Designing a nursing care plan based on Johnson's behavioral model in patients with wrist joint hematoma: A case study

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Abstract

BACKGROUND

Nurses can diagnose patients' problems using Johnson's pattern of behavior. This model is applicable and nurses can design and implement patient-based care in a clinical setting based on this model. This study was designed to use Johnson's behavioral model in the care of a middle-aged woman suffering from pain, edema and severe left wrist hematoma.

Methods

This study was conducted with the aim of determine the nursing care plan based on Johnson's behavioral model in patient with wrist joint hematoma in Iran since December 27, 2019 to January 4, 2020, on a case referred to Poursina Hospital in Rasht, Guilan Province, Iran. After assessing the patient, we propound seven main nursing diagnoses and planned them in 9 days according to the model.

Results

After evaluating the patient, the care program was implemented based on Johnson's behavioral model. We achieved caring goals after the intervention. Her appetite and sleep were better, and she became aware of the side effects of her lack of diet and care. She made more efforts to self-care. By using Johnson's care system after 9 days of inpatient care, she has improved her sense of independence, range of motion, self-esteem, sleep quality, increased desire for food, improved excretion and constipation, and we adjusted to reduce libido and use complementary therapies to improve it.

Conclusion

This model can be used as a general framework in the hospital to diagnose problems, evaluate and design a care program.

Background

One of the most controversial problems in nursing is the gap between what is taught and what is observed in practice (1, 2). Numerous studies have shown evidence of this gap between theory and practice in nursing. Obviously, there is a clear difference between what is being taught to nurses as clinically valuable ideals and principles and what they are practicing (3, 4). One of the useful actions to elimination this gap is to use theoretical research, in other words, to test these theories in the clinic, which will increase nurses' critical thinking and decision-making when implementing care plans for patients. This will ultimately improve the quality of patient care (5, 6). Applying evidence-based nursing skills in clinical settings to assist nursing students and nurses in identifying existing issues and enhancing
nurses' critical thinking and professional ability is unavoidable (7, 8). The study was based on Johnson's behavioral model, a care plan for a middle-aged woman suffering from wrist hematoma and its complications.

**Johnson's Behavioral System Model**

Johnson's behavioral model was largely influenced by Florence Nightingale's theory. Johnson accepted that part of Florence Nightingale's argument that the first nursing concern and challenge was "the relationship between the patient and the environment, not the disease" (9). Johnson used the results of behavioral scientists' work in psychology, sociology, and racism to develop his theory. The studies that Johnson focused on to introduce his theory have been based on objective and observable behavior (10-12). Johnson conceptualized nursing as a behavioral system that has seven behavioral subsystems, including achievement, affiliative, aggressive, dependence, eliminative, ingestive, and sexual. Each of these subsystems form the mechanism of a similar and comparable biological set-up (9, 13-15). These subsystems have similar components, structure, and performance. Each of these subsystems has components that distinguish them from each other and make that subsystem definable. Structural components are: Drive, Set, Action, Choice. The first component is the purpose of the subsystem that shows the reason, the motivation and the motivation for its behavior. Goals that have different meanings are different to different persons or at different times for one person induce different meanings and are not visible. The second component of the structure is the set or tendency, which is the orderly, and normal behavior that a client prefers to fulfill the Drive of the subsystem. For example: Vegetable soup is consumed by people in some Middle Eastern countries because of its healing properties during illness. Another component of a subsystem's structure is choice. Choices represent the set and repository of options available to a person to meet specific goals (7). In this model, Johnson categorizes nursing diagnoses into a variety of Insuciency, Discrepancy, Incompatibility, Dominance based on the client's problems with these diagnoses. Also, nursing practices in Johnson's behavioral model are divided into types of Restrict, Defend, Inhabit, Facilitate (1, 7).

The nurse, depending on the situation, has chosen a solution that is not easily observed, but can be deduced. Ultimately, Drive, Set and Choice are assessed by direct observation of the client's behavior or performance. The client's performance is visible because it is the response the system has to the stimulus, such as responding to fatigue and sleep (10).

