Objective 1. Describe the components of a sensory experience

What are Your Senses? Sight, Sound, Smell, Taste, Touch

- Normal sensation
  - Reception
    • Stimulation of receptor such as light, touch, or sound
  - Perception
    • Integration and interpretation of stimuli
  - Reaction
    • Only the most important stimuli will elicit a reaction

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Nursing Knowledge Base:
Factors Affecting Sensory Function

<table>
<thead>
<tr>
<th>Age</th>
<th>Meaningful stimuli</th>
</tr>
</thead>
<tbody>
<tr>
<td>Various changes occur</td>
<td>Reduces the incidence of sensory deprivation</td>
</tr>
<tr>
<td>across the lifespan</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount of stimuli</th>
<th>Social interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can cause sensory overload</td>
<td>Increases with lack of socialization with family</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental factors</th>
<th>Cultural factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation, recreation,</td>
<td>Sensory alterations occur in select groups</td>
</tr>
<tr>
<td>and sports activities</td>
<td></td>
</tr>
</tbody>
</table>
Age Related Changes
Gerontological Considerations
Sensoriperceptual function often decreases in older adults
Middle age adults my develop presbyopia
Hearing changes
Vision changes
Delayed reception and reaction to speech
Decrease in the number of taste buds
Decreased sensitivity to odors
Tactile changes
After age 60 difficulty with balance & coordination.

Objective #3 Assess the effect of sensory deficit, deprivation and sensory overload on health

Sensory Alterations

• Sensory deficits
  – Deficit in the normal function of sensory reception and perception

• Sensory deprivation
  – Inadequate quality or quantity of stimulation

• Sensory overload
  – Reception of multiple sensory stimuli

Persons at Risk For Sensory Alterations

Vision impaired
  Work with chemicals, welding, racquetball...

Hearing impaired
  Loud noises, rock musician

Occupational hazards
  Repetitive motion: Manicurist, computer programmer, carpal tunnel (trauma to median nerve)
History & Interview

Medications, present illness, chronic illness, past hospitalization
Headache
Memory - Short term/long term
Dizziness
Visual disturbance
   How long? use screening tools...
Weakness
Behavior change
Hearing loss
   How long? use screening tools...

Physical Exam

General
   Appearance
   Hygiene, cleanliness
   Appropriateness of make-up, clothes
Speech
Posture
Symmetry

Physical Exam continued

Motor Sensory
   Inspection
   Palpation
touch
   muscle strength
Assess Muscle Strength

<table>
<thead>
<tr>
<th>FUNCTION LEVEL</th>
<th>GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-No evidence of contractility</td>
<td>0</td>
</tr>
<tr>
<td>-Sl. Contractility, no movement</td>
<td>1</td>
</tr>
<tr>
<td>-FROM, gravity eliminated (passive)</td>
<td>2</td>
</tr>
<tr>
<td>-FROM with gravity</td>
<td>3</td>
</tr>
<tr>
<td>-FROM against gravity, some resistance</td>
<td>4</td>
</tr>
<tr>
<td>-FROM against gravity, full resistance</td>
<td>5</td>
</tr>
</tbody>
</table>

Assess Motor Function

Gait - Steady & smooth, limping, shuffling, foot dragging
Romberg’s Test - Feet together, eyes closed, stand on one ft. than other. Note sway (some normal), if loss of balance (kinesthetic) could be cerebellar disease

Coordination - Supinate & pronate hand on lap. Touch index then own nose. Heel down shin draw “8” with big toe

Assessing Muscle Tone
Deep Tendon Reflexes

0 (none) to 4+ (hyperactive)
2+ is normal
Slightly stretch muscle through position
Tap skin over a tendon
Compare symmetry of reflex
Asymmetry indicates altered reflex pathway
Draw a stick person to illustrate

Deep Tendon Reflexes

- • Brachioradialis - Flexion
- • Biceps - Flexion
- • Triceps - Extension
- • Patellar - Extension
- • Achilles - Plantar flexion

Scale:
- ++++ = Very Hyperactive (4+)
- +++ = Hyperactive (3+)
- ++ = Normal (2+)
- + = Hypactive (1+)
- 0 = Absent

Patellar Tendon Reflex
Superficial Reflexes

Abdominal
Abdominal muscle contraction results in deviation of the umbilicus towards the stimulus

Plantar reflex
Scratch from sole along outside side, bend inward at the ball toward the large toe.
Normal response is flexion of the toes
Abnormal: “Babinski response”
Dorsiflexion of the big toe & fanning out other toes
Indicates an abnormality of the upper motor neurons

Physical Exam continued

Mental Status
Orientation
Person, place & time
Memory
recent & remote
State 3 unrelated objects, recall later
Affect and Mood
MMSE

Cont..

