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Inter-sensory perception model: Integrating the sixth sense in providing nursing care

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Abstract

Introduction: In 21st century, nursing profession is enriched with many theories. However, there exists a wide gap between knowledge and implementation of nursing care. **Aim:** The paper explains causes of this gap and addresses a solution using a conceptual model titled “Intersensory perception in nursing care ‘under empirical concept’ open your sixth sense in addition to five traditional senses.” **Methods:** A qualitative case study design was used for testing the conceptual model. **Results:** The paper classifies the different modalities of sensing, adds one more nontraditional sense (auto thermoception) to five traditional senses and depicts how general sensory perception can be upgraded to inter-sensory perception among nurses through nursing education process, which is pictured as nursing foundry lab model. It also explains that how nurses can identify homeostatic imbalance among human beings using inter-sensory perception and help the patient to retain homeostasis. Further, a comparative analysis is done with Florence Nightingale’s environmental theory and criterion based critique model is used to evaluate the role of inter-sensory perception in nursing care. **Conclusion:** Hopefully, these concepts pave the way to implement an effective nursing care using inter-sensory perception and reduce unintentional torts by overcoming ‘numbness’ of senses.

Key words: Conceptual model, inter-sensory perception, nursing theory, sensing, sixth sense

Introduction

In 1860, Florence Nightingale defined nursing on “Nursing: What it is, what it is not” as a patient care service requires education and training to maintain ventilation, comfortable room temperature, light and noise, cleaned rooms, proper bedding, hygiene,

counselling, food and others (Nightingale, 1860). Until 1970, nursing was considered as a semiprofessional career and a female dominant job (Adams & Miller, 2001). During those periods, lack of theories and researches are considered as barriers to meet professional standards (Etzioni, 1969). Since 1980, development of educational standards dispersed all over the world. Many theorists have discussed the concept of nursing in a unique way. However, the definition of nursing by (Virginia Henderson, 1966) was widely accepted and it says; “The unique function of a nurse is to assist the individual, sick or well, in the performance of those activities contributing to health or its recovery (or to peaceful death) that he would perform unaided if he had the necessary strength, will or knowledge and to do this in such a way as to help him gain independence as rapidly as possible.” (Henderson, 1966) In order to cope with the fast changing and competitive nature of the world, the nurses are forced to face more ethical and philosophical challenges to provide care. These changes also created new revised education and training system in

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the nursing profession (Ghadirian, Salsali & Cheraghi, 2014). There are many theorists, who have explained about metaparadigm of nursing. Nonetheless, there is a wide gap between knowledge and practice, which directly shows errors in the implementation of nursing care in the form of unintentional torts. Therefore, it is high time to think about the chain of concepts, which can fill the gap in nursing care.

Review of literature

If one looks at the ample literature in nursing, then it may raise the question ‘why does nursing need a theory?’ which has already been adequately addressed. Nonetheless, highly defined Indian nursing programs take nursing into upgraded realms of higher education (Ingram, 1991). Despite these programs, nursing frequently witnesses issues that reflect theory-practice gap (Miller, 1985). One may raise a question ‘should we borrow theories from other fields or must a new theory be developed?’ Nursing theories (Ingram, 1991), help nurses to practice quality patient care. However, literature may disagree on many theories and has forced many nurses to reject useful theories, which might be useful in clinical practice later (Colley, 2003). Theories help to develop a sense of identity among nurses, paves the way to achieve satisfied patient care services (Draper, 1990).

Theories can influence patient care directly or indirectly. The main issue in patient care is lack of autonomy in decision making by nurses versus doctors. In such a scenario, theories provide a common or specified framework to identify the care needed by each patient and work along with patient’s family and other professionals (Ingram, 1991). Theories ease the communication between nurses by providing a platform of theoretical knowledge and thoughts, upon which practices could be implemented. Further, theory can enhance communication between theorists and other professionals to practice an effective patient care (Chinn & Jacobs, 1987).

The paper throws light on three concepts: Classification of sensing, nursing foundry model, and inter-sensory perception in nursing care. The paper classifies the different modalities of sensing, adds one more nontraditional sense (auto thermoception) to five traditional senses (hear, vision, taste, touch, and

smell). Nursing foundry lab model depicts how general sensory perception can be upgraded to inter-sensory perception among nurses through nursing education process. It also explains that how nurses can identify homeostatic imbalance among human beings using inter-sensory perception and help the patient to retain homeostasis. ‘Inter-sensory perception in nursing care’ would help nurses deliver effective care to individual, family, and community.

