

## Case Report

# Enhancing Patient Well-Being: Applying Environmental Theory in Nursing Practice

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- Nursing practice

**Abstract**

Theoretical framework always guides nursing practice and nurses follow this unconsciously. This paper highlights the work of Florence Nightingale who, identified the application of environmental theory in nursing practice. Nightingale has defined 13 canons of environment and explained each aspect in detail. Her major canons include: ventilation, noise, cleanliness of walls/rooms, light, bed and bedding, personal cleanliness, and taking food. Nightingale has beautifully described the effect of application of her theory. The theory when applied, yields a positive impact on patient's health. The learning outcomes of this research will help the people in medical science to understand the correlation between environmental theory and nursing practices for the wellbeing of patients. And if one is failed to apply all of the concepts in clinical area then it can lead to delayed recovery of the patient.

**ABBREVIATIONS**

bpm: Beats per minute ; PACU: Post Anesthesia Care Unit

**INTRODUCTION**

Individuals are at the weakest points of their lives when facing sickness or ill health. Nurses are considered as the backbones of the hospitals. They assist the patients in every activity that contributes to their health, recovery or a peaceful end of life experience. Nurses irrespective of any cast, creed or discrimination whole heartedly provide patients with maximum assistance to regain their independence and health. According to Florence Nightingale's theory, environment plays a major role in patient's early recovery. This requires nurses to alter the scenario in favor of patient's health and help them get their physical, physiological and social stability back. A similar scenario was observed in a clinical setup that fully incorporates Nightingale's theory into practice and shows how critically it affected patient's wellbeing and recovery.

**CASE PRESENTATION**

A 71-year old female patient was received in post anesthesia care unit (PACU). The patient was living alone with her care taker, partially dependent on the caregiver, with a superficial background in education i.e. up to primary level. She had diabetes, hypertension and asthma. The patient was presented in the hospital with the complaint of abdominal pain and an inability to defecate for two days. She was diagnosed with intestinal obstruction and procedure laparotomy and end to end anastomosis was performed. In PACU she was semiconscious

breathing on 5 liters of oxygen via facemask, cold and shivering and had multiple invasive lines including a central venous catheter (CVC), arterial line, an epidural catheter and other peripheral lines. Immediately blanket was given to keep the patient warm. Since the patient's surgical site was on the abdomen, an abdominal binder was applied. On patient's arrival to PACU, she has been given painkillers and the necessary medication to achieve a fully comfortable recovery. However, the patient was irritable due to pain and also indicated problems with noise in the surrounding. The nurse administered additional drugs for pain and also started pain killer via epidural catheter. However, the patient was hypertensive and continued to complain about pain despite the administration of all analgesics. She asked the on-call resident to assess the patient. It was assessed that the abdominal binder was so tight that it was irritating her. The nurse immediately loosened the binder and then patient reported less pain on her surgical site.

The nurse could not find any other evidence of physical distress and assumed the patient to be comfortable and satisfied. However unfortunately, later the patient could be heard shouting continuously and asking everyone not to talk so loud. She stated that "why everyone is talking so much here? Is this a hospital or a market?". Upon observing this, the nurse realized the noise complain and that the patient needs a quiet place to rest peacefully. Nurse also noticed the foul smell in her area. When she checked the patient, she came to know that patient has passed stool. But she got busy with another patient and the care was delayed. After a while she cleaned the patient, replaced the patient's dress and provided her with neat and clean sheets.

Since the bin near the patient was now full with soiled products, the nurse sprayed an air freshener in patient's area. Soon after the spray, the patient has an asthma attack and complained about shortness of breath. The PACU is a closed room setting and it was a challenge to tackle this situation. Nurse increased the rate of flow of oxygen and gave her assurance that she will be fine. However, despite proper nursing care, the patient was not satisfied. Further investigation was ordered and the patient had an x-ray for the placement of CVC. The X-ray indicted that the catheter was placed deeply. Nurse informed the resident and he ordered to arrange to pull out the catheter. This situation created more anxiety in the patient. The resident was continuously talking to his fellow while performing the procedure. It increased further anxiety and irritability in the patient.

