



EDO UNIVERSITY IYAMHO
Department of Nursing Science
NSC 201 Foundation of Nursing Science

Instructor: *Mr. Ogunlade, Alade Aderinto*; email:ogunlade.alade@edouniversity.edu.ng

Lectures: Tuesday, 2 pm – 4 pm, LT3, phone: (+234) 8062489290

Office hours: Tuesday, 8 am to 1:45 pm (just before class), Office: Department of Nursing Rm 37

Teaching Assistants: *Mr. E.M Akpotor*

General overview of lecture: The course provides the foundation upon which the practice of nursing in the three tiers of health care in Nigeria is based.

Prerequisites: Good interpersonal relationship

Learning outcomes: At the completion of this course, students are expected to:

- i. discuss the components of the sensory-perception process.
- ii. describe factors that influence sensory function.
- iii. identify clinical signs and symptoms of sensory deprivation and overload.
- iv. describe essential components in assessing a client's sensory-perception function.
- v. discuss factors that place a client at risk for sensory disturbances.
- vi. develop nursing diagnoses and outcome criteria for clients with impaired sensory function.
- vii. discuss nursing interventions to promote and maintain sensory function.
- viii. identify strategies to promote a therapeutic environment for the client with acute confusion/delirium.

Assignments: We expect to have 5 individual homework assignments throughout the course in addition to a Mid-Term Test and a Final Exam. Home works are due at the beginning of the class on the due date. Home works are organized and structured as preparation for the midterm and final exam, and are meant to be a studying material for both exams.

Grading: We will assign 10% of this class grade to home-works, 10% for seminar presentations, 10% for the mid-term test and 70% for the final exam. The Final exam is comprehensive.

Textbook: The recommended textbooks for this class are as stated:

Title: Kozier & Erb's Fundamentals of Nursing : Concepts, Process, and Practice

Authors: Berman, A and Snyder, S.J

Publisher: Pearson Education

ISBN- 13: 978-0-13-802461-1

Title: Fundamentals of Nursing

Authors: Potter, P.A., Perry, A.G., Stockert, P.A and Hall, A.M

Publisher: Mosby, an affiliate of Elsevier Inc

Main Lecture: Below is a description of the contents.

Introduction to Sensory Perception

An individual's senses are essential for growth, development, and survival. Sensory stimuli give meaning to events in the environment. Any alteration in people's sensory functions can affect their ability to function within the environment. For example, many clients have impaired sensory functions that put them at risk in the health care setting; nurses can help them find ways to function safely in this often confusing environment.

Components of the Sensory Experience

The sensory process involves two components: reception and perception. **Sensory reception** is the process of receiving stimuli or data. These stimuli are either external or internal to the body. External stimuli are **visual** (sight), **auditory** (hearing), **olfactory** (smell), **tactile** (touch), and **gustatory** (taste). Gustatory stimuli can be internal as well. Other types of internal stimuli are kinesthetic or visceral. **Kinesthetic** refers to awareness of the position and movement of body parts. For example, a person walking is aware of which leg is forward. A related sense is **stereognosis**, the ability to perceive and understand an object through touch by its size, shape, and texture. For example, a person holding a tennis ball is aware of its size, round shape, and soft surface without seeing it. **Visceral** refers to any large organ within the body. Visceral organs may produce stimuli that make a person aware of them (e.g., a full stomach). **Sensory perception** involves the conscious organization and translation of the data or stimuli into meaningful information. For an individual to be aware of the surroundings, four aspects of the sensory process must be present:

Stimulus: This is an agent or act that stimulates a nerve receptor.

Receptor: A nerve cell acts as a receptor by converting the stimulus to a nerve impulse. Most receptors are specific, that is, sensitive to only one type of stimulus, such as visual, auditory, or touch.

Impulse conduction: The impulse travels along nerve pathways either to the spinal cord or directly to the brain. For example, auditory impulses travel to the organ of Corti in the inner ear. From there the impulses travel along the eighth cranial nerve to the temporal lobe of the brain.