Data source

A review of literature was done to understand existing theoretical concepts and to develop a conceptual model on inter-sensory perception in nursing care. The key words used are sense, care, perception, theories and conceptual models. The data is obtained from Pubmed, Ovid technologies, CINAHL, Researchgate, MedIND, and dissertations from 1860 to 2014. A total of 38 articles were reviewed for literature related to sensing, nursing care, and nursing theories.

Development of concepts

Sensing

Aristotle (390 BCE-350 BCE), a Greek philosopher, viewed reality as physical world and knowledge comes through observation and perception by five sensory organs - eye, nose, tongue, ear, and skin with five senses - vision, smell, taste, hear, and touch (Postgate, 1995). Sensory perception is defined as the physiological capacity of organisms to identify and interpret the sensory information to understand the environment (Schacter, 2011). It is also considered as a cognitive function, (Myers, Isabel Briggs, & Myers, 1995) which focuses on tangible, concrete and empirical over abstract and theoretical concepts. The paper describes sense as an ability of a human being to identify and interpret the stimulus from the external environment through five sensory organs- eye, nose, ear, tongue, and skin with six senses- vision, smell, hearing, taste, touch, and auto thermoception. The paper categorizes sensing into three:

On sight sensing

It is an ability of a human being to see and interpret the surrounding environment in the visible light through sensory organs (eyes) called on sight sensing. The sensory response of the eyes is known as ophthalmocception (Puro, 2012).

Abut sensing

The word “abut” is Anglo-Latin origin which means “touch”. It is an ability of a human being to identify and interpret the surrounding environment with physical contact through skin and tongue (Francis, Ladher, & Schoenwolf, 2002). The sensory response of the tongue is called as gustaoception (taste-ability to interpret taste with contact between tongue and food) and skin is called as thermoception (temperature-ability to differentiate the high and low temperature with contact between skin and thermal conductor), nociception (pain-ability to respond to pain with contact between skin and sharp object), and mechanoreception (vibration-ability to identify the vibration with contact between skin and vibrating material) (Darlan-Smith, Johnson, LaMotte, Shigenaga, Kenins, & Champness, 1979; Dubin, & Patapoutian, 2010; Adrian & Umrath, 1929).

Remote sensing

Remote sensing is an ability of a human being to acquire and interpret the surrounding environment without physical contact and out of sight through ear, nose, and skin. The sensory response of the ear known as audioception (hearing-ability of the human ears to acquire the sound waves from the surrounding) (Jan Schnupp, Israel Nelken, & Andrew King, 2011) and nose is olfaception (smell-ability of the human nose to acquire the smell of the particles from the surrounding) (de March, Claire, Ryu, SangEun, Sicard, Gilles, Moon, Cheil, Golebiowski, & Jérôme, 2015). The human skin is normally sensitive to heat and cold. The ability of the skin to identify the level of room temperature in the surrounding environment without touching is called auto thermoception.

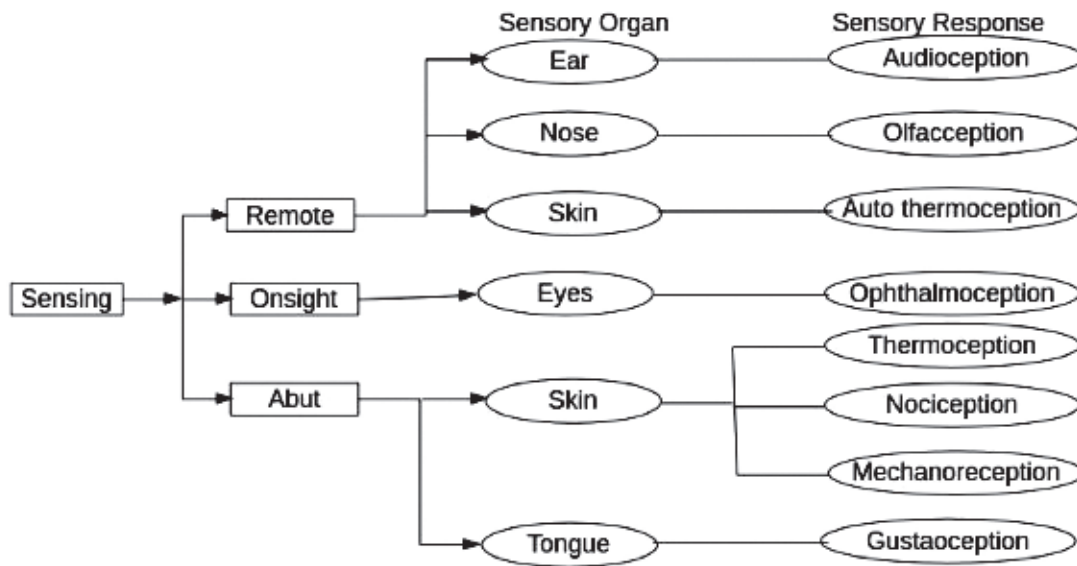


Figure 1: Classification of sensing

Figure 1 explains the three modalities of sensing and highlights five sensory organs and six senses.