Her blood pressure went on the higher side and certain antihypertensive medicines has to be administered to the patient. Her blood pressures was stabilized but only for a small amount of time after which it increased again. Patient's vital signs were deteriorating. She was persistently hypertensive with blood pressure of 190/102 mmHg, heart rate was 99 bpm, respiratory rate was 32 bpm. By the time the shift came to an end, patient had continued to worsen despite the tireless efforts of the nurse, her recovery stay was prolonged and it was decided to shift the patient to special care.

## DISCUSSION

According to a study conducted in Quetta, Pakistan 252 patients were treated for bowel obstruction (June 2007 to July 2009). The study reported that 84.1% patients presented with constipation as a clinical manifestation of bowel obstruction [1].

There are seven Nightingale's assumptions which led to the development of her theory. Following are the assertions of nightingale's theory: "Natural laws; mankind can achieve perfection; nursing is a calling; nursing is an art and a science; nursing is achieved through environmental alteration; nursing requires a specific educational base; and nursing is distinct and separate from medicine" [2]. In the scenario given above, patient's disease process was a natural law. This according to Nightingale is a "reparative process" [2]. Nurses are the significant contributors of speeding up patient's recovery by making changes in the environment. Referring back to the scenario, the nurse uses her skills as well as her knowledge while taking care of the patient analyzing every aspect of patient care.

There are four major concepts in her theory that are human being, environment, health and nursing. Even though she didn't clearly define health and human being instead she related them with the environment. She believed that a patient can heal quickly when nursing care is given and environment is modified. She believed that healthy environment is an essential factor of patient's early recovery and healing. In the scenario above, nurse and the patient both can be viewed from the concept of human being. Patient was an individual surrounded by her social, emotional, psychological factors that had an influence on her health while the nurse has her own way of evaluating the situation. In PACU, a nurse usually focuses on the early recovery and shifting of the patient in designated units. In doing their job, they become so task oriented that they fail to pick cues from

patient and their surroundings.

The 13 canons (sub-concepts) of Nightingale's environmental theory are closely associated with the environmental factors in the aforementioned clinical scenario. Following are the canons of Nightingale: "Ventilation and warming, health of houses, petty management, noise, variety, taking food, what food, bed and bedding, light, cleanliness of booms and walls, personal cleanliness, chattering hopes and advices and observation of the sick" [3].

## Analysis

The environment in the case mentioned above had many pitfalls due to which patient's condition deteriorated. On receiving the patient, it was observed by the nurse that the patient is cold and shivering. In operating room the temperature is very low due to which usually patient becomes hypothermic. Nightingale beautifully described the concept of warming in her canon. According to her, ill patients have more tendencies to lose the vital heat of their body so a nurse should be more vigilant in looking after sick patients. In the scenario, immediate intervention was performed and patient was covered by blanket to restore the essential heat of the body. The heat in a body acts like the power. It has two important functions, to restore health and to perform functions of daily living smoothly.

In the beginning, the patient was complaining about noise in the surrounding. Apart from the surgical pain which the patient was facing, the noise was the factor that worsened her condition. According to Nightingale, unnecessary noise has harmful impact on patient's health. A study was conducted to see the impact of noise reduction in hospital setting and it also proved that reduction of noise is directly proportional to the patient's satisfaction rate [4]. Another factor that affected her health is the bed and bedding. On reflecting back to the scenario, the patient had passed stool. The nurse failed to pick the basic hygiene, the reason behind patient's irritability and decreased pain threshold. Due to delay in identifying this problem, the patient remained unstable. Therefore, a nurse should be a keen observer so that chances of negligence could be avoided and effective care can be delivered to the patient.

