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## Sensory Processing Difficulties in Children Born Preterm and The Needs of Their Families

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# Sensory Processing Difficulties in Children Born Preterm and The Needs of Their Families

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## BACKGROUND

- In the last decade, 1 in 10 infants were born preterm (Centers for Disease Control and Prevention, 2022).
- Children born preterm are at a higher risk of having sensory processing difficulties due to neurological development and atypical early sensory experiences (Neel et al., 2019).
- Families of preterm children experience elevated stress due to increased medical needs and interventions which impacts the parental role (Lean et al., 2018).
- Families experiencing high stress and a decline in mental health negatively impacts the parent-child bond (Lean et al., 2018).

## PURPOSE

- To address sensory processing difficulties in children who were born preterm.
- To address the needs of families by incorporating them into treatment sessions.

## THEORETICAL FOUNDATION

**Dunn's Model of Sensory Processing** has two main constructs including neurological thresholds and self-regulation. The intersection of these constructs results in four sensory patterns including sensation seeking, sensory avoiding, sensory sensitivity, and low registration (Cho, 2022). This model guided this project as each child has a different sensory pattern and it is important to know how to target each so a child's tolerance to sensory experiences improves.

**Occupational Performance Coaching Model** allows families to collaborate with OTs to better understand themselves as well as how they can effectively support their child's needs. This model guided this project as families were encouraged to join treatment sessions to have their needs addressed as well as learn sensory-integration strategies.

## METHODS

### Capstone Experience

- Advanced clinical practice at a pediatric outpatient clinic in Sioux Falls, SD.
- 14-week experience with onsite time of 4 days per week for 10 hours.
- Under the supervision of an OTR/L who has nearly 40 years working with this population.

### Project Population

- Focused on 6 children who were born preterm and experience sensory processing difficulties as well as their families.

### Assessments

- Sensory Processing Measure, Second Edition (SPM-2) was used to assess a child's baseline for sensory processing skills (completed during the first three weeks of project) and their current sensory processing skills (completed again during the last two weeks of the project).
- A Post-Test Questionnaire consisting of 7 Likert scale questions. Questions assessed the family's level of comfort providing sensory-based care, their satisfaction with the level of support given by the OT and OTS, and their knowledge on sensory needs and what strategies to implement.

### Interventions

- Each participant had a minimum of one thirty-minute sensory-based session per week.
- On average, participants received 11 sessions during the 14-week project.
- Families joined sessions and were encouraged to observe, engage, ask questions, express concerns, collaborate with OT and OTS, etc.
- Verbal education and informational handouts were provided to caregivers.

## RESULTS

- 5 families completed the SPM-2 (pre/post)
- 3 families completed the post-test questionnaire and indicated they were satisfied with the services and felt supported.

*Differences in pre-and post-test results on SPM-2*

Topic	Mean Scores	
	Pretest	Posttest
Sensory Total	130.00	117.00
Planning and Ideas	23.40	19.20
Social Participation	30.80	26.20

*Note. Results indicate a mean score of 5 participants' individual scores on the SPM-2.*

- Significant improvement in sensory performance  $t(4)=2.632, p=.029$
- Improvement in planning and ideas  $t(4)=1.668, p=.085$
- Significant improvement in social participation  $t(4)=2.312, p=.041$

*Average scores for questions presented on the post-test questionnaire.*

Question	Mean
Caregiver's understanding of child's sensory needs.	9.00
Caregiver knows what sensory strategies to implement.	8.67
Caregiver's comfort providing sensory-based care.	9.00
Child's self-regulation has increased since OT services.	9.67
Child's responses to sensory stimuli have improved.	9.00
Satisfied with the level of support from OT & OTS.	9.00
Sensory handouts were beneficial & easy to understand	8.33

- On average, families reported that they had a better understanding of their child's sensory needs following treatment.

## DISCUSSION & CONCLUSION

- Results indicate that sensory-based therapy is an effective strategy to improve sensory processing skills in children who were born preterm.
- Results indicate that incorporating families in the treatment sessions is an effective strategy to meet their needs.
- Limitations of this project include participant sample size, short duration of project, and difficulty obtaining post-test data.
- All educational materials were provided to families as well as practitioners to use with future families.

## IMPLICATIONS

- Occupational therapists are equipped to address sensory processing difficulties in children who are born preterm.
- Children born preterm with sensory processing difficulties should participate in weekly sensory-based occupational therapy sessions to improve sensory processing skills.
- Incorporating families in treatment sessions maximizes outcomes for the parent-child unit.
- Educating families improves knowledge and confidence in addressing their child's sensory needs.
- Utilizing standardized assessments shows growth, maintenance, and setbacks in sensory processing skills.

## REFERENCES