Nursing Foundry Model

The paper defines nursing as a ‘profession with unique body of knowledge, attitude, and practice aimed to mould the sensory modalities of a learner of nursing, to enable him/her to provide care to patients using inter-sensory perception during health to illness continuum or till death by assisting them to meet physical, psychological, social, and spiritual needs through

appropriate environmental modification of individual, family, and community through nursing education, practice, and research’. The paper depicts the nursing education process as a nursing foundry model, where the general sensory perception of student nurse is moulded into inter-sensory perception. Here, a human being with general sensory perception is transformed into a nurse through a period of education process and is enabled to identify and provide care using inter-sensory perception.

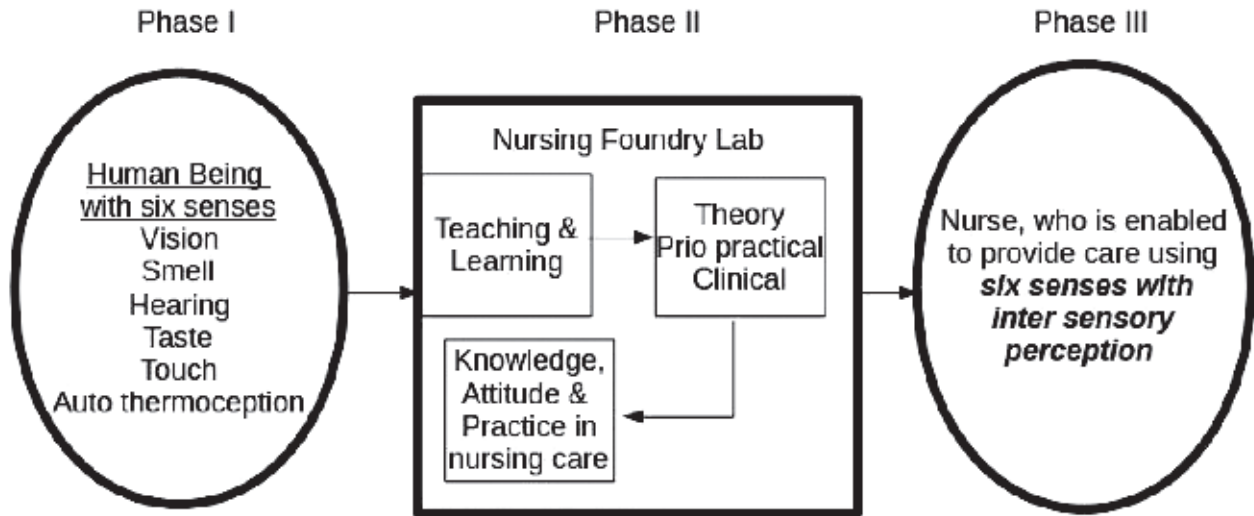


Figure 2: Nursing foundry model

The nursing foundry model (Figure 2), explains three transition phases.

1. Human being with six senses
2. Nursing foundry lab
3. Nurse having nursing care behaviour with inter-sensory perception

In Phase I, it is showed that a human being is the one who can identify and interpret general information from the external environment using six senses.

In Phase II, nursing profession is compared to foundry lab, where transition of human being (Phase I) to nurse (Phase III) happens. During this phase, the human being is identified as a student for a period of time and sensory modalities (Small, Dana, Prescott, & John, 2005) of student are moulded to enable him/her to provide care through teaching and learning process in the nursing curriculum (Mitchell, & Batty, 2009). Nursing curriculum (Veenema, 2001) is implemented through three modes;

1. Theory sessions
2. Prio practical sessions
3. Clinical sessions

The theory sessions are delivered through class room teaching to develop knowledge and favourable attitude towards patient, family, and community. Prio practical sessions are conducted through lab demonstrations. The clinical field experiences help him/her to strengthen the knowledge, develop and reaffirm caring

attitude and skills. Nursing foundry lab helps to instill unique body of knowledge, attitude, and practice towards nursing among the students by reinforcing the nursing care behaviours through persistent instructions (Omari, AbuAlRub, & Ayasreh, 2013). According to Jean Watson's theory (1988) on 'Nursing: Human science and care,' nursing care behaviour has ten carative factors to satisfy the human needs (Suliman, Welmann, Omer, & Thomas, 2009).

