli for the patient. Given these focal stimuli, for Ms. P.G., hoarseness, impaired speech and communication and difficulties with nutritional activities such as tasting, chewing and swallowing could be listed as contextual stimuli. Previous experiences that the individual was not aware of, as well as her perceptions and beliefs about the physical changes related to the hemiglossectomy

and tracheotomy and the treatment were the residual stimuli.

Determination of Nursing Diagnosis: After an assessment of the behaviors and stimuli in the four adaptation modes in the model, nursing diagnoses for Ms. P.G. were determined with regard to the physiological, self-concept, role function and interdependence modes (Table 3).

Conclusion

In this article, the nursing care based on the Roy Adaptation Model given to a patient who had undergone hemiglossectomy for tongue cancer and to assist nursing professionals in planning patient care was described. Hemiglossectomy causes a loss of function for the individual suffering from the disease, resulting in life changes that require physical, psychological and social adjustment. Since the care provided according to the Roy Adaptation Model handles individuals in a physiological, psychological and social integrity, it is a convenient model for patients patient who had undergone hemiglossectomy.

The use of the Roy adaptation model in nursing care enabled the identification of problems that formed the basis of nursing care of Ms. P.G. who had maladaptive behaviors in terms of hemiglossectomy and the stimulus in four adaptation fields that constituted the etiology of these problems by the nurse who cared Ms. P.G., thus guiding the nurses on which interventions should be focused on nursing care of Ms. P.G. and to individualized care so that the patient is able to regain well-being. Nurses using this model are also helped to develop therapeutic communication and observation skills so that they can make judgements about a patient's behaviors and integrate these into the nursing care plan.

As we have seen, RAM is a model directly related to the nursing process. For this reason, it provides a practical framework for the planning, implementation and evaluation of nursing care. Positive results will be obtained with the development of the individualized interventions by the nurse to help individuals who have undergone hemiglossectomy due to tongue carcinoma adapt to their new situation. In this context, it is thought that RAM is able to contribute to the nursing care of the individual who have undergone hemiglossectomy. However, the use of models in nursing care requires the ability to interpret the relationship between intangible concepts, in this study, the nursing care was structured according to the Roy Adaptation Model had required the analysis of each expression and behavior of Ms. P.G. had to be analyzed and integrated into the nursing care plan via associating with concepts of the model. For this reason, the structuring of nursing care according to a particular model requires a special education and effort for this area, observation and therapeutic communication skills for nurses working in the clinical field. In this respect, it is suggested to increase the number of samples that can guide nurses through sample cases and to use widely in practice for the use of theories in nursing care.

Figure 1. The use of Roy Adaptation Model in a patient undergoing hemiglossectomy