Petty management is one of the canons of Nightingale's theory. This canon covers many aspects of nursing practice. In particular to my scenario, dustbin near my patient's area was full of soiled items. According to Nightingale [3] such things are pool of polluted air and it can pollute the entire house (patient area). Although miasma theory is obsolete now and it is replaced by germ theory, I think both of the theories agreed on the fact that improper sanitation and environment has negative impact on health. In miasma theory it is labelled as bad air whereas in germ theory it is known as any microorganism such as bacteria. Furthermore, a nurse should inform the patient whenever he or she is not around. In the scenario, the nurse was busy with another patient and she didn't inform the patient. This led to increase anxiety in the patient and ultimately it impacted on the patient's health.

The structure of PACU is a close room setting. There is only one door through which everyone enters or exits the room. There is no window in the setting through which sunlight can enter in

the area. For ventilation purpose, there is only centralized air conditioner which assists the process of ventilation. The patient was in recovery room for an extended time period and she was irritated by the plain white painted walls with no source to connect with external environment. She was irritable by room spray and due to close setting of PACU it was a challenge to immediately remove the odors from the room. These issues are very well explained in the canons of variety, ventilation and light. These are the factors that were neglected in patient care and it delayed patient's recovery.

There are social, psychological and cultural determinants that always impact on patient's health. In the scenario, the patient was living alone. Nobody from the family was there to give social support. She was living with her care giver. Due to lack of family support, it was difficult for her to fight alone. She had a major surgical procedure and at that time everyone wants their loved ones to be with them. A child and an elderly patient always need someone who can reassure them that they are fine. They want their immediate family member to hold their hands at their crucial times. These were the social factors that indirectly impacted on patient's health. Ageing is another factor that impact on a family. Ageing in a population leads to increase the number of generations in the family ultimately it increases the burden on the family due to elderly dependent family members. This is the reason that recently the trend toward nuclear families is increasing in South Asia. Most of the people migrate out of Pakistan for better employment, leaving their old parents behind [5]. Psychological factors also play a vital role in improving one's wellbeing. Mental peace, internal satisfaction, happiness are the key factors. In the scenario the psychological needs of the patient were not met and it affected her recovery.

### Hypothesis with Recommendations

Following are the hypotheses which are derived from the environmental theory. These hypotheses are made on the basis of interventions that can be done to increase patient's recovery in hospital setting. (A) If bair huggers (forced air warmers) are use intra-operatively then it can decrease post-operative hypothermia. (B) If rectal probe is use intra-operatively to check the temperature then it can prevent the chances of hypothermia. (C) If the abdominal binder is adjusted when it is applied then the patient can report less pain. (D) If the silence boards are placed in recovery room then it can decrease the noise in patient's area. (E) If soaked cotton balls of peppermint oil are placed in the area instead of doing room spray then it can decrease irritability in asthmatic patients.

[6] stated that elderly and neonates with prolong surgical procedure are at high risk of developing perioperative

hypothermia. The study also mentioned that elderly patients of 70 years and above end up in hypothermia and it take prolong time to recover from it. Hence patient should be warm enough to preserve heat of the body. Bair hugger is equipment that helps in keeping the patients warm. Also, the use of rectal probe during the surgery can prevent hypothermia. In PACU, such equipment is not available so if the temperature is monitored continuously during the procedure then it can reduce the chances of hypothermia. Health care professionals apply abdominal binder soon after the surgery and it is not adjusted at that time. It should be tied loosely so that patient can report less pain. Silence boards can provide awareness to the health care professional and it can lessen the noise in patient care area. At last, peppermint oil can be used. It's a unique and completely new intervention that can be followed in clinical area. Aromatherapy is used for multipurpose. Peppermint is one of the aroma therapies through which a patient becomes relax and clam. It has many properties that are it acts as decongestant, antiseptic and anti-inflammatory [7]. Hence it can be beneficial for the health of patients. These interventions should be recommended in hospital setting which will improve the wellbeing of patients.

### CONCLUSION

Florence Nightingale's theory is purely applicable in clinical setting and it guides health care professional to increase patient's wellbeing and restore health by making alteration in the surrounding. Nurses are the change agents who can make a difference in patient's health.

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