Designing and Development of a Nursing Care Plan Based on Johnson’s Behavioural Model in Patient with Carcinoma of Larynx: A Case study

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This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Behavioural model can be very easily applied in the clinical settings and nurses will be able to design and implement an appropriate nursing care planning using Johnson’s behaviour model in patients with carcinoma of larynx.

Aim: The aim of this paper was to investigate the application clinical function of Johnson’s Behavioural model in a patient with carcinoma of Larynx in a clinical setting.

Methodology: This is a case study, in which nursing process has been used in accordance with the Johnson’s Behavioural model applied in Mr.X who is affected with cancer of Larynx.

Result: After implementing Johnson’s Behaviour model in nursing process, the researcher achieved the goal easily. This case study was a very successful on application of Johnson’s Behaviour model.

Conclusion: Johnson’s behaviour model is related to a person’s environment and can be used in a clinical setting as a frame work for identifying the problems of a patient and helps in evaluating the quality of nursing care. The patient who has been studied in this paper reveals the application of Johnson’s Behaviour model in a clinical setting.

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1. INTRODUCTION

The Behavioural Systems model which is composed of interactive and interdependent units observes human being as a “living open behavioural system”. The individual is a collection of behavioural subsystem that interrelated to form a behavioural system. The system is comprised of seven subsystems a) Aggressive-protective b) Achievement c) Affiliative d) Ingestive e) Eliminative f) Dependency g) Sexual. So the behaviour is considered as the system not the individual. Each of these subsystems can be can be described and analysed in the view of structural and functional requirements.

The system functions are regulated by the person’s age, sex, motivation, values and beliefs. Structural elements include

a) The drive or goal (direction and strength),
b) Set (behavioural response pattern),
c) Choice (behavioural alternatives available),
d) The action (behaviour applied).

The functional requirements for each subsystem are nurturance, protection, and stimulation. These functional requirements, also termed sustenal imperatives.

Nurses using the model believed that an additional area of behaviour needed to be addressed [1,2]. So a new subsystem also added, ie the eighth subsystem, restorative. The main components or the Metaparadigm of the theory includes, individual, nursing, environment and health. In the theory, theorist assumes the individuals as a behaviour system, with the following characters such as repetition, regularity, prediction, and goal orientation [6]. These characters focusing towards balance and that cause a relationship with the environment. Environment can be internal or external, that includes all factors which is related to individual’s behavioural system and it affect the system as well [7].

Health is considered as stable and well balanced behavioural system. Nursing is an external force that organises the behaviour of the individual. Nursing activities does not depend on physician’s interventions [3]. Medicine views a person as a biological system and nursing views as a behavioural system, because of this, the theorist consider nursing is unique from medicine. In this theory, nursing process is used when there is a sudden change in the environment (internal or external) which may lead to alteration in performance. Johnson believes that initial nursing intervention starts when pressure symptoms or lack of balance is observed [4]. Theorist considered nursing as an external adjustment factor, rather emphasizing on nursing process levels [3].

In behavioural model’s view, nursing diagnosis is of four categories: dominance, incompatibility, insufficiency and discrepancy. Nursing interventions are planned based on the above four categories of nursing diagnosis. These interventions include providing subsystems by external mechanisms of facilitation, inhibition, restriction and defend [5].