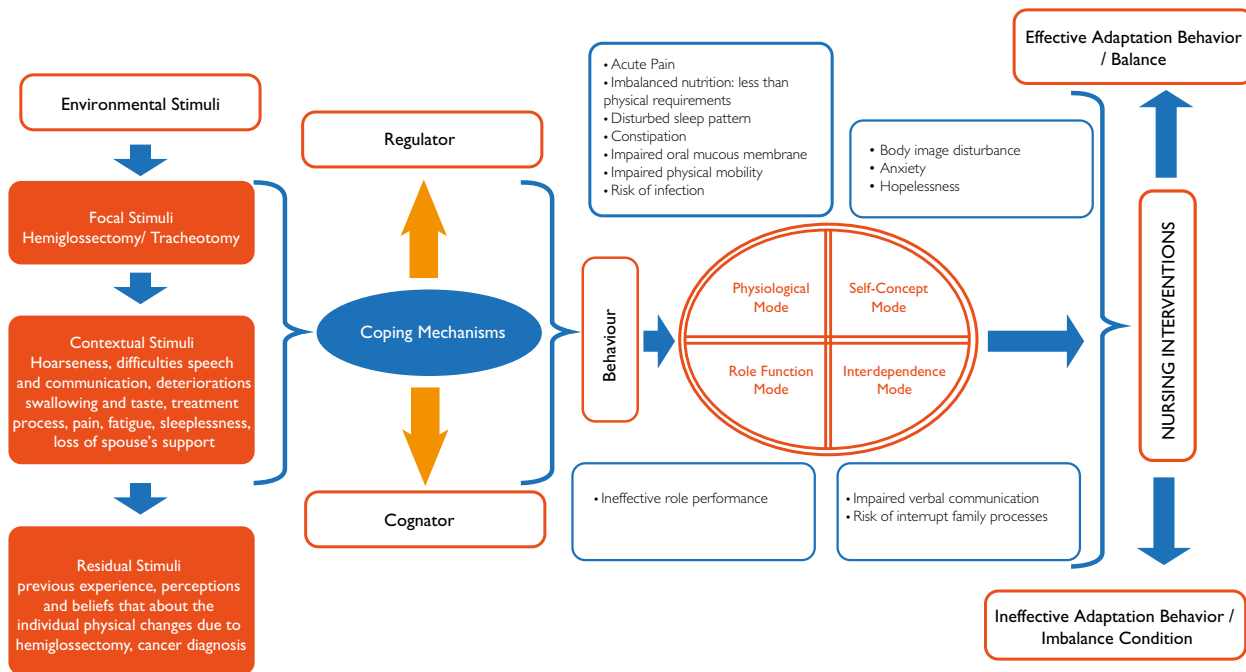


Figure 2. A Nursing care plan sample for the physiological mode: Ms. P.G.

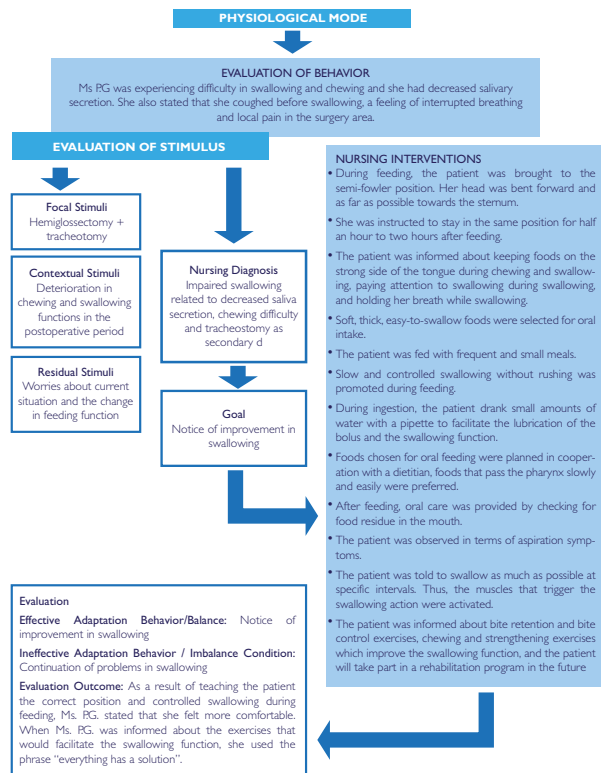


Figure 3. A nursing care plan sample for the self-concept mode: Ms. P.G.