In Phase III, the output of nursing foundry lab is a nurse, who is equipped to provide care to patients using six senses with inter-sensory perception. Inter-sensory perception means using one or more senses together to identify, compare to self and patient, and interpret the alterations in the physical, psychological, and environmental subzones of the patients.

Inter-sensory perception in nursing care

The paper describes about transformation of a human being with general sensory perception into a nurse with inter-sensory perception. Here, a nurse, who is enabled to provide care using inter-sensory perception with six senses, comes into a scenario to identify, compare and interpret alterations in the zones of human being.

The concept of human being in this paper is an individual, seeking constant adjustment between internal and external zones to maintain homeostasis (Figure 3). Homeostasis is the property of human being to maintain balance between internal and

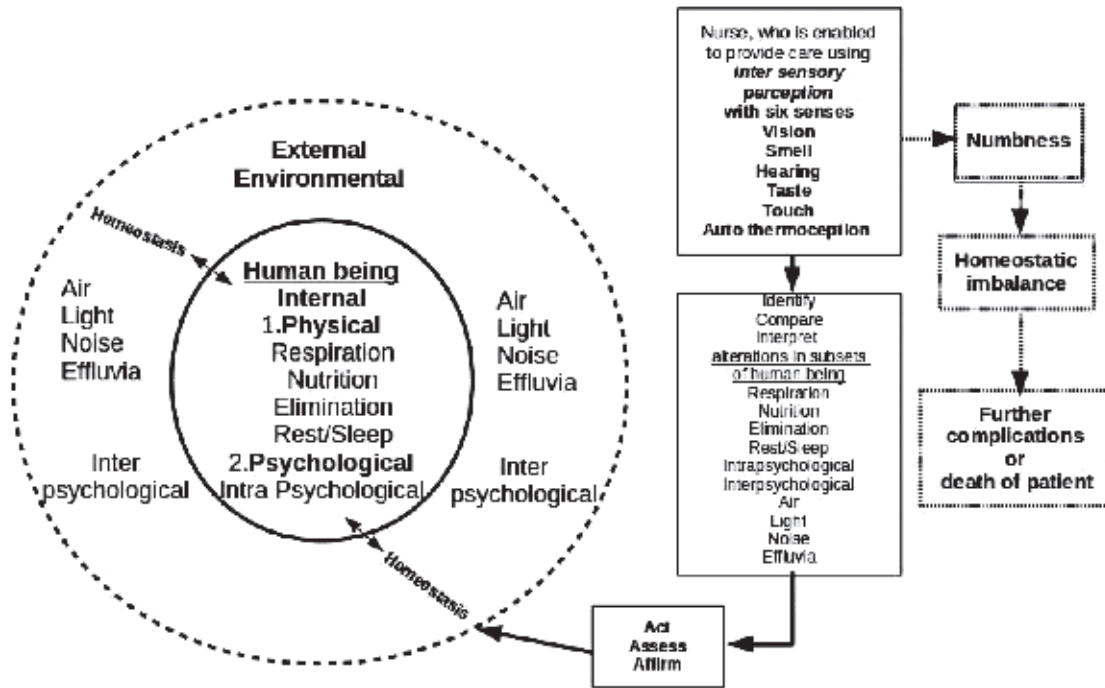


Figure 3: Conceptual framework on inter-sensory perception in nursing care

external zones or to return the body to function within normal range. Homeostatic imbalance is an inability of a patient to maintain homeostasis that leads to further complications or death (Marieb, Elaine, Hoehn, & Katja, 2007).

The internal zone of human being is divided into two subzones; physical and psychological subzones. Physical subzone contains four subsets of elements such as respiration, nutrition, elimination, and sleep/rest (Maslow, 1943), which are vital to maintain homeostasis in the human being.

Intrapsychological and interpsychological are the subsets in psychological subzone (Vygotsky, 1978). Intrapsychological subset focuses on an ability to perceive own identity and ability to maintain balance between the perception of self and to others in the society.

External zone consists of environmental subzone. It comprises of four elements such as air, light, noise, and effluvia (Nightingale, 1860), which influence on internal zone to maintain homeostasis. Any alterations in one or more subsets of elements of human being and in the environment will result in homeostatic imbalance, which may lead to further complications and/or death of patient.