2. CASE PRESENTATION

2.1 Patient Profile

Mr. X is a 62 year old man, with a graduation in mathematics that is conscious and well oriented of time, place and person. He went to a multidisciplinary hospital on 27 February 2021 accompanied by his son, with the symptoms of cough, dyspnoea on exertion, reduced appetite and changes in voice. He is a known case of hypertension and diabetic since 15yrs and 8 yrs respectively and he is on regular medications for the same. As per his son, hoarseness in voice was noticed from 2 week. Followed by the diagnostic evaluation, he got confirmed as Ca. Larynx. He has undergone Total Laryngectomy on 9th March 2021. Followed by the surgical procedure, he reported severe pain on VAS (Visual Analogue Scale) 8 score. Patient was not willing to adequate food and his appetite was reduced. The patient weighs were 70 kg and had lost 4 kg in the past 3 months. He had three children (a 37-year-old girl, 32-year-old boy and 25-year-old boy) and he lives with his younger son. His wife was retired from service and she is caring for him. The patient had a completely non standard diet in the past 2 years ago, due to obesity; as a result, he developed stomach ulcers and get treated with medications and a recent endoscopy showed he is in a better condition. One of his problems was loss of appetite and eating less because of the disorder. He complains about excessive fatigue, numbness, constipation due to inadequate dietary intake form a week before admission to
the hospital. The results of his laboratory investigations are shown in Table 1. A review of the subsystems is shown in Table 2 and components of subsystems are shown in Table 3. The study was carried out at the tertiary care hospital in March 2021.

2.2 Application of Nursing Theory - Johnson’s Behavioural Model

The nursing process in an elderly man with Carcinoma of Larynx, based on Johnson’s Behavioural Model, is as follows:

2.2.1 Nursing diagnosis 1

Acute pain (neck) related to surgical incision (Insufficiency in protective and aggressive subsystem) as evidenced by guarding behaviour and verbal reports of the bystander.

Goal: Get relief from pain related to the surgical intervention.

Measures: 1. Monitor for pain using VAS - Visual Analogue Scale (defend), 2. Provide comfortable devices (inhibit), 3. Give pain relief medications as prescribed by the doctor (facilities).

2.2.2 Nursing diagnosis 2

Imbalanced nutrition less than body requirement related to anorexia, cough as evidenced by decreased food intake, reduction in weight.

Goal: Mr. X will achieve and maintain adequate nutritional status.

Measures: 1. Monitor the nutritional status (facilities), 2. Monitor fluid and electrolytes (facilities), 3. Check the weight daily (facilities), 4. Request the family to provide food according to his likes and dislikes (facilities), 5. Consume small and frequent diet (inhibit).

2.2.3 Nursing diagnosis 3

Constipation related to reduced intake dietary fibres as evidenced by verbalisation, infrequent bowel emptying.

Goal: Mr. X will report normal bowel movements and presence of flatulence at least once in every two days.

Measures: 1. Monitor the pattern of elimination (inhibit), 2. Evaluate the activity of the patient and type of diet he consumes (inhibit), 3. Request the patient to consume plenty of fluids, vegetables and fruits (inhibit), 4. Increase physical activity (inhibit), 5. Avoid gas forming foods (inhibit), 6. Administer laxatives as prescribed by the physician (inhibit).

2.2.4 Nursing diagnosis 4

Disturbed sleep pattern related to pain as evidenced by drowsiness during day.

Goal: Mr. X will have adequate sleep for at least 7 hours a day.

Measures: 1. Provide a quiet and dark environment (facilities), 2. Drink warm milk before bed time (inhibit), 3. Avoid caffeinated drinks before bed (inhibit), 4. Avoid distraction (restricted).

2.2.5 Nursing diagnosis 5

Deficient knowledge regarding low salt diet as evidenced by frequent questioning.

Goal: Mr. X will name at least two foods that are harmful to hypertension and know the side effects of salty foods, and follow a low salt diet.

Measures: 1. Educate about DASH diet (inhibit), 2. Training on complications of hypertension (inhibit).

Table 1. Laboratory test results

| Lab test            | Normal range       | Patient’s value |
|---------------------|--------------------|-----------------|
| Haemoglobin         | Men: 13.5-17.5gm/dl| 13gm/dl         |
| Platelet count      | 1.5-4.5Lakhs/mm³   | 2lakh/mm³       |
| FBS                 | 70-110mmol/L       | 98mmol/L        |
| Sr. Sodium          | 135-145mEq/L       | 140mEq/L        |
| Sr. Potassium       | 3.5-5.2mEq/L       | 4.5mEq/L        |
| WBC                 | 5000-10000ml/mm³   | 8000ml/mm³      |
| C- Reactive Protein | Less than 6.0      | +2              |
### Table 2. Investigating subsystems