Perception: Perception, or awareness and interpretation of stimuli, takes place in the brain, where specialized brain cells interpret the nature and quality of the sensory stimuli. The client's level of consciousness affects the perception of the stimuli.

Arousal Mechanism

For the person to receive and interpret stimuli, the brain must be alert, also referred to as arousal. The reticular activating system (RAS) in the brainstem is thought to mediate the arousal mechanism. The RAS has two components: the reticular excitatory area (REA) and the reticular inhibitory area (RIA). The REA is responsible for arousal and wakefulness. People have their own zone of optimum arousal, the level at which the person feels comfortable. **Sensoristasis** is the term used to describe the state in which a person is in optimal arousal. Beyond this comfort

zone people must adapt to the increase or decrease in sensory stimulation. An absence of stimuli from the RAS to the cerebrum results in the brain becoming inactive or useless. The brain has the capacity to adapt to sensory stimuli. For example, a person living in a city may not notice traffic noise that someone from a rural area finds loud and disturbing. Not all sensory stimuli are acted on; some are stored by the memory to be used at a later date.

Awareness is the ability to perceive internal and external stimuli, and to respond appropriately through thought and action. There are several states of awareness. A normal, alert person can assimilate many kinds of stimuli at one time.

States of Awareness

Full consciousness: Alert; oriented to time, place, person; understands verbal and written words

Disoriented: Not oriented to time, place, or person

Confused: Reduced awareness, easily bewildered; poor memory, misinterprets stimuli; impaired judgment

Somnolent: Extreme drowsiness but will respond to stimuli

Semi-comatose: Can be aroused by extreme or repeated stimuli

Coma: Will not respond to verbal stimuli

Factors Affecting Sensory Function

A number of factors affect sensory reception and perception, including a person's developmental stage, culture, level of stress, medications and illness, and lifestyle and personality.

Developmental Stage

Perception of sensation is critical to the intellectual, social, and physical development of infants and children. Infants learn to recognize the face of their mother or caregiver and establish bonding essential to later emotional development. Young children respond to music by singing and dancing as they begin to interact with their peers in groups. As children grow, they learn to interpret visual and auditory signals when preparing to cross the street. Adults have many learned responses to sensory stimuli. The sudden loss or impairment of any sense, therefore, has a profound effect on a person of any age. Normal physiological changes in older adults put them at higher risk for altered sensory function. The diminishing of sensory perception that may come with chronic disease or aging is generally gradual.

Culture

An individual's culture often determines the amount of stimulation that a person considers usual or "normal." For example, a child reared in a big-city Latino neighbourhood where extended families share responsibilities for all the children may be accustomed to more stimulation than a child reared in a European-American suburb of scattered single-family homes. In addition, the normal amount of stimulation associated with ethnic origin, religious affiliation, and income level, for example, also affects the amount of stimulation an individual desires and believes to be meaningful. The sudden change in cultural surroundings experienced by immigrants or visitors to a new country, especially where there are differences in language, dress, and cultural behaviours, may also result in sensory overload or cultural shock.

Cultural deprivation, or cultural care deprivation, is a lack of culturally assistive, supportive, or facilitative acts. It is important that nurses be sensitive to what stimulation is culturally acceptable to a client. For example, in some cultures touching is comforting, whereas in others it is offensive. Some clients find the presence of cultural or religious symbols reassuring, and their absence a source of anxiety. Nurses should encourage clients who want to have such symbols present to do so, and to follow practices with which they are comfortable, provided that these practices do not endanger their health.

Stress

During times of increased stress, people may find their senses already overloaded and thus seek to decrease sensory stimulation. For example, a client dealing with physical illness, pain, hospitalization, and diagnostic tests may wish to have only close support people visit. In addition, a client may need the nurse's help to decrease unnecessary stimuli (e.g., noise) as much as possible. On the other hand, clients may seek sensory stimulation during times of low stress.