The nurse, who is enabled to provide care using inter-sensory perception, is able to identify, compare to self and patient, and interpret any alterations in the subsets of elements of human being. If the nurse identifies any alterations, he/she has to take action immediately (Act), evaluate the effectiveness of his/her action (Assess) and affirm (3 A's) the homeostasis of the patient. Nursing care can be redefined as the process of activities done by the nurse using inter-sensory perception, aiming to help the patient to maintain homeostasis between internal and external environment.

Numbness is a situation in which the nurse identifies stimulus through senses but fails to compare and interpret the sensory information. This results in the failure to identify the alterations in the subsets of elements, which leads to further complications and death of the patient.

Methods and materials

A qualitative blinded case study design was selected to test the inter-sensory perception as a nursing care model. The purpose of the design was capturing the phenomena in a real-life context, where the researchers have minimal control over events (Yin, 2003). According to Yin (2003), six evidences could be used such as documentation, records, interviews, direct

observations, participant observation, and physical artifacts in a case study. Authors appointed non-medical personnel to record the events related to nurse-patient care in the natural setting to avoid observational bias. Authors selected eight case studies, which are applicable to the concepts in different hospital settings such as emergency department, outpatient department, intensive care unit, and general wards with above-mentioned sources.

Inter-sensory perception in nursing care and nursing process

The American Nurses Association (2004) identifies six standards of practice: Assessment, diagnosis, outcome identification, planning, implementation, and evaluation. These practices are identified as nursing process. Assessment means collection of information, diagnosis is the identification of problem, outcome identification involves identifying what goal to be achieved, planning is what to do to reach outcome, implementation is carrying out activities, and evaluation is assessing the success of activities.

The model is applied to clinical practice with the following case study; Mr X came to Emergency Department (ED) on feet with colleague at 8.00 am with the complaint of chest pain after having breakfast. He is 64 years old and does not have any history of non-communicable/communicable diseases. The assigned nurse to care for Mr X is a registered nurse, who had three years of nursing education and had been working for the past two years in the emergency department.

Table 1:
Application of inter-sensory perception in nursing care in clinical practice

Time	Events	Sensing modalities of nurse (SM)	Nursing process
8.00 am	Nurse receives the patient from reception and assists the patient to lie down on bed.	Vision, Hearing	
8.06 am	Patient is attached to cardiac monitor and records the vital signs. Collects a brief history from the patient.	Vision, Hearing	Assessment
8.13 am	Informs physician and waiting for the physician.	Hearing	

Time	Events	Sensing modalities of nurse (SM)	Nursing process
8.15 am	Patient is sweating		
8.19 am	Alarm rings		
8.22 am	She identifies the alarm and quickly rushes to patient. She switches off the alarm and records the vital signs as heart rate 36/min and respiration rate 26/min.	Hearing, Vision	Assessment
8.23 am	She starts oxygen 4 litres/min. She identifies the sweating by the patient in room	Vision	Assessment
8.25 am	temperature 20.0 Degree Celsius. She touches the patient to assess the body temperature and perceives it as below normal.	Vision Auto thermoception	Assessment
8.27 am	She checks the temperature with thermometer and reads the body temperature as 35.0 Degree Celsius.	Touch, Vision	Assessment
8.29 am	She attaches the patient to ECG monitor, interprets the reading and identifies as myocardial infarction.	Vision	Nursing diagnosis
8.31 am	She discusses the patient status with the physician through telephone and writes the verbal order.	Hearing, Vision	Outcome planning and plan of action
8.35 am	She gives medications to the patient and reinforces the patient and attender.	Vision, Hearing	Implementation
8.41 am	She informs the cardiac unit regarding transfer of the patient.	Hearing	Implementation
8.50 am	She transfers the patient to cardiac unit.	Vision, Hearing	Implementation
9.15 am	She makes a call to cardiac unit and inquires about the patient status.	Hearing	Evaluation

Table 1 shows the application of 'Inter-sensory perception in nursing care model' in clinical practice. It shows that the nurse did assessment through history collection and recorded vital signs (Sensory Modalities (S.M.): Vision and Hearing). Patient started sweating at 8.15 am. After seven minutes, she recognized the alterations in the physical subzone of the patient. One can easily identify the two aspects of numbness of senses of the nurse for seven minutes; either it may lead to complications and/or death of patient or able to bring the patient back to homeostasis by sudden and effective interventions. She perceived the room temperature by herself (S.M.: Auto thermoception) as very cool but, patient is sweating in the cool environment (S.M.: Vision). To confirm, she touched the patient to assess body temperature (S.M.: Touch). She continued her assessment by reading ECG (S.M.: Vision) and formulated nursing diagnosis as risk for cardiovascular disease. She planned the outcomes and plan of actions with the physician. She reinforced the patient and attender to avoid alterations in the intra and inter psychological zones. She implemented plan of action within six minutes and evaluated the success of action after 20 minutes.