| Subsystems                  | Instable behaviours                                                                 | Stable behaviours                                                                 |
|-----------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| **Aggressive/Protective**   | Mr. X feels severe pain in the operated area                                         | Normal findings in the endocrine, nervous, skin, hair, nail and musculoskeletal system. |
| **Drive**: Protecting the patient and others from potential risk factors and dangers. |                                                                                     |                                                                                  |
| **Function**: Identify biological, environmental and potential risk factors for the patient |                                                                                     |                                                                                  |
| **Achievement**             | Due to hospitalization, he was worried and upset. He has difficulty in sleeping and sleeps 4-5 hrs a day. During the day he feels tired and lethargic due to insufficient sleep and diabetic neuropathy. | To control his diabetes, he was able to visit a doctor and following a diet and medication. Sleep disorders also resolved by actions such as creating a quiet and dark setting, drinking warm milk and minimizing distractions. |
| **Drive**: Mastery or control of self or the environment |                                                                                     |                                                                                  |
| **Function**: Establishing appropriate goals, directing behaviour towards achieving that desired goals |                                                                                     |                                                                                  |
| **Affiliative**             | Due to impairment in the communication, the patient need a companion for assistance in communication | Psychiatric examination is normal. Constant companion was provided with client request to meet his needs. |
| **Drive**: Making others aware of their existence. |                                                                                     |                                                                                  |
| **Function**: Provide focused attention, nurturing, physical aids, gaining confidence. |                                                                                     |                                                                                  |
| **Dependency**              | Mr. X was frustrated by the lack of involvement in the treatment process              | Mr. X was asked to participate in the treatment program.                            |
| **Drive**: to relate or belong to someone or something other than oneself and achieving empathy. |                                                                                     |                                                                                  |
| **Function**: Develop and use IPR skills to achieve empathy. |                                                                                     |                                                                                  |
| **Eliminative/Ingestive**   | Mr. X has not had faecal excretion for the past 3 days. Anorexia                      | Renal, respiratory, pulmonary and gastrointestinal system examinations were performed and found normal. |
| **Drive**: Maintain physiological stability by removing a stress. |                                                                                     |                                                                                  |
| **Function**: Maintain physiological stability by repelling and relieving stress, expressing emotions and ideas verbally or non-verbally, and recognising and interpreting the biological system that is readily available for secretion. |                                                                                     |                                                                                  |
| **Restorative**             | Mr. X eats more than half of his food due to the effects of the non-standard diet for the past 2 years and stomach ulcer with a reduction in stool excretion. | GI system examination was normal. After 3 days of hospitalization and care, there was an improvement in eating pattern and bowel elimination. |
| **Drive**: Internalizing the external environment to maintain and integrate the internal environment to satisfy or satisfy appetite. |                                                                                     |                                                                                  |
| **Function**: Continue living through nutrition and correcting inappropriate patters of nutrition. |                                                                                     |                                                                                  |
| **Sexual**                  | Mr. X suffers from sexual dysfunction, such as decreased libido after surgery and impaired parental role. | Mr. X's genital system was examined and it was normal.                                |
| **Drive**: Satisfaction and relaxation in sex. |                                                                                     |                                                                                  |
| **Function**: To develop a self concept or self-identity based on gender, make a meaningful communication that provides sexual pleasure. |                                                                                     |                                                                                  |
### Table 3. Subsystems and its components

