

# Ensuring Holistic Care: Application and Evaluation of Florence Nightingale's Environmental Theory on Tuberculosis Patient

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## Abstract

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. She emphasized that nurses should manipulate and mediate the patient's environment by taking care of all these cannons to restore their standard health or bring into recovery. Application of this theory yields a positive impact on patient's health, ensures the speedy recovery from illness and promotes individual comfort. It has clinical implication and a significant role in a patient's recovery. Nurses should apply this theory while dealing with their patient. The general measure should be taken to give awareness sessions of these canons of the environment to the community level through electronic media and health workers to promote their health and well being.

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**Index terms**— holistic care, environmental theory, florence nightingale, theoretical frameworks, tuberculosis.

## 1 I. Introduction

Florence Nightingale is considered as the mother of modern nursing, and famous for her contributions in developing a first theory in the nursing profession. As a nurse, she offered incredible nursing services and played a vital role of a leader in the Crimean War and got recognition as a lady with the lamp [1]. She vigilantly observed and found out the roots of hindering the recovery of wounded soldiers, and increases mortality were diet, dirt, and drains [1]. Likewise, she believed that certain entities such as cleanliness, fresh air, sanitation, comfort, and socialization are obligatory for a proper healing [2]. She applied her concepts to develop the environmental theory and helped in reducing the mortality rate as well as speedy recovery of wounded soldiers. Through her passion, devotion and hard work she changed the face of nursing and reported a decrease in casualties from 48% to 2% approximately within two years [3, 4, 5 & 6]. Furthermore, she wrote notes on nursing "What It Is and What It Is Not" to enlighten the different canons that every nurse should take care while caring for the patient [2,7]. This theory is globally recognized and widely used by nurses to help their patients in the natural ways of healing.

## 2 II. Case Presentation

A 10-year-old female child X was seen during a clinical rotation in the community. She seemed very weak and malnourished. While asking her mother about the reason of her current health status she replied that firstly, she ate mud and not interested in taking her meal and secondly, from the last three months she is suffering

## 4 IV. THE HYPOTHESIS TO TEST THE NURSING INTERVENTIONS FOR GIVEN SCENARIO

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from fever, cough and losing her weight gradually. She added that they had taken medicine for their child from residing in the same community because they cannot afford the expensive treatment of hospitals or clinics. Due to increasing curiosity permission was taken for a complete physical examination and found the sign of infection as X was having fever 101°F, lymphadenopathy and hepatomegaly. A question was asked from mother for her child vaccination status as BCG mark was not evident, for which she replied that it is dangerous to vaccinate the kids as told by our community people. Further assessment revealed bilateral rates on the upper right lobe. Additionally, she was showing signs of poor hygiene wearing a dirty dress, untrimmed dirt filled nails and greasy hairs.

The house was showing poorly picture of infrastructure made by mud and consisted of one small room without any source of direct sunlight. In this deprived ventilated room this family was living with their three other children. Her father was a factory employee and a chain smoker who was unaware of the possible diagnosis of his child and keeps the same community beliefs regarding vaccination. However, the story does not end here. Unfortunately, the community was unaware of drinking polluted water because it was the factory area where the wastes were not disposing appropriately. The drainage system was the same as pictured the other domain where all the drainage was flowing near the house doors which shows the poor socioeconomic status and lack of awareness of this community regarding their basic needs.

### 3 III. Application of Nightingale's Environmental Theory to the Case Scenario

Analyzing the scenario in the light of nightingale's environmental theory clearly shows different possible causes of worsening the condition of child X that need to be addressed. She was a child only ten years old and secondly the negligent behavior of parents that they did not go to the doctor. They were unable to recognize the worsening of their child condition and were limited to community Hakeem for her treatment.

Firstly, Nightingale emphasized that nurses should pay keen attention towards one of the essential entity and that is air in which a person takes his breath; try to keep it as fresh as external natural air [7]. A pitiable ventilation system was the leading causes of worsening the child's disease because in this small house they all were sharing a single room, and the father was smoking without knowing the adverse effects of smoke upon his kids. In other words, X was a passive smoker. Added to it her grandfather died six months ago and had cough which indicates that he might be having tuberculosis and left the germs in the same room and X become a victim of these germs.