**Introduction to hematoma and its complications**

A hematoma is a collection of blood outside the blood vessels (16, 17), of various types, and is often subdivided into subdural, spinal and articular hematomas, depending on their location. The most common cause of hematoma is trauma. Symptoms of hematoma depend on their location and whether adjacent structures are affected by inflammation and swelling associated with bleeding, which may include headache, dizziness, reduced range of motion, and inflammation symptoms (18). Hematomas are usually absorbed gradually and decrease in size, except in rare cases where their size slowly increases, which is called chronic expanded hematoma (19, 20). Hematoma can also cause irritation and
inflammation. Often, inflammation and swelling can irritate adjacent organs and tissues and cause hematoma symptoms and complications. A common complication of all types of hematomas is the risk of infection. While the hematoma is made of old blood, it does not have blood itself and is therefore at risk for infection with bacteria. Common symptoms of inflammation in the hematoma include: redness, tenderness, heat, pain, and swelling, depending on which organ or tissue is affected. Superficial hematomas of the skin and soft tissue, such as: muscle may be treated with rest, ice, compression, and elevation of the affected limb (18).

Methods

This study was conducted with the aim of determine the nursing care plan based on Johnson's behavioral model in patient with wrist joint hematoma in Iran since December 27, 2019 to January 4, 2020, on a case referred to Poursina Hospital in Rasht, Guilan Province, Iran. After assessing the patient, we propound seven main nursing diagnoses and planned them in 9 days according to Johnson's behavioral model. In this study, consent was obtained in order to use their medical records, and treatment plan.

Results

This case study was conducted on a patient with wrist joint hematoma in Iran since December 27, 2019 to January 4, 2020, on a case referred to Poursina Hospital in Rasht, Guilan Province, Iran. After evaluating the patient, the care program was implemented based on Johnson's behavioral model. To protect patients' privacy, only target data has been reported. There was no material or spiritual pressure on patients and their companions to participate in the study.

1. Patient report

Our study participant, a 50-year-old woman named M.M, with a fifth-grade education who is conscious of time, place, and person, due to left-sided hematoma, with symptoms of severe swelling and pain in the area, on 31 December 2019, she went to the Poursina Hospital with her husband. She had a history of hypertension and diabetes for the past 15 years, as well as anemia for the past 5 years. The patient, following lumbar spine surgery due to a fourth vertebral dislocation, noticed a left forearm hematoma that initially had a hazelnut size that had increased in size, swelling, and severe pain in her forearm since about 5 months ago that was taken to the hospital via his wife. The patient scores his pain based on the VAS 7 score. The patient was hospitalized for 5 days. Pain from right-sided hematoma is unaffected, relieved by pain medication and cold compress prescription, and pain intensified with movement. The patient was reluctant to eat and her appetite was reduced. The patient weighs were 62 kg and had lost 3 kg in the past 5 months. She had two children (a 16-year-old girl and an 11-year-old boy), both of whom live with her and her
husband. His wife was retired and caring for him. The client had a completely non-standard diet in the past 3 years ago, due to overweight, as a result, the stomach ulcer was treated medically for this problem and now the latest endoscopy Client showed better condition than last year's endoscopy. One of her problems was a loss of appetite and eating less, because of the disorder. Her other problem was suffering from excessive fatigue and numbness due to diabetic neuropathy resulting from constipation and inadequate dietary fiber, such as vegetables and liquids, from a week before admission to the first day of hospitalization. She had been pregnant twice. The patient's period was regular and every 28 days. At the age of 48, he became a menopause. The patient had a normal pregnancy twice. Her vaccination record was complete. The results of her experiments are shown in Table 1. A review of the subsystems is also shown in Table 2.

2. Application of Johnson's behavioral model

The nursing process in a middle-aged woman with wrist hematoma, based on Johnson's behavioral model, is as follows:

**Nursing Diagnosis 1:** Pain related to right forearm hematoma.

**Drive:** To calm the patient's condition and report their pain based on VAS from 3 to 7.

**Actions:** 1. Check for pain using the VAS scale (Defend), 2. Deflection (Defend), 3. Priority of the patient's right wrist by placing the pillow (Inhibit), 4. Using cold compresses (Facilities), 5. Give pain relief as prescribed by your doctor (Facilities).

**Nursing Diagnosis 2:** Eating disorder is less than the body needs related to with anorexia.

**Drive:** Make the patient interested in food and eat more.

**Actions:** 1. Check the nutrition status (facilities), 2. Check the status of water and electrolytes (facilities), 3. Checking the client's weight (facilities), 4. Requesting the family to decorate their favorite food (facilities), 5. Consume low volume food frequently (Inhibit), 6. Use of cold compresses (Facilities).