Discussion

Inter-sensory perception in nursing care and nursing metaparadigm

The discipline of nursing has four concepts such as person, health, environment, and nursing. The metaparadigms are abstract concepts, which help to summarize missions of a discipline and place boundaries on the discipline (Kim, 1989; George, 2011). The paper considers six metaparadigms to explain inter-sensory perception in nursing care such as nursing, nurse, human being, patient, health, and environment.

Nursing

Florence Nightingale (1860) considered nursing is to put the patient in best condition for nature to act upon him. In twentieth century, Hall (1966) explained nursing is the process of participation in the care, core, and cure aspects with other members of the health team (George, 2011). The paper explains nursing as a "Profession with unique body of knowledge, attitude, and practice, aimed to mould the sensory modalities of a learner of nursing, to enable him/her to provide care to patients using inter-sensory perception during illness to health continuum or till death by helping

the individual to meet physical, psychological, social, and spiritual needs with appropriate modification of environment of individual, family, and community through nursing education, practice, and research."

Nurse

Florence Nightingale (1860) viewed nurses, who assist the physician in patient care. Peplau (1988) considered nurse, who assists the patient in therapeutic process. The nurse is especially "educated to recognize and respond to the need for help." (George, 2011) The paper explains nurse, who is enabled to provide care to patients using inter-sensory perception. The nurse is able to use one or more senses together to identify, compare to self and patient, and interpret the alterations in the physical, psychological, and environmental subzones of the patients.

Human being

Sister Callista Roy (1984) proposed human being as a person, who responds to stimuli from internal and external environment through coping mechanisms. The coping mechanisms are one of the four modes such as physiological-physical mode, identity mode, role function mode, and interdependence mode (George, 2011). In this paper, human being is an individual, seeking constant adjustment between internal and external zones to maintain homeostasis. Any alterations in one or more subsets of elements of human being will result in homeostatic imbalance, which may lead to further complications and/or death.

Patient

The paper refers patient to human being, who seeks help to retain homeostasis between internal and external zones through identification and action on alterations in the subsets of elements.

Health

Henderson's belief about health was related to human function. It was based on the individual's ability to function independently (Henderson, 1977). The paper explains health as a complete state of homeostasis of an individual between physical, psychological, and environmental zones.

Environment

Nightingale (1974) stressed physical environment consists of ventilation, warmth, noise, light, and

cleanliness that play an important role. Peplau (1980) does not directly address environment. However, she advocated the nurses to consider patient's cultural background. Henderson (1966) considered environment as an individual in relation to families (George, 2011). The paper classifies environment into internal and external zones. Internal zone comprises physical and psychological subzones. External zone consists of four subsets of elements such as air, light, noise, and effluvia.

Inter-sensory perception in nursing care and nursing theory

Theory in nursing is conceptualizing various aspects of nursing, communicated for the purpose of describing phenomena, explaining the relationship between phenomena, predicting possible errors, and suggesting nursing care services. Theory comprises of concepts (and its definitions) and propositions that explain relationship between the concepts (George, 2011). Barnum (1998) stated that a complete nursing theory consists of context, content, and process. Context means the environment in which nursing care is given. Process is the method by which nurse acts on (Barnum, 1998; George, 2011). The paper describes the context as the environment, which is a natural setting, in which patient seeks help to act on him to retain homeostasis. The content elements are senses of nurse and subsets of elements of human being. The process is a series of activities such as identification of alterations in subsets of elements in the human being, comparison to self and patient, interpretation, action, assessment, and affirmation of retention of homeostasis done by the nurse.