The health of houses is the second cannon of Florence's theory. "Pure air, pure water, efficient drainage, cleanliness, and light are five essential points in securing the health of houses" [7]. As a result of inappropriate infrastructure of house the sunlight was not reaching inside the small room that is necessary for purification of air. In addition to this, the untidy surrounding made the progression of disease very easily. According to Nightingale "The best wall for a sick-room or ward that could be made is pure white non-absorbent cement or glass, or glazed tiles, if they were made slightly enough" [7]. In scenario, she has mud house and it could not be considered as the healthy house.

Florence Nightingale furthermore addressed the importance of healthy food and food preferences. Taking healthy food and what food are the cannon in her notes on nursing. She highlighted that the most important and most neglected part of a patient recovery is food. Food provides energy a vital power to help in defeating disease [7]. In the above scenario, this element of food was also neglected. The patient was having complains of anorexia and weight loss, but her mother was saying that she is eating mud and not taking her regular meal, but in fact, the patient was suffering from tuberculosis, and the symptoms of anorexia and weight loose were due to the disease process.

Unavailability of clean water and poor sanitary condition of the community were also contributing factors in worsening the patient's symptoms. It shows the ignorant administrative role of municipal committee of that community. The timely efforts from the public or private sector can play a vital role in the prevention of such disease. But it is not only the duty of health care providers to look after for all the things. Likewise, Nightingale quotes in her notes that "By this, I do not mean that the nurse is always to blame. Therefore, bad sanitary, architectural and administrative arrangements often make it impossible to nurse" [7].

Personal cleanliness that starts at a very early stage of childhood is considered as a significant factor to keep the body healthy. Nightingale mentioned that patients feel comfortable and relax when their skin washed and dried properly [7]. Cleanliness accounts a lot for everyone so it should be maintained. But in the scenario patient cleanliness was not appropriate. She had untrimmed dirty nails wearing untidy dress and having greasy hair, so according to the Environmental Theory, this main point of patient care was missed from the parent's end.

## 4 IV. The Hypothesis to Test the Nursing Interventions for given Scenario

There are following possible hypothesis to test the nursing interventions: 1. Holistic care approach is needed to recover the patient from the disease. 2. Proper health education awareness session regarding sign and symptoms, diagnosis, treatment, complication and preventions of tuberculosis given to the community can help

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to early diagnosis and treatment. 3. Early diagnose of the disease can be treated in an outdoor clinic. 4. BCG vaccination of children at birth can reduce the risk of tuberculosis. 5. The proper infrastructure of home and community can reduce the risk of spreading communicable diseases.

## 5 V. Results

After examining the whole case, the parents of child X were counseled to go to the hospital for further investigation and assured that the finance would be managed by the patient welfare department of the hospital. Next day patient came in the hospital and went through the process of laboratory and other investigations (X-ray, Montour test, sputum culture) which revealed positive results for tuberculosis. Due to her worse condition X was admitted to the hospital and received meticulous treatment for tuberculosis. Successful outcome achieved when the environment of this patient mediated according to Florence Nightingale theory, and her condition started to improve. She was in the isolation room of medical ward, and standard precautions were followed appropriately to reduce the risk of disease transmission. She received antipyretic medicine to reduce her fever and the specific regime of anti-tuberculosis drugs. The nurses on duty were providing her the necessary hygiene care and regularly changing her bed sheet. As she was malnourished she was evaluated by a nutritionist, and now she was a high protein diet according to her caloric requirement. Her mother was staying with her in the hospital, and her father and siblings were visited her frequently. Her fever started to settle, and she underway to gain her weight gradually. Her condition started to get better, and she discharged on oral medicine.