**Nursing Diagnosis 3:** Constipation related to reduced intake of high fiber foods and liquids.

**Drive:** The patient should report abdominal flatulence and have a defecation at least once every three days.

**Actions:** 1. Check defecation (inhibit), 2. Evaluation of activity and type of diet (inhibit), 3. Training on consuming plenty of fluids and fruits and vegetables (inhibit), 4. Recommend to increase activity (inhibit), 5. Not eating foods that cause flatulence (inhibit), 6. consume laxatives as prescribed by your doctor (inhibit).
**Nursing Diagnosis 4:** Sleep Pattern Disorders related to Pain.

**Drive:** The patient should sleep at least 7 hours a day easily.

**Actions:**
1. Investigate the environment, create a quiet and dark environment (facilities),
2. Eat warm milk before bed (inhibit),
3. Training to raise the under head with pillow and use of blinds (inhibit),
4. Lack of thinking about life's problems before bed and distraction (restricted).

**Nursing Diagnosis 5:** Dysfunction in maternal role, spouse related to decreased libido.

**Drive:** Adapt family members to lack of client and role changes by meeting client needs and interacting positively with them.

**Actions:**
1. Encourage expression of emotion and training in coping techniques (inhibit),
2. References to Psychologists (facilities).

**Nursing Diagnosis 6:** Lack of awareness about low salt diet.

**Drive:** The patient will name at least two foods that are harmful to hypertension, know the side effects of salty foods, and follow a low-salt diet.

**Actions:**
1. Teaching Harmful Foods for Hypertension (inhibit),
2. Training on the complications of hypertension due to non-compliance with diet (inhibit).

**Nursing Diagnosis 7:** Lack of awareness of low sugar diet.

**Drive:** Have the patient name at least two of the most harmful sugars for diabetes, know the side effects of sweeteners, and follow a low-sugar diet.

**Actions:**
1. Teaching the patient harmful foods for hyperglycemia (inhibit),
2. Training on the complications of hyperglycemia due to non-compliance with diet (inhibit).

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**Table 1.** The results of client experimental tests

| Normal range | client reading |
|--------------|----------------|
| 5000-10000   | 8000Mill/mm³  |
| Woman: 12-15.5 gr/dL | 11 gr/dL |
| 80-94 fl     | 78 fl         |
| 27-31 Pg     | 26.9 Pg       |
| 135-145 mEq/L| 137 mEq/L     |
| 3.5-5.2 mEq/L| 4.5 mEq/L     |
| 70-110 mmol/L| 400 mmol/L    |
| Less than 6.0| +2            |
Table 2. Investigating subsystems
| **Instable behaviors** | **Stable behaviors** |
|----------------------|---------------------|
| The client feels severe swelling and pain in her left wrist area, that exposes her to trauma and rupture of the hematoma and exacerbates the pain due to lack of proper care. | Normal findings were found in the endocrine, nervous, skin, hair, nail and musculoskeletal systems. |
| Due to movement constraints and hospitalization, she is worried and upset. Therefore, the subsystem is impaired. She has limited mobility and has difficulty sleeping and sleeps 4-5 hours a day. During the day, she feels tired and lethargic due to insufficient sleep and diabetic neuropathy. | The musculoskeletal system and the patient's sleep and rest were assessed and normal. To control his diabetes, he was able to control the disease by visiting a doctor and following a diet and medication. Sleep disorders were also resolved by actions such as creating a quiet and dark setting, eating warm milk before bedtime, teaching raising head with pillow and using blinds and distractions. |
| Due to hand hematoma and limited motor impairment and impaired individual independence, the patient needs a constant companion to assist in restoring individual independence and to assist in some of their personal tasks, such as changing clothes and bathing in bed. | The psychiatric examination was normal. The constant companion was provided with client request to meet her needs. |
| In surveys conducted by the client, she was frustrated by the lack of involvement of the treatment staff in her treatment process and sometimes depressed by her lack of independence. | The client's psychiatric examination was normal and the treatment staff was asked to participate in their treatment. |
| The patient has not had fecal excretion for the past three days. Reluctant to eat. | Renal, respiratory, pulmonary and gastrointestinal systems examinations were performed and client had no problems. Urinary excretion and stools are normal. |
| The client eats more than half of her food due to the effects of the non-standard diet for the past 3 years and stomach ulcers, with movement limitations and with this a reduction in stool excretion. | Gastrointestinal system examination was normal. After 3 days of hospitalization and care, with a partial improvement of the hand hematoma and a movement restriction, he has no problem eating and has normal stool disposal. |
| The client suffers from sexual dysfunction. | The patient's breast and genital system... |
sfaction and Relaxation in sex. To develop a self-concept or / based on gender, make communication that provides sure. such as decreased Libido after menopause and consequently impaired maternal-parental role.