Table 2: Comparative analysis of inter-sensory perception in nursing care with Florence Nightingale's environmental theory

Florence Nightingale's environmental theory	Inter-sensory perception in nursing care	
	Human being	Sensory modalities of nurse
Preface: Nursing ought to assist reparative process	Assist the human being to retain homeostasis from alterations in the subsets of elements	Vision, Smell, Hearing, Touch, Taste, and Auto thermoception

Florence Nightingale's environmental theory	Inter-sensory perception in nursing care	
Ventilation and warming	External environment: Air, light, and effluvia	Vision, Smell, and Auto thermoception
Healthy houses	External environment: Air, noise, light, and effluvia Maintain balance between intrapsychological and interpsychological subzones	Vision, Smell, Hearing, Touch, and Auto thermoception
Petty management	External environment: Noise Maintain balance between physical, psychological, and environmental zones	Vision, Hearing, and Touch
Noise	Physical subzone: Nutrition	Hearing
Variety	Physical subzone: Sleep/rest	Vision, Smell, Hearing, Touch, and Auto thermoception
Taking food	External environment: Light	Vision, Smell, Taste, and Touch
Bed	External environment: Air, light, and effluvia Maintain balance between physical and psychological zones	Touch, Smell, and Vision
Light	External environment: Air, light, and effluvia Maintain balance between intrapsychological and interpsychological subzones	Vision and Auto-thermoception
Cleanliness of the rooms	External environment: Air, light, and effluvia Maintain balance between intrapsychological and interpsychological subzones	Vision, Smell, Touch, and Auto thermoception
Personal cleanliness	External environment: Air, light, and effluvia Maintain balance between intrapsychological and interpsychological subzones	Vision, Smell, Touch, and Auto-thermoception
Chattering hopes	External environment: Air, light, and effluvia Maintain balance between intrapsychological and interpsychological subzones	Vision, Hearing, and Touch

Table 2 shows the comparison of inter-sensory perception in nursing care with Florence Nightingale's environmental theory.

Critiquing inter-sensory perception in nursing care

The authors used Johnson and Weber (2005) (George, 2011) criterion based critique model to evaluate the inter-sensory perception in nursing care.

Phase I: Intent of the theory

The meaning of the concepts is clear and easy to understand. The boundaries of the model are consistent with nursing care standards.

Phase II: Concepts and propositions

Major concepts such as sensing, nursing foundry model and a nurse with inter-sensory perception are clearly identified and defined. The propositions like transition of human being into a nurse, human being into a patient, and patient into a human being by retaining homeostasis are interpreted.

Phase III: Usefulness in nursing practice

Conceptual knowledge regarding “inter-sensory perception in nursing care” influences the nurses to reduce unintentional torts.

Strengths

The description of inter-sensory perception in nursing care is uncomplicated and self-explanatory. It explains holistic nature of human being and nurse. The relations among the concepts are clear and explain the significant role of nurses in giving care. It seems to be easy to apply in practice by nurses.

Conclusion

The paper provides an essence of what is nursing, nurse, human being, and patient in practice. Additionally, the paper was able to throw light on sixth sense (Auto thermoception) in addition to five traditional senses, which was unmarked in nursing practice. This model calls nurses to implement the approach ‘inter-sensory perception’ in nursing practice with the empirical concept of ‘open your six senses,’ which paves the way for reduction of unintentional torts in the nursing care.

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References

Adams, D., & Miller, B. (2001). Professionalism in nursing behaviors of nurse practitioners, *Journal of Professional Nursing*, 17, 203-210.

Adrian, E.D., & Umrath, K. (1929). The impulse discharge from the pacinian corpuscle, *Journal of Physiology*, 68 (2), 139–154.

American Nurses Association. (2004). Nursing: Scope and standards of practice, Washington, DC: American Nurses Publishing.

Barnum, B.J.S. (1998). *Nursing theory: Analysis, Application and Evaluation* (5thed.). Philadelphia: Lippincott.

Colley, S. (2003). Nursing theory: its importance to practice. *Nursing Standard*, 17(46), 33-37. Retrieved July 19, 2017, from <http://journals.rcni.com/doi/abs/10.7748/ns.17.46.33.s56>

Chin, P.L., & Jacobs, M.K. (1987). *Theory and nursing: a systematic approach*, 2nd ed., C.V. Mosby, St. Louis.

Darian-Smith, Ian., Johnson.K.O., LaMotte.C., Shigenaga.Y., Kenins.P., & Champness.P. (1979). Warm fibers innervating palmar and digital skin of the monkey: responses to thermal stimuli, *Journal of Neurophysiology*, 42 (5), 1297–1315.

de March., Claire A., Ryu, SangEun., Sicard, Gilles., Moon, Cheil, Golebiowski., & Jérôme. (2015). Structure–odour relationships reviewed in the postgenomic era, *Flavour and Fragrance Journal*, 30 (5), 342–361.