Her parents were counseled for the importance of regular follow up necessary for her complete recovery. Moreover, they were informed about the relapse of disease and risk of developing multi-drug resistance tuberculosis in case of not compliance with the treatment. Health education was given to her parents regarding personal hygiene, the health of their house and the effect of smoking. In the next rotation in the community an awareness session on tuberculosis was conducted. Additionally, the importance of BCG vaccination at birth and role of environment in the prevention of communicable diseases also explained briefly.

## 6 VI. Theory Evaluation

Theory evaluation is a systematic process of examining a theory and several criteria's are available in the literature. Walker and Avant in 2011 gave criteria to examine the origin, meaning, logical adequacy, usefulness, generalizability, and testability of the theory. The eventual aim of theory evaluation is to define its possible role in the scientific knowledge [2].

Florence Nightingale utilized the environment of the patient to support him in his recovery, Nightingale's had developed her model of nursing before the general acceptance of the germ theory. She had identified that that cleanliness, fresh air, sanitation, comfort, and socialization were necessary for healing [2]. Her work for the environmental theory development is reflected as a broad philosophy. It was inductively derived, considered as a grand theory which is abstract in its nature. [4,9].

The meaning of the theory is determined by the clarity in definitions of the concept and construct. [2,9]. Nightingale mentioned five points of the healthy house and then further explain human, environment, health, and nursing in her writings. She believed that healthy environment was in dispensable for the good healing [8,9]. Therefore the meaning of concepts and the logical adequacy are evident in her theory.

Usefulness of the theory can be determined by how nurses are using this theory in their clinical practice along with knowledge and psychomotor skills [2,8]. This theory can be generalized easily, and globally nurses are using this theory in the care of different patients in different settings. Nightingale briefly stated the information about nursing care, patient needs, proper buildings which were essential for caring of ill individuals. This theory is considered as parsimonious as her conceptual contents are free of jargons and used simple language [2,8].

Nightingale's theory can be used to test the different hypotheses related to noise, environment, spirituality, etc. as she described concrete as well as abstract concepts [2].

## 7 VII. Contradictions of Nightingale Theory

There are few contradictions of Nightingale theory that cannot be applied while caring for the patient in today's health care delivery system. While addressing the noise, she stated that patients should never be awake intentionally or accidentally during the first part of sleep [7]. The noise is unavoidable in today's health care systems whereas patients need to be awakened up multiple times during night shift for taking their vital signs, giving medications to them, and collection of samples for the lab test. Additionally, there is a noise of medical equipment that cannot be controlled, so this point is hardly applicable in nowadays.

Moreover, she believed in varying colors from flowers to plants and paintings should be provided to the patients regularly [7]. In most of the setting, hospital rooms are neutral colors and only having wall clock. There is no trend of paintings in patient rooms. However different flowers can be brought by family members and relatives as a trend but it is not a common practice nor offered by the hospital, and it is not applicable in such settings where the hospitals are lack of resources.

### 8 VIII. Conclusion

Environmental theory of Florence Nightingale provides a theoretical framework for best nursing practices. It is the prime responsibility of nurses to critically analyze the patient scenario by all these aspects mention by Florence Nightingale and should focus on all these elements of human's life instead of just giving medications to the patients. Moreover, the best conceivable way is to provide the health teaching or awareness about disease its sign symptoms and its prevention to the community. It is important to explain to them that tuberculosis is a communicable infection, and if someone gets this how to take measures to prevent others. Additionally, the course of sickness is prolonged, and the patient needs to take medicine for a prolonged period. Likewise, the need to complete the treatment course should be explained in detail and informed them if the patient would not follow the treatment course then he/she would be on risk to develop multi-drug resistant tuberculosis that is very difficult to treat. Health teachings should also be given on personal hygiene, appropriate ventilation and the importance of direct sunlight. Additionally, the role of maintenance and cleanliness of the houses should be discussed to reduce the risk of spreading the communicable disease.

### 9 IX. Recommendation

Government and administrative bodies should pay attention to the provision of clean water, appropriate sanitary system and suitable housing for the communities. The government should take initiatives to provide the medical services for the early diagnosis of disease and its treatment to the basic health units near to their homes, and appropriate measures should be taken to make it possible that every child should receive BCG vaccination at birth.

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