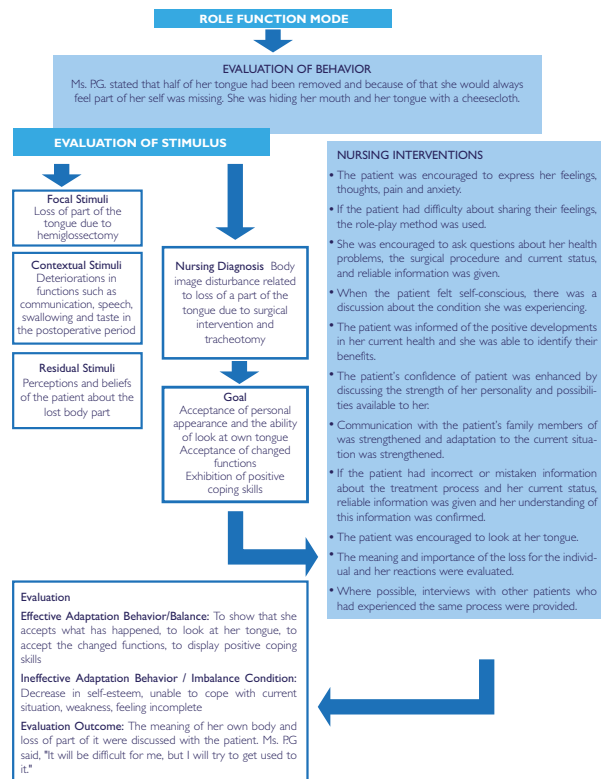


Figure 4. A nursing care plan sample for the role function mode: Ms. P.G.

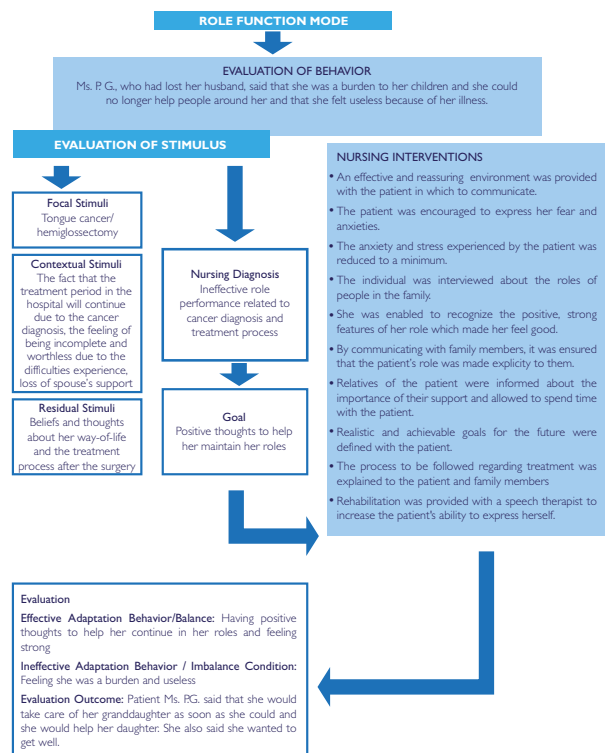
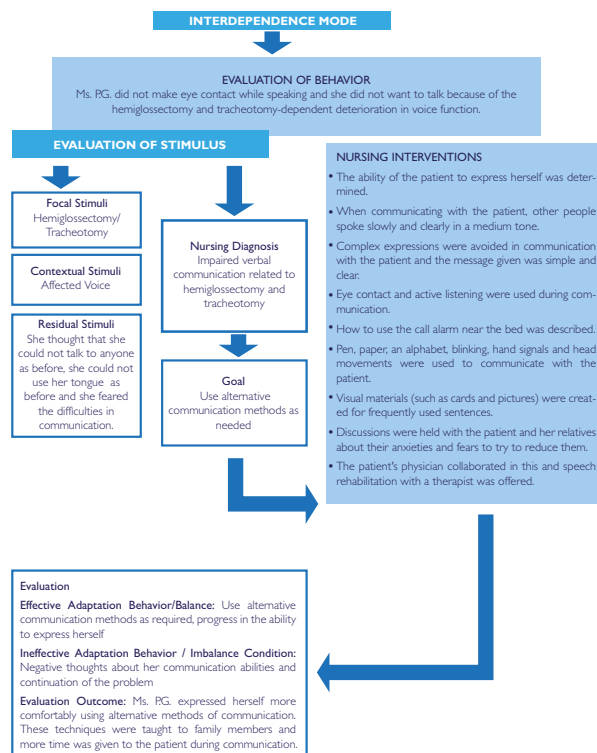


Figure 5. A nursing care plan sample for interdependence mode: Ms. P.G.



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