



## Application of Nightingale's environmental theory in the care of patients with pneumonia

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### Abstract

When theoretical framework is applied in nursing practice it serves as an organizing model for a body of knowledge. This paper described a clinical scenario which was analyzed through Florence Nightingale's Environmental theory. Florence Nightingale's theory focused on the environment and she gave a detailed description of each aspect of environment in his theory. Her major concepts include: ventilation. light. noise. cleanliness of rooms/walls. bed and bedding. personal cleanliness. and taking food. According to Nightingale. if nurses modify patients environment according to her principles of environment. she can help patient to restore the patients usual health or bring patient in recovery. This was also reflected in the clinical scenario. Nightingale provided a basis for providing holistic care to the patients and it is still applicable today. From the scenario. it is recommended that. at community level. people should be given awareness regarding basic environmental hygiene through mass health education so that holistic health care can be achieved. At hospital level. if checklist regarding environmental factor is attached in patient's bedside folder then it will compel nurses for its implementation and hence will result in positive effects on patient's condition.

**Keywords:** Environment, health, nurse, nursing, clinical practice nightingale, nursing theory

### Introduction

Florence Nightingale (1820 – 1910). is the founder of modern nursing education. nursing researcher. and scientific nursing and popularly known as “The lady with the lamp” who wrote the first nursing notes that became the basic of nursing practice and research. During the Crimean War (1853-1856). her dedicated work in the control of infection rates was significant. Her main focus was on sanitation. hand and environmental hygiene. writing nursing notes and statistical analysis. helped reduce mortality rates at Scutari Hospital from 40% to 2% [3].

By this way. she paved the way for modern infection control practices and modern nursing. According to the WHO. the current average health care associated infection rate worldwide is around 8.7% among hospitalized patients [4]. Nightingale also is considered as the first nursing theorist. One of her influencing theory was the Environment Theory. which incorporated with theory and practical restoration of the health of client. Her emphasis on creating and promoting a healthy environment by providing clean and wrinkle free bedding. adequate exposure of sunlight. cross ventilation and by maintaining adequate temperature. With the application of all this measures Nightingale reduced the occurrence of infection rate by large extent. During Crimean war she demonstrated the importance of sanitation. hygiene. and nursing care in preventing the spread of disease and reducing mortality rate. Today. Nightingale's theory remains a foundation of nursing practice. and her legacy continues to inspire nurses around the world [6].

According to Nightingale. medicine is seen as functioning to remove disease part but. nurses and nursing care places the patients in an environment in which nature can assist

postoperative patients to reach their optimal health condition [7].

According to environmental theory patient needed efficient nursing care. clean bed and proper bedding. good ventilation. daily bathing and daily change of wound dressing with sterile technique if these determinants not fulfilled during the hospitalization which result in impairment in the health of the patient. Nightingale concepts regarding cleanliness of environment includes neat bedding. good ventilation and personal hygiene are mandatory for recovery of patient. Ventilation is the first and most important paradigm of Nightingale's environmental theory in which stressed upon patient's room environment during his hospital stay [8].

Nursing theory and its relevance to clinical practice has long been a subject of controversy. Indeed. a lack of agreement in the professional literature serves to confuse nurses and has caused many to dismiss nursing theory as being long-winded and irrelevant to everyday practice [9].

Nurses have a unique ability to apply their observational skills to understand the role of the designed environment to enable healing in their patients. This affords nurses the opportunity to engage in research studies that have immediate impact on the act of nursing [10].

Nightingale demarcated different canons of an environment including ventilation. light. noise. cleanliness of walls. bed and bedding. personal cleanliness. and taking food. etc. to describe the application of her theory. She emphasized that nurses should manipulate and mediate the patient's environment by taking care of all these canons to restore their standard health or bring into recovery [11].