Draper, P. (1990). The development of theory in British nursing: current position and future prospects. *Journal of Advanced Nursing*, 15, 1, 12-15. <http://journals.rcni.com/doi/abs/10.7748/ns.17.46.33.s56>

Dubin, A.E., & Patapoutian. A. (2010). Nociceptors: the sensors of the pain pathway, *Journal of Clinical Investigation*, 120(11), 3760–72.

Etzioni, A. (1969). New York, McMillan, *The Semi-Professions and Their Organizations*. NY: London, Free press.

George, B.J. (2011). *Nursing theories: The base for professional practice* (6th ed.). California State University, Fullerton: Pearson. P. 3-189.

Ghadirian, F., Salsali, M., & Cheraghi, M. A. (2014). Nursing professionalism: An evolutionary concept analysis. *Iranian Journal of Nursing and Midwifery Research*, 19(1), 1–10.

Hall,L.E. (1966). Another view of nursing care and quality. In K.M.Straub & K.S.Parker (Eds.), *Community in patient care; the role of nursing*, Washington, DC: Catholic University Express.

Henderson,V. (1966). *The Nature of Nursing: A Definition and its Implications for Practice, Research, and Education*. New York: Macmillan Publishing. p. 15.

Henderson, V. (1977). *Reference resource for research and continuing education in nursing*, Kansas City, MO: American Nurses Association Publication No.6125.

Ingram, R. (1991). Why does nursing need theory? *Journal of Advanced Nursing*, 16, 350-353.

- Jan Schnupp., Israel Nelken., & Andrew King. (2011). *Auditory Neuroscience*, MIT Press, ISBN 0-262-11318-X.
- Johnson, B.M., & Webber, P.B. (2005). *An introduction to theory and reasoning in nursing* (2nd ed.). Philadelphia: Lippincott Williams and Wilkins.
- Kim, H.S. (1989). Theoretical thinking in nursing: Problems and perspectives, *Advances in Nursing Sciences*, 24, 106-122.
- Marieb., Elaine, N., Hoehn., & Katja. (2007). *Human Anatomy & Physiology* (7th ed.). San Francisco, CA: Pearson Benjamin Cummings.
- Maslow, A.H. (1943). Psychological Review- A theory of human motivation, *Psychclassics*, 50 (4), 370–96.
- Miller, A. (1985). The relationship between nursing theory and practice, *Journal of Advanced Nursing* 10, 417-424.
- Mitchell, R., & Batty, L. (2009). Undergraduate perspectives on the teaching and learning of anatomy, *ANZ Journal of Surgery*, 79(3), 118–21.
- Myers., Isabel Briggs., & Myers, P. (1995). *Gifts Differing: Understanding Personality Type*, Mountain View, CA: Davies-Black Publishing. ISBN 0-89106-074-X.
- Nightingale, F. (1974). “*Introduction by Joan Quixley*”. *Notes on Nursing: What it is and what it is not*. Glasgow & London: Blackie & Son Ltd. ISBN 0-216-89974-5.
- Nightingale, F. (1860). *Notes on nursing: What it is and what it is not*.
- Omari, F.H., Abu Al Rub, R., & Ayasreh, I.R. (2013). Perceptions of patients and nurses towards nurse caring behaviours in coronary care units in Jordan, *Journal of Clinical Nursing*, 22(21–22), 3183–91.
- Peplau, H.E. (1980). *Interpersonal relations in nursing*, NY: Springer.
- Postgate, J.R. (1995). “*Micro senses*”, *the outer reaches of life*, Cambridge University Press, 165.
- Puro, D.G. (2012). Retinovascular physiology and pathophysiology: new experimental approach/new insights, *Progress in Retinal and Eye Research*, 31(3), 258–70.
- Roy, C. (1984). *Introduction to nursing: An adaptation model*. Englewood Cliffs, NJ: Prentice Hall.
- Schacter, D.L., Gilbert, D.T., & Wegner, D.M. (2011). *Psychology*, New York: Worth.
- Small, Dana M., Prescott, & John. (2005). Odor/taste integration and the perception of flavor, *Experimental Brain Research*, 166 (3–4), 345–357.
- Suliman, W.A., Welmann, E., Omer, T., & Thomas, L. (2009). Applying Watson’s nursing theory to assess patient perceptions of being cared for in a multicultural environment, *Journal of Nursing Research*, 17(4), 293–7.
- Veenema, T.G. (2001). An evidence-based curriculum to prepare students for global nursing practice, *Nursing Health Care Perspectives*, 22(6), 292–8.
- Vygotsky, L.S. (1978). *Mind in Society*. Cambridge, MA: Harvard University Press.
- Yin, R. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.