Multi-sensory intervention for a 33 years old female clients with profound mental retardation

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The case

Amy is a 33 year-old female who currently resides on building 1 at the NV Center. Amy is diagnosed with profound mental retardation. She was admitted to NV center four years ago due to the fact that her mother could no longer adequately care for her at home. Secondary diagnoses include: seizure disorder, kyphosis, cortical blindness, and minimal hearing impairment. Amy uses a wheelchair for mobility, is unable to bear weight and requires a three-man transfer when being moved to and from her wheelchair. Amy has received a G-tube this year and therefore no longer receives any food orally. Additional details as to Amy’s skills will follow.

Amy has strengths in the physical domain. She is able to independently make some body movements. An example is that she can roll when she is in her bed or on a mat on the floor. This is also an area for increased health and safety monitoring as well, due to the fact that Amy is visually impaired and could possibly injure herself by rolling into an object. Amy is also able to lift her legs above her when she is in a sitting or lying down position. Amy requires total assistance for her daily living needs. While Amy sometimes vocalizes or shows changes in affect, it is unclear exactly how many of these expressions and vocalizations are purposeful to communicate a specific need or mood. At the same time, it is unclear how much, if anything, Amy is able to see. The presence of cortical blindness involves having totally intact eyes that should function effectively, however, Amy is unable to see normally due to a processing dysfunction. Additional information regarding cortical blindness will follow. Some previous observations, conducted during the use of bright lights as a visual stimulation activity, have led previous therapists to believe that Amy does see differences in lighting. It has been noted also that Amy enjoys being touched. Few purposeful hand movements have been noted during introduction of leisure items. Some positive affect changes have been noted when music is introduced into Amy’s environment. Amy has previously participated in aquatics and it has been noted that she responded positively.

In terms of dislikes and needs it has been noted that Amy does not like having wind or rain in her face. Psychologists have noted an increase in self-stimulatory hand mouthing behavior over the past year. It is unclear as to the cause of this increase. Amy does not initiate leisure participation and therefore there is concern about Amy’s quality of life.

Therapeutic Recreation Treatment Plan

Why Referred:

Amy is a relatively new resident who is currently not receiving formal TR Services. Due to Amy’s profound level of impairment (see case study summary), lack of leisure skills, and an increase in self-stimulatory behaviors (such as hand-mouthing), TR Services are being
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recommended. Other current leisure barriers or challenges include cortical blindness and little to no social interaction skills. TR Services have been called upon to further assess Amy’s needs, preferences, and abilities, in order to facilitate a feasible, evidenced based intervention plan, with the goal of increasing Amy’s quality of life.

Subjective:

Amy is unable to answer questions verbally or by use of signs, pictures or other communication devices. Amy’s mother was interviewed to gain information about her daughter’s skills, needs, likes and dislikes. Amy’s mom reports that Amy did participate in swimming in the past and did show some positive responses to the experience. She also indicated that Amy enjoys rolling her body when in bed and is able to initiate and complete some body movements independently. Mrs. S. also reported that Amy likes music. Amy’s cortical blindness was discussed briefly. Mrs. S. reports that Amy’s eyes are intact and functioning normally, however, the blindness is caused by a processing problem within her brain. Mrs. S. reported that Amy dislikes wind blowing in her face. Mrs. S. is in support of trying new interventions to see if Amy will show a positive response. Mrs. S. reports that Amy shows little to no response to her or to other caregivers and it is difficult to determine how much Amy comprehends.

Objective:

Amy is a 33 year-old female who currently resides on unit 1 at the NV Center. She is diagnosed with profound mental retardation. Other diagnoses that may impact her leisure functioning includes: seizure disorder, kyphosis, and cortical blindness. Amy also has a slight hearing impairment. Amy attends a day placement where she participates in various prevocational and activity related programs. She returns to her residential unit in the late afternoon. The recreation therapist has observed Amy as well as initiated some interaction for the purpose of learning more about Amy and beginning to establish rapport. Amy is currently not receiving formal TR intervention. Amy’s mother visits her weekly. Amy shows little response to the presence of her mother or to others who may try to interact with her. A positive change in affect has been observed by this therapist when Amy has been presented with various tactile stimulatory items and/or activities, as well as when music has been provided. The degree of visual impairment caused by Amy’s cortical blindness is unclear. Amy’s clinical record indicates that she has responded to bright lights when in a multi-sensory environment with other lights off. It has also been verified that Amy can initiate some movement on her own while on a mat or in bed. She can raise her legs up in the air and can roll. She is unable to initiate transitioning from a supine position to sitting position. She is also unable to sit unsupported, and is dependent upon a wheelchair for mobility.

In terms of leisure participation, Amy spends her evening hours after work listening to music, the television, or being introduced to small leisure items such as musical instruments or soft objects to hold. She also occasionally attends special events in the gymnasium.
**TR Assessment Summary:**

**Physical Domain**
Possesses head control. Able to roll from side to side and lift legs above her when in supine or seated position. Can perform palmer grasp and release items. Is non-ambulatory and unable to bear weight. Generally does not initiate any purposeful hand movements related to leisure. Does initiate lifting hands to mouth for purpose of self-stimulation.