Medications and Illness

Certain medications can alter an individual's awareness of environmental stimuli. Narcotics and sedatives, for example, can decrease awareness of stimuli. Some antidepressants can also alter perceptions of stimuli. Anyone taking several medications concurrently may show alterations in sensory function; older adults are especially at risk for such alterations and need to be monitored carefully. Some medications, if taken in large doses or over a long period of time, become ototoxic, injuring the auditory nerve and causing hearing loss that may be irreversible. Some of these medications are aspirin, furosemide (Lasix), the aminoglycosides, and certain drugs given for cancer chemotherapy. Certain diseases, such as atherosclerosis, restrict blood flow to the receptor organs and the brain, thereby decreasing awareness and slowing responses. Some central nervous system diseases cause varying degrees of paralysis and sensory loss. Diseases of the inner ear can affect the kinesthetic sense.

Lifestyle and Personality

Lifestyle influences the quality and quantity of stimulation to which an individual is accustomed. A client who is employed in a large company may be accustomed to many diverse stimuli, whereas a client who is self-employed and works in the home is exposed to fewer, less diverse stimuli. People's personalities also differ in terms of the quantity and quality of stimuli with which they are comfortable. Some people delight in constantly changing stimuli and excitement, whereas others prefer a more structured life with few changes.

Sensory Alterations

People become accustomed to certain sensory stimuli, and when these change markedly an individual may experience discomfort. For example, when clients enter a hospital they usually experience stimuli that differ in quantity and quality from those to which they are accustomed. These changes may cause clients to become confused and disoriented. Nurses have become increasingly aware of the behaviours that may result from different stimuli. They now pay more attention to colour, sound, privacy, and social interaction for clients so that the stimuli more

closely resemble those in the home environment. Factors that contribute to alterations in behaviour include sensory deprivation, sensory overload, and sensory deficits.

Sensory Deprivation

Sensory deprivation is generally thought of as a decrease in or lack of meaningful stimuli. When a person experiences sensory deprivation, the balance in the reticular activating system is disturbed. The RAS is unable to maintain normal stimulation to the cerebral cortex. Because of this reduced stimulation, a person becomes more acutely aware of the remaining stimuli and often perceives these in a distorted manner. The person often experiences alterations in perception, cognition, and emotion. Clinical Manifestations lists clinical signs of sensory deprivation.

Sensory Overload

Sensory overload generally occurs when a person is unable to process or manage the amount or intensity of sensory stimuli. Three factors contribute to sensory overload:

- i. Increased quantity or quality of internal stimuli, such as pain, dyspnoea, or anxiety
- ii. Increased quantity or quality of external stimuli, such as a noisy health care setting, intrusive diagnostic studies, or contacts with many stranger
- iii. Inability to disregard stimuli selectively, perhaps as a result of nervous system disturbances or medications that stimulate the arousal mechanism.

Sensory overload can prevent the brain from ignoring or responding to specific stimuli. Because of the many stimuli, the individual has difficulty perceiving the environment in a way that makes sense. As a result the individual's thoughts race in many directions, causing restlessness and anxiety. The person usually feels overwhelmed and does not feel in control. It is important for nurses to remember that sights and sounds that are familiar to them often represent overload to clients. People who have sensory overload may appear fatigued. They often cannot internalize new information and they experience cognitive overload. Factors such as pain, lack of sleep, and worry can also contribute to sensory overload.

Sensory Deficits

A sensory deficit is impaired reception, perception, or both, of one or more of the senses. Blindness and deafness are sensory deficits. When the loss of sensory function is gradual, individuals often develop behaviours to compensate for the loss; sometimes these behaviours are unconscious. For example, a person with gradual hearing loss in the right ear may unconsciously turn the left ear toward a speaker. However, sudden loss of one of the senses can result in disorientation, and compensatory behaviour often takes days or weeks to develop. Clients with sensory deficits are at risk for both sensory deprivation and sensory overload. For example, persons with visual problems may be unable to read, watch television, or recognize nurses by sight, which could lead to sensory deprivation. On the other hand, blind people often have highly structured home environments, and the diversity and unfamiliarity of the hospital environment can create sensory overload. At the same time, impaired vision often results in an inability to move around readily or socialize with others.