Judgment, abstract thinking
“Don’t count your chickens before they hatch”
Identify similarities between terms such as “A dog is to a beagle a cat is to a ___”
“What do a tree & a rose have in common?”
Physical Exam continued

Pupils

- Dim room
- Light from side - Pupils constrict to light
- Accommodation - Gaze at distant obj. bring object to 4 inches towards nose, pupils converge & constrict
- Black, round, regular & equal in size (3 - 7 mm)

PERRL Pupils equal, round, reactive to light
PERRLA (adds accommodation)

Illumination of Pupils Causes Pupillary Constriction

Physical Exam continued

Senses
- Vision
- Hearing
- Smell
- Touch
- Taste
- Position Sense - Kinesthetic
Glasgow Coma Scale:

- Measures consciousness by objective numerical scale
- One method of clinical evaluation of brain injury
  - Best eye opening response - Spontaneous
  - Best verbal response - Oriented
  - Best motor response - Obeys verbal command

Glasgow Coma Scale

- Eye Opening
  - Spontaneous (4)
  - To Speech (3)
  - To Pain (2)
  - NR (1)
- Verbal Response
  - Oriented (5)
  - Confused conversation (4)
  - Inappropriate words (3)
  - Incomplete (2)
  - NR (1)
- Motor Response
  - Obeys Commands (6)
  - Localized Pain (5)
  - Flexion Withdrawal (4)
  - Abnormal Flexion (3)
  - Abnormal Extension (2)
  - Flaccid (1)
- Scores
  - Severe 3-8
  - Moderate 9-12
  - Mild 13-14
  - ↓ 15 a ↓ LOC
  - 3 lowest score
  - 7 or less is r/t coma

Documentation of Normal Findings

Carries on appropriate conversation
A&O X 3
Responded to questions quickly & with cooperation
Immediate recall of recent & past events
Able to interpret abstract ideas & make associations of related concepts
PERRL
Intact pain, light touch, temperature & position sense
5+ muscle strength
No deficit in mobility or coordination, even & balanced gait
DTR symmetrical 2+
Factors Influencing Assessment

Age
Injury
Illness
Diversity
Environment
Medications

Assessment

<table>
<thead>
<tr>
<th>Persons at risk</th>
<th>Sensory alteration history</th>
</tr>
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<tbody>
<tr>
<td>Mental status</td>
<td>Physical assessment</td>
</tr>
<tr>
<td>Ability to perform self-care</td>
<td>Health promotion habits</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>Communication methods</td>
</tr>
<tr>
<td>Social support</td>
<td>Use of assistive devices</td>
</tr>
<tr>
<td>Other factors affecting perception</td>
<td>Client expectations</td>
</tr>
</tbody>
</table>

Common Behaviors that Suggest Alterations

Change in LOC
Gait disturbance
Tremors
Weakness
Decreased sensation
Unequal pupils
Emotional lability
States of Awareness

Changes in State of Awareness (Level of Consciousness-LOC)

TERMS
- Fully conscious
- Disoriented
- Confused
- Somnolent
- Semi-comatose
- Comatose

Objective 7: Formulate some nursing diagnosis based on assessment.

Nursing Diagnoses:
- Sensory Alterations
- Adjustment, impaired
- Communication, impaired verbal
- Injury, risk for
- Mobility, impaired physical
- Self-care deficit (bathing, dressing, toileting)
- Self-esteem disturbance
- Sensory/perceptual alterations
- Social isolation
- Thought processes, altered
Diagnoses  

Continued

- Acute confusion
- Impaired memory
- Unilateral neglect

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Objective #8: Select outcomes for persons with sensory alterations.

Outcomes

- Decreased signs of sensory overload
- Improved ability to communicate
- Uses safety measures to prevent harm

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Therapeutic Nursing Actions for Changes in States of Awareness

- Maintain a consistent daily schedule
- Orient client to time place person often as needed
- Touch and stroke the unconscious child
- Wear a name tag with large print
- Address client by name and introduce yourself freq.
- Place a calendar and clock in the room and refer to freq.
- Assign the same caregivers, if possible

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Interventions

- Plan nursing interventions that promote health when a client is at risk for alterations

- Health promotion
  - Screening
  - Preventive safety
  - Use of contact lenses, eyeglasses, hearing aids
  - Promotion of meaningful stimuli
  - Creating a safe environment

Sample Nursing Diagnosis

Two Part Risk Nsg Dx
Risk for injury r/t visual impairment, secondary to cataracts

Three Part Nsg Dx
Sensory/perceptual alterations r/t visual impairment secondary to cataracts AEB the need for brighter light to read & c/o difficulty distinguishing edges of stairs

Evaluation

- The client is the only person who can tell you if sensory ability has improved as a result of nursing interventions.
Critical Thinking Synthesis
Integrate knowledge
Pathophysiology of sensory deficits
Factors that affect sensory function
Therapeutic communication principles

What do we do now?

Study Guide
• Recognize components of a normal visual assessment
• Distinguish between the sensory alterations: Sensory deficit, sensory overload, & sensory deprivation
• Apply the nursing process to sensory-perceptual alterations
• Identify tool(s) that measure level of consciousness objectively
• Know the normal parameters for deep tendon reflexes