| Subsystem                | Drive                                                                 | Set                  | Choice                                                 | Action                                                                                           |
|--------------------------|------------------------------------------------------------------------|----------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Aggressive/ Protective   | Reduce the patient’s pain. Achieve a score of 3 out of 10 in VAS      | Family and nurse support | Accept interventions given to reduce pain              | Nurse monitor pain on VAS, and applies distraction techniques, applying cold compress, giving analgesics |
| Achievement              | Have a comfortable sleep at least 7 hrs/ day                           | Family support       | Accept interventions given to improve the quality of sleep. | Nurse provides a calm, dark and non stressful environment and gives his wife training on actions to enhance sleep. |
| Affiliative              | -                                                                     | -                    | -                                                      | The nurse at the hospital and his wife at home give him the training and the emotional support he needs to overcome the stress |
| Dependency               | To relieve the discomfort and depression of the client. To accept the complications of the disease | Family and nurse support | Accept the complications of the disease and existing conditions which are transient and treatable conditions, and participate in health and personal actions until full independence | The nurse at the hospital and his wife at home give him the training and the emotional support he needs to overcome the stress |
| Eliminative/ Ingestive   | Reduce abdominal flatulence, relieve constipation, and have bowel movements for at least once in two days | Family and nurse support | Accepts the necessary training to improve excretion. | Nurses provide necessary interventions like consuming plenty of liquids, fruits and vegetable, recommends increasing the activity and avoiding gas forming foods. |
| Restorative:             | Show more interest in eating                                           | Family and nurse support | Adopts necessary training to increase food intake      | Mr. X's family will decorate his favourite food and the nurse will provide a relaxed setting top increase appetite and provide with small quantity of food. |
| Sexual:                  | Demonstrate that family members adhere to the absence of the person and interact positively with them | Family support       | Accept the disease and implement training and remedies. | Nurse provides the information to the wife, like encouraging the expression of emotions and training on ways to adjust and refer to the psychologist. His wife, too aware of his problem and is taking measures to address the deficiency. |

#### 2.2.6 Nursing diagnosis 6

**Goal:** Mr. X will name at least two foods that are most harmful sugars for diabetes, know the side effects of sweeteners, and follow a low-sugar diet.

Deficient knowledge regarding low sugar diet as evidenced by frequent clarifications.
Measures: 1. Educate about diabetic diet (inhibit), 2. Training on the complications of hyperglycemias due to non-compliance with diet (inhibit).

3. EVALUATION

Mr. X was received 11 days of nursing care based on behavioural model. He gained sufficient confidence in the health care team and participated in all personal and medical work. After receiving the planned nursing interventions, his pain reduced and he was able to gain adequate strength on the 8th day onward in his activities of daily living, such as eating, brushing and grooming. His sleep disturbance was also reduced. Mr. X’s appetite also improved and lethargy got reduced. Also he attained normal bowel movements and elimination pattern. In the sexual context, his wife was provided with the necessary information, Mr. X was fully conscious of the disease process and its complications, diet and physical activities. He was successful in controlling diabetes and hypertension.

4. CONCLUSION

On application of Johnson’s Behavioural Model, Mr. X has improvement in his sense of self esteem, sleep quality, increased appetite, and improved elimination. The study acknowledge the effect of Johnson’s Behavioural Model on the use of nursing process, which can be utilized in clinical setting and hospital, especially oncology unit, mental health unit as a frame nursing care. In future studies, it is suggested to apply other types of nursing theories to serve as a standard for performance improvement in assessing, diagnosing and planning effective nursing interventions to achieve, maintain and improve patient’s satisfaction.

CONSENT

As per international standard or university standard, patients’ written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Auger J. Behavioural systems and nursing. Englewood Cliffs, NJ: Prentice Hall; 1976.
2. Holaday B. Implementing the Johnson model for nursing practice. In J.P.Riehl & C.Roy (Eds), Conceptual models for nursing practice (2nd ed., pp.255-263). New York: Appleton-Century-Crofts; 1980.
3. Marlin CS, Marilyn E. Nursing theories and nursing practice. F. A Davis Company, Philadelphia; 2015.
4. Ghanbari A, MS. Making theory in nursing. Guilan University of medical sciences publication, guilan, Iran; 2004.
5. Meleis A. Theoretical nursing: Development and progress. Lippincott company; 2021.
6. Samad Karkhah, Mohammad Javad Ghazanfari, Masoumeh Norouzi, Tahereh Khaleghdoust et al. Designing a nursing care plan based on Johnson’s Behavioural model in patients with wrist joint hematoma: A case study, Research Square; 2020.
7. Atefeh Ghanbari, Somayesh Pouy. Designing nursing care program based on Johnson Behavioural model in children with Acute Lymphoblastic leukemia: A case Study, International Journal of caring sciences. 2018;11(1):631-638.