Table 3. Subsystem and its components
| Drive       | Set                          | Choice                                      | Action                                                                                                                                 |
|------------|-----------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| /Protective| Reduce client pain and calmness for her and get a score of 3 out of 10 on the VAS score. | Accept training given to reduce client pain | The nurse examines the client's pain on a VAS scale, and applies distraction techniques, prioritizing wrist placement under the pillow, applying cold compresses, giving narcotic medications to relieve pain as prescribed by a physician. |
| /Ingestive | Reduce abdominal flatulence, relieve constipation, and have bowel movements for at least three days. | Adopt the necessary training to improve excretion | Nurses provide essential training such as consuming plenty of liquids and fruits and vegetables, recommending increased activity, and training non-consuming foods that cause flatulence. |
|             | Show more interest in eating | Adopt the necessary training to increase food craving | The client's family will decorate her favorite food, and the nurse will provide a relaxed setting to increase |
3. Evaluation

What was expected about the case, after 9 days of care based on Johnson’s behavioral model nursing process, the client gained sufficient confidence in the treatment staff and she independently satisfied with participating in personal and medical work. After receiving medical care, her wrist swelling and pain decreased and she was able to gain relative independence on the seventh day onward in her personal work, such as eating, brushing and bathing. she had no movement restrictions on the affected limbs and easily did his favorite work, such as reading a book. Her sleep disorder problem was also remedied by implementing nursing care processes. the client's appetite improved and he did not feel uneasy about eating and had stool disposal. in the context of sexual dysfunction, her husband was also provided with the necessary information about the physiological and natural processes of the body after the necessary training. the client is fully aware of the disease process and its complications, diet and physical activity, and is successful in controlling diabetes and hypertension. she is aware of the consequences of failing to comply with the necessary training, both medicinal and non-medicinal, and strives to maintain and improve his health. The client missed her children, and her husband was asked to raise their spirits, asking the children to pay more attention to their mother.

Conclusion

By using Johnson’s care system after 9 days of inpatient care, she has improved her sense of independence, range of motion, self-esteem, sleep quality, increased desire for food, improved excretion and constipation, also, we adjusted to reduce libido and use complementary therapies to improve it. The study acknowledged the impact of the Johnson Nursing Model on the use of the nursing process, which
can be used in clinical settings and in hospitals, especially orthopedic wards, as a framework for nursing practice. In future studies, it is suggested that researchers apply other types of nursing theories in the clinic and in larger settings and communities to serve as a standard for optimal performance in improving nurses’ performance in evaluating, diagnosing, and taking effective therapeutic actions to maintain, used to improve patient health and satisfaction.

**Declarations**

**Ethics approval and consent to participate**

This study was conducted with the written permission of the Ethics Committee of Guilan University of Medical Sciences (IR.GUMS.REC.1399.070). Verbal and written consent was obtained from the participants.

**Consent for publication**

Not applicable.

**Availability of data and materials**

The datasets used and/or analyzed during the present study are available from the corresponding author on reasonable request.

**Competing interests**

The authors declare that they have no competing interests.

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**Authors’ Contributions**

Study concept and design: **SK, AGH, MJGH, MN.**
Acquisition, analysis, or interpretation of data: **SK, MN, AGH, SMD.**

Drafting of the manuscript: **SK, MJGH, SMD, AGH.**

Critical revision of the manuscript for important intellectual content: **SK, AGH, TKH, ZTE.**

Statistical analysis: **Not Applicable.**

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Administrative, technical, or material support: **Not Applicable.**

Study supervision: **AGH.**

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