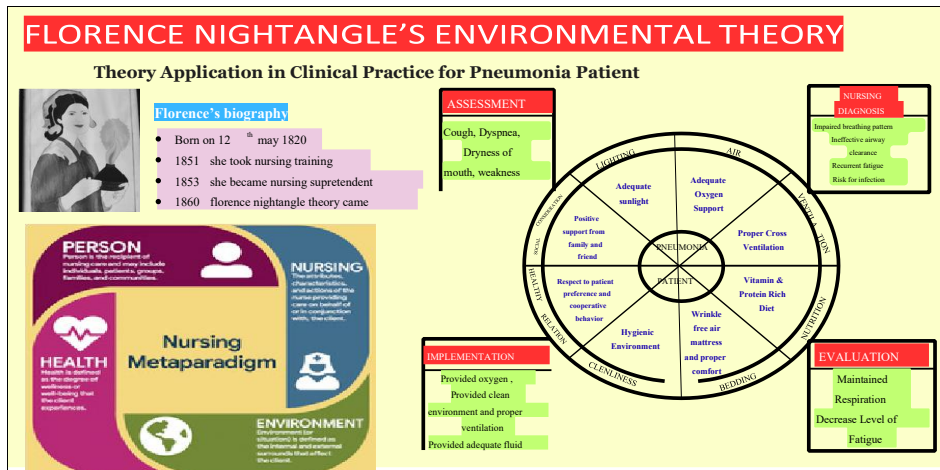
**Theorist’s Background**

Florence Nightingale was born on 12<sup>th</sup> May 1820. in a British family. She is a social reformer, statistician and nurse who consider the founder of modern nursing. In 1850, many factors influenced the development of Nightingale’s environment theory. Her interest in nursing integral in the development of her work [12].

She used her comprehensive knowledge, understanding of incidence and prevalence of disease, and her power of observation to develop an approach to nursing as well as to the management and construction of hospital. Nightingale’s main focus was the control the environment of individuals and families in both healthy and ill situation [13].

**Nightingale’s theory on Environment**

Nightingale’s theory is uniquely focused on the environment. Environment includes surrounding matters that influences or modify cause of development environment which is capable of preventing, suppressing or contributing to disease, accidents or death in all the extended conditions and influences affecting the life and development of all organisms. She identified ventilation, circulation of air, warmth, light, sound, variety bed and bedding, cleanliness of rooms and walls and nutrition as major areas of the environments the nurse could control the infection rate and speedy recovery [14].



**Concepts of Nightingale’s Theory**

When one or more aspects of the environment are out of balance, the clients must use increased energy to counter the environment stress. The main concept of Nightingale’s theory is Providing therapeutic and wrinkle free bedding will help in the prevention of decubitus ulcer to the patients who is admitted in the hospital. Allowing direct sunlight expose will be beneficial for controlling infection and further complication. Proper cross ventilated room will help the patient to precluding anxiety and depression. Cleanliness of rooms and walls will help in protecting patients from harmful contaminants, avoid infection and include successful medical procedure which will improve medical and physical health. Coming up with healthy and balance nutrition to the patients will healthy growth and development of body’ Healthy relationship and social consideration will help in lower rate of anxiety, depression, high self stream and building trust and cooperative relationship. Positive attitude will be helpful for the improved relationship, reduce risk of disease and better cardiovascular health. Proper oxygenation will help the patient to feel more energetic and active, improve quality of life and prevent shortness of breath [15]

**Metaparadigm**

Metaparadigm is a term used to devote the prevailing network of science philosophy and Theory accepted by a discipline.

Florence Nightingale did not discover or define the major concepts used to organize nursing theory but the analysis of her writing gives uses to identify her definitions of these concepts which include [16].

**Person**

Person is a multidimensional, aspect of biological, social and spiritual components. Person is the individual receiving care and is consider as a holistic being The person is viewed as a recipient of care who interacts continuously with the environment. In this context, the pneumonia patient is an individual experiencing respiratory distress, fever, cough, and weakness due to infection in the lungs. Nightingale emphasized the patient’s ability to recover naturally if the environment supports healing.

**Nursing**

Nursing is different from medicine and the goal of nursing is to place the patient in the best possible condition for nature to act. It focuses on modifying the environment rather than directly curing disease. The nurse acts as an environmental manager, ensuring cleanliness, comfort, and emotional support.

**Health**

Nightingale viewed health as a state of well-being and the ability to use every power the person has to the fullest. Illness (like pneumonia) occurs when environmental conditions disturb the body’s natural reparative processes.

**Environment**

The environment is central to Nightingale’s theory—it includes physical, psychological, and social surroundings that influence health and recovery. For a pneumonia patient, environmental factors such as clean air, proper lighting, quiet surroundings, warmth, and sanitation directly affect recovery. It is believed that a healthy environment was essential for healing and that nurses should create an optimal environment for patient to heal themselves.