**Cognitive Domain**
Localizes to the sound of her name or to music. Changes in affect noted on occasion in response to presented sensory stimulation.

**Social/Emotional Domain**
It has been noted that Amy looks in the direction of bright lights. She has demonstrated positive engagement (via facial expressions) when introduced to leisure items, music and other sensory experiences. Amy tolerates and sometimes responds positively to physical touch. Amy does not initiate contact or social interaction with others. Amy will very rarely contact leisure items on her own initiative. Amy will show displeasure via vocalization and facial expression.

**Strengths That Relate to Leisure Participation**
1. Initiates movement ie: rolling and lifting legs, when in bed or on a mat.
2. Shows positive affect in response to music, tactile stimulation and bright lights.
3. Communicates dislikes via facial expressions and vocalizations.
4. Able to independently move hands and arms (although this is rarely initiated for appropriate leisure purposes).

**Needs that can be addressed through TR Intervention**
1. Reduce self-stimulatory behaviors.
2. Increase positive affect and engagement with preferred leisure items and activities.
3. Increase self-directed movement and choice-making
4. Optimal environment for engagement, including social and leisure supports.

**Long term goals (within one year)**
The numbered goals below correspond with the above identified client needs.

1. Amy will demonstrate a reduction in hand-mouthing behaviors during TR sensory related interventions.
2. Amy will show an increase in frequency of demonstrations of pleasure in response to the introduction of TR sensory related interventions.
3. Amy will increase the number of independent movements made to orient herself to a sensory stimuli introduced during TR intervention.
4. Amy will increase independent movement in aquatic environment to maintain/enhance physical fitness and range of motion.
5. Direct care staff will demonstrate application of in-service training, by providing preferred sensory items to Amy during her daily routine.

Specific Objectives

The numbered objectives below correspond with the identified goals listed above.

1. Amy will engage in fewer hand-mouthing behaviors than observed during baseline data collection, when presented with sensory leisure items during a structured TR intervention, for 2 out of 4 sessions, by 6/1/03.

2. Amy will demonstrate positive affect/engagement, as defined in plan, in response to presented sensory leisure items/activities for 2 out of 4 test trials, in 2 out of 4 probe sessions by 6/1/03.

3. When placed on a mat in supine position, Amy will demonstrate initiation of movement toward one of the leisure items placed near her, for 2 out of 4 data probe sessions, by 6/1/03.

4. Amy will demonstrate independent movement of one or more extremities in the aquatic environment, during 2 out of 3 data probe sessions per month, by 6/1/03.

5. During unannounced observation of support environment Recreation Therapist, preferred sensory leisure items will be given to Amy, by direct care staff, in 2 out of 4 observations per month, for 3 consecutive months by 9/1/03.

Intervention Planning

The broad overall focus of therapeutic recreation intervention involves the utilization of Amy’s strengths and interests to meet existing needs in regard to Amy’s quality of life.

Specific Interventions

1. Amy will participate in an aquatic therapy session 1 time per week for 30 minutes to facilitate accomplishment of Goals and Objectives #1, 2 & 4.

2. Amy will participate in a sensory program 1-2 times per week to facilitate accomplishment of Goals and Objectives #1, 2, & 3.

3. Amy will be introduced to her preferred sensory leisure items at various times throughout the day, while on her living unit, by unit staffs who has received in-service training regarding this program.

Therapeutic Approaches

1. Reduce unnecessary distractions during interventions.
2. Build trust through appropriate touch, greetings and verbalizations, gentle holding of client and calm unrushed intervention.
3. Provide tactile stimulation through introduction of appropriate tactile stimulating leisure items.
4. Utilize repetition to enhance learning.
5. Utilize hydrodynamic principles during aquatic sessions to facilitate therapeutic results.
6. Redirect inappropriate or undesirable behavior.
7. Positively reinforce appropriate or desirable behaviors.
8. Match the instructional method to Amy’s distinct characteristics or learning style.
10. Utilization of task analysis.

**Evaluation:**

Complete attendance sheets and write behavioral comments regarding participation for all client contact. Collect data on all listed objectives weekly. Review data monthly and summarize in monthly progress notes. If Amy meets an objective, increase the criteria of that particular objective in order to continue to facilitate increased skills in that area. If an objective is not met, revise the implementation plan and/or the objective to better facilitate meeting target outcomes.

**Research Evidence**

*Aquatic Therapy*

The benefits of aquatic therapy involve not only the physical domain, but also include the psychosocial and cognitive domains. Aquatic therapy can also enhance leisure skill development. In regard to physical benefits, effects such as “muscle relaxation, relief of pain and muscle spasms, maintaining or increasing range of motion in joints, reeducation of paralyzed muscles, and improving muscle strength and endurance” have been noted (Lepore, Gayle, & Stevens, 1998, p.12). In regard to Amy’s unique characteristics, aquatic therapy will provide her with an independent freedom of movement that she cannot experience in other settings. It is also an effective and safe environment for receiving needed sensory input.

