Nature-Based Sensory Integration Program for Children with Sensory Processing Dysfunction

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BACKGROUND

- Sensory integration
  - Interpretation of sensory input to generate an environmental response (Mailloux, Parhman, Roley, Ruzzano, & Schaaf, 2018)
  - Required for participation in meaningful activities (Miller, 2014)
  - Dysfunction experienced in up to 90% of children with disabilities and 16% of children without disabilities (Miller, 2014; Pfeiffer, Koenig, Kinnealey, Sheppard, & Henderson, 2011)
  - Sensory Processing Disorder (SPD)
    - Subdivided into sensory modulation disorder, sensory discrimination disorder, and sensory-based motor disorder (Lonkar, 2014; Miller, 2014)
    - Complex as symptoms may occur in one or a combination of sensory systems (Miller, 2014)
- Nature
  - May improve:
    - Sensory processing (Adams et al., 2016; Hanscom, 2016)
    - Motor skill acquisition (Hanscom, 2016; Hanscom & Schoen, 2014)
    - Cognition and mental health (Hanscom, 2016; Rhea & Bauml, 2018)
    - Self-awareness (Adams et al., 2016; Brussoni et al., 2018)
    - Occupational performance (Bento & Dias, 2017; Hanscom, 2016)
  - Need for nature-based intervention
    - Increased academic standards (Hanscom, 2016)
    - Decreased recess (Hanscom, 2016)
    - Increased technology (Hanscom, 2016)

PURPOSE

- Develop a nature-based sensory integration program for children with sensory processing impairments
- Develop program manual for future implementation

THEORETICAL FOUNDATION

- Ayres Sensory Integration (Ayres & Robbins, 2005; Parham & Mailloux, 2015)
  - Provide tactile, vestibular, and proprioceptive input
  - Intervention adheres to principles of fidelity measure
- Dunn's Model of Sensory Processing (Dunn, 2007; Dunn, 2017)
  - Accommodate to unique sensory processing patterns based on neurological thresholds and self-regulation strategies
- Person-Environment-Occupation (PEO) Model (Law et al., 1996; Ripat & Becker, 2012)
  - Increase occupational performance based on the person, environment, and occupations
  - Components are dynamic and change throughout a person's lifetime

METHODS

- Atlanta, Georgia
  - Participated in Clay White, LLC "Outdoor Sensory Adventures" program
  - Gained outdoor intervention experience and knowledge of program development and sustainability procedures
- Omaha, Nebraska
  - Provided intervention activities to children at Child Saving Institute, which has a Nature Explore classroom
  - Gained practical experience working with children outdoors

PROGRAM OUTCOMES

- Nine objectives were developed to assess project outcomes
  - Manual was created for future program implementation
    - Evidence of sensory integration, occupational therapy sensory theoretical models, and nature
    - Justification of program (needs assessment and SWOT analysis)
    - Future program implementation resources (budget, marketing materials, program evaluation methods, inclusion and exclusion criteria, and a program activity outline)
- Gained knowledge of sensory integration, nature, and pediatric conditions and intervention

CLINICAL IMPLICATIONS

- Nature is a natural context for intervention and can enhance sensory processing
- Pediatric and general occupational therapists may use suggested outdoor interventions to improve performance skills of clients
- More research is needed to compare outdoor occupational therapy sensory integration to occupational therapy sensory integration indoors

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CONCLUSION/DISCUSSION

- All objectives were met as proposed
- Theoretical approaches were appropriate
  - Tactile, vestibular, and proprioceptive activities were used, consistent with Ayres Sensory Integration
  - An informal occupational profile was obtained prior to intervention, consistent with Dunn's Model of Sensory Processing and the PEO model
- Add Task-Oriented Approach specific to the Motor Learning frame of reference
  - Novel activities required motor learning, and performance improved with repetition