## Application of Nightingale's Nursing environment Theory in the care of a patient with Pneumonia

### Case Scenario

Mr. X 56 years old, male patient has been working in a factory whose C.R no is -xxx came and admitted at Pulmonary department SGPGIMS with the chief complaints of abdominal distention, pain in the abdomen, breathing difficulty, hyperventilation and fever. Symptoms was present for the past 15 days. After the admission of the client in the pulmonary ward Dr. advised him for - Chest X-ray in which right lower lobe consolidation was present and Complete Blood Count (CBC) in which leukocytosis (15,000 cells/ $\mu$ L) with neutrophilia. As his diagnosis was not confirmed, Dr advised him for Barium meal. He had vomiting immediately after barium meal and probably aspirated from then his chest discomfort, pain and breathlessness got worsened & he was diagnosed as aspirated pneumonia. while taking the complete history I got to know that. He works in a factory for 15 years as a labor and has a history of cigarette smoking ( 8-10 cigarettes per day ) but no history of alcoholism. he lives with his wife and 3 children in a kaccha house made up of mud and soil in a very congested area with open drainage. He use hand pump water to drinking and open field for defecation. His mother had died 5 years ago due to CKD. His bowel and bladder pattern is normal. bowel is of 2 times and bladder is of 4-6 times in a day.

### Observation & Data

His vital signs findings are - Temperature: 102.5°F (39.1°C) Pulse: 110 beats per minute. Blood Pressure: 140/90 mmHg. Respiratory Rate: 24 breaths per minute. Oxygen Saturation: 90% on room air. his appearance was acutely ill, lying in bed with oxygen mask and Body mass index (BMI) was 28 kg/m.

### Application of Theory in nursing process

#### Physical Environment

##### Assessment

After the thorough assessment and history from the patient. I found that patient's surrounding was not clean. he is risk to develop secondary infections.

##### Nursing Diagnosis

Risk of infection related to hospitalization.

##### Goal

#### Cleanliness and Sanitation

Personal hygiene was maintained. Emphasized on proper hygiene, ventilation was achieved by oxygen administration, fowlers position and ventilated rooms was provided. Educated the patient the importance of cleanliness in the hospital environment, which she believed was crucial to preventing the spread of disease.

#### Ventilation and Light

Adequate ventilation and natural light were ensured by opening the windows. Fresh air, proper airflow, and sunlight were critical in the prevention of infections. I encouraged the placement of patients in rooms with windows, allowing them to benefit from natural light and fresh air.

#### Quiet and Restful Environment

Encouraged the importance of a quiet and restful environment for the healing process. I have instructed the

patient to minimize the noise, which could not disrupt the patient's ability to rest and recover. I have monitored the hospital environment for any loud sources of noise, such as loud conversations or equipment.

#### Healing Space

I have created a healing space by focusing on cleanliness, reducing stress by educating supportive system on meditation yaga, relaxation techniques and ensuring an overall atmosphere conducive to healing.

#### Psychological environment

##### Assessment

While physical examination and history collection of the patient, my patient was asking so many questions with very anxious.

##### Nursing Diagnosis

Anxiety related to hospitalization as evidenced by asking question frequently

**Goal:** Patients anxiety to be reduced

Mr. Soni was reassured that he will be discharged soon from that the hospital. As he was also having financial burden he was instructed to make Ayushman bharat card for the consumption of 4 lacks during treatment. Environment factor was assessed to avoid sleep disturbance during night.

#### Nutritional Status

##### Assessment

Mr. Manoj Soni was under weight, he lost weight significantly in 3 weeks. Due to swallowing difficulty he was afraid of eating, as accordingly condition verse.

##### Nursing diagnosis

Imbalanced nutrition less than body requirement related to ignorance of food according to the needs of food.

**Goal:** Nutritional status to be maintained according to patients body requirement

Nutritionist was consulted regarding food menu appropriate for Mr. Soni. Adequate nutrition was provided containing food rich in nutritious value and less in hard consistency.

Client was motivated to eat soft and liquid diet. Mr. X was adviced to have frequent and small diet in place of heavy and prolong diet.