According to Campion (1985), water acts to stimulate the sites where we ‘take in’ information (perceptual stimulant), such as the skin, vestibular system (the system that facilitates balance), and visual and auditory systems. “Thus, for individuals with disabilities who require sensory stimulation, water can be an important part of therapy and rehabilitation” (Lepore et al., p.12). Literature indicates that for individuals with physical disabilities (with the exception of multiple sclerosis), the water temperature should be maintained at 85 degrees or above (Lepore et al.). In addition, it is recommended that the water temperature not be above 104 degrees. A unique benefit of aquatics is that hydrodynamic principles can be used to enhance learning. As a result of buoyancy “the participant can move more freely while controlling stress on the joints” (Lepore et al., p134). The natural resistance that the water creates when a movement is performed can be utilized to build an individual’s strength. “As a person gets stronger, increase resistance for improved muscular strength and endurance by natural turbulence through faster movements....” (Lepore et al., p.134).
**Sensory Intervention**

Multi-sensory environments are gaining popularity as a viable intervention for individuals with multiple severe/profound disabilities. In short, it is an environment designed specifically for an individual child, which takes into account everything the transdisciplinary team has discovered about the child and then uses that know-how to construct a learning environment to enable the child to begin the learning process” (Pagliano 1999, p. 99). Providing the optimal level of arousal for the individual, so that he/she is not over or under stimulated, opens the door for successful introduction of leisure items, activities, and interventions and facilitates an increased attention to task. According to sensory theory, each individual has an optimal level of arousal in which they function most effectively. Central processing problems may impact the way in which sensory input is received and interpreted. According to Heubner (2001), “…difficulties with self modulation of arousal have been a fundamental premise supporting the use of sensori-motor interventions for people with autism and other sensory processing disorders”(p. 26). She goes on to say that “In the middle range of arousal, attention and affect are at optimal levels for function and enhanced performance and learning” (p. 27). It is also theorized that individuals who exhibit self-stimulatory behaviors do so because there is a degree of, or type of, sensory input that they crave and their need for the sensory input is met through self-stimulation. It is believed that in these cases, the introduction of the desired stimulation in more appropriate ways may result in the reduction of the self-stimulatory behavior. “A variety of self-stimulatory behaviors….may be observed. These behaviors appear to be intrinsically driven and may be due to decreased sensory intake” (p.142).

Cortical blindness is described as “a temporary or permanent visual impairment caused by the disturbance of the posterior visual pathways and/or the occipital lobes of the brain” (Blind Children’s Fund, 2003). The degree of impairment may vary from total impairment to severe impairment. This condition indicates “that the visual systems of the brain do not consistently understand or interpret what the eyes see” (Blind Children’s Fund, 2003). It is noted that visual improvements are sometimes made and certain treatments are recommended such as vision stimulation activities of all kinds, which are implemented over a long period of time. It is also believed that prognosis for improvement is better in a young child than in an adult. Using bright, fluorescent colors are recommended as appropriate interventions, as are different lighting situations. These suggestions correspond to the types of sensory input possible in a multi sensory environment specifically arranged in a way that is based on the individual client’s needs.

**Optimum Environment**

According to the American Association On Mental Retardation, an optimum environment is one “which facilitates independence/interdependence, productivity, and community integration” (1992, p. 12). In order to facilitate generalization and maintenance of skills that an individual learns, appropriate supports must exist within their living environment. “The term ‘appropriate supports’ means an array of services, supportive individuals, and receptive settings that match an individuals needs” (American Association On Mental Retardation, 1992, p. 4).

Individuals with Mental Retardation can learn skills, however the skills often need to be taught in small steps and with much repetition. Therefore, the reinforcement of learned skills,
throughout the individual’s daily routine, is key to the maintaining of those skills. Articles have been written that address increasing of happiness of individuals with profound disabilities. Many of these articles involve the introduction of preferred leisure items as part of the individual’s daily routine in their living environment. One example was a study that assessed the effects of stimulation on indices of happiness and positive engagement in 4 persons with profound multiple disabilities.

The systematic presentation of stimuli was used as a daily strategy, implemented in the individuals’ living environment. Results indicated that indices of happiness were substantially increased in 2 participants and moderately increased in 2 others (Lancioni, O’Reilly, Campodonico,. & Mantini, 2002).

Theoretical Foundation

An eclectic approach has been taken in the designing of the interventions based upon theoretical foundations. This approach is defined as “the utilization of approaches and techniques drawn from several sources” (Austin, 1997, p. 8). The primary approaches utilized combine both behavioral and sensory theory approaches. The assumption of the behaviorist is that behaviors are learned and can be changed through learning. The techniques utilized in this intervention plan that are behavioral in nature involve the use of positive and negative reinforcement and modeling. In terms of sensory theories, Occupational Therapy literature offers important guidance in terms of the importance of processing of sensory input and optimal arousal. The premise is that sensory processing disorders may impede the individual from being able to receive the appropriate types and amounts of sensory input that they need to function most appropriately. Through forms of sensory stimulation or other types of sensory intervention, positive outcomes have been documented. Amy’s reduced visual input and apparent need for stimulation through hand-mouthing behaviors are two of several reasons why a sensory theory perspective is being applied.

Reference