#### Hypothesis Based On Nightingale Theory

- If we consider all the aspect like physical, psychological, social, and spiritual factor, patients health will improve.
- If their will be mutual understanding between nurses, patient and attendant, nurse will be able to provide holistic care.
- Patient who are exposed to hygienic environment and ventilated space, will help to lower the risk of infection.
- Getting proper space between 2 beds will help to check the cross infection.
- Concluding all the aspect of life will helps nurses building on new ideas.
- Getting proper care by the professionals during hospital stay will help patient to decrease hospital stay
- If their will be coordination between co worker, it will help in promote healing.
- With proper psychological support and care patient will get hope and advice.
- She focused more on physical factors rather than psychological needs<sup>[17]</sup>.

## Discussion

The study uses a method that is a nursing process approach based on the chosen nursing theory. The techniques used in data collection are interviews, observations, physical examinations and conducting nursing care. The source of data obtained or used is primarily obtained directly from patients and secondary data obtained from family, health workers and documentation from other examination results to carry out nursing care. While literature study is to study source books related to nursing care given to patients. The results of nursing care in bronchial pulmonary asthma patients from the Florence assessment data focus more on environmental conditions (physical, psychological and social environment). Data are grouped based on physical, social and mental environment related to client conditions related to the overall environment. Focused on the relationship of individuals with the environment for example: lack of information about environmental hygiene, ventilation, garbage disposal, environmental pollution, social communication and others [18].

Nurses in many resource limited settings have mostly used the medical model which failed to answer many of their concerns in managing tuberculosis infected patients. Florence Nightingale's Model of Nursing and the Environment states that nurses manipulate and mediate the environment to put the patient in the best condition for nature to act upon. Nursing theory and models have been recognized as key components to evidence based practice today. Every nursing unit in developed countries employs at least one. Kenyan nurses need to realize this and embrace this principle. This article begins by expounding a commonly known, but not always well understood model by the founder of modern nursing, Florence Nightingale [19]. Nightingale (1860) "Environmental Theory" has applied in post operative patients evidence showed that risk of development of surgical site infections was reduced. This application of nursing theory helps to understand the environmental factors which affect the patients' health and provide a way to promote healing and fast recovery by modifying their environment [20].

A theoretical-reflexive study about the COVID-19 pandemic in light of the environmental theory proposed by Florence Nightingale. It is observed that the application of the theoretical foundations proposed by the environmental theory is related to the current practices used in the fight against the COVID-19 pandemic [21].

Nursing strives to be recognized as a profession the theories that underpin our practice are increasingly put under the microscope. Nursing theory and its relevance to clinical practice has long been a subject of controversy. Indeed, a lack of agreement in the professional literature serves to confuse nurses and has caused many to dismiss nursing theory as being long-winded and irrelevant to everyday practice [22].

The study conducted to explore nursing research that is focused on the impact of healthcare environments and that has resonance with the aspects of Florence Nightingale's environmental theory. Nurses have a unique ability to apply their observational skills to understand the role of the designed environment to enable healing in their patients. This affords nurses the opportunity to engage in research studies that have immediate impact on the act of nursing [23]. Theoretical frameworks serve as the basis for best nursing practice. This paper aims to highlight the importance of

environmental theory on person's health, and application and evaluation of Florence's nightingale Environmental theory in the recovery of the patient suffering from tuberculosis. Florence Nightingale's Environmental theory was used to critically review and manage a clinical case scenario of a tuberculosis patient, and Walker and Avant (2011) theory evaluation criteria was used to evaluate it. Nightingale demarcated different canons of an environment including ventilation, light, noise, cleanliness of walls, bed and bedding, personal cleanliness, and taking food, etc. to describe the application of her theory [24].

## Conclusion

The application of Florence Nightingale's Environmental Theory in the care of a patient with pneumonia highlights the importance of optimizing the patient's surroundings to support healing. By ensuring proper ventilation, maintaining cleanliness, providing adequate light, minimizing noise, and promoting rest, the nurse creates an environment that enhances respiratory function and reduces the burden of infection. Attention to nutrition, hydration, warmth, and hygiene further strengthens the patient's physiological resilience. Through continuous assessment and modification of environmental factors, the nurse facilitates faster recovery, prevents complications, and promotes overall comfort and well-being. Thus, Nightingale's theory remains highly relevant in modern nursing practice, offering a holistic approach that complements medical treatment and improves patient outcomes in pneumonia care.

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