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ASECRET Tool for Parents and Teachers of Kids with Sensory Processing Disorders

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Keywords

Sensory processing disorder; ASECRET; tools; regulation.

Abstract

When considering the results of research from this study, the reader should note this specifically applies to elementary school aged students but could be applicable outside of this study for the purpose of added ages. The cumulative ASECRET charts do not explicitly apply to that of a typical child and added disabilities to consider are discussed within the discussion section of research. Conditions left unmentioned should not be considered inapplicable, but for the purpose of this research, discussion points focus on sensory processing and conditions with higher rates of comorbidity to sensory processing compared to others. The purpose of this literature review is to create an ASECRET tool from cumulative research and formulate one document for parents and teachers to refer to when a child is experiencing dysregulation. ASECRET has 7 different distinct categories in which regulation stems from: (A) Attention, (S) Sensation, (E) Emotional Regulation, (C) Culture/Context/Condition, (R) Relationships, (E) Environment, and (T) Task. While each category is distinct, many recommendations can be interpreted as overlapping. Many points within ASECRET require the parent or teacher to reflect on what the child is experiencing, and how the adult can change the situation to soothe the child. Each child experiences individual dysregulation as one child is not the same to the next, which is considered throughout this research. Many coexisting conditions such as Autism Spectrum Disorder, Post-Traumatic Stress Disorder, Eating Disorders, and others should be considered when creating tools for parents and teachers, as the graphs may present differently, with different information. Parents can apply this tool to locations outside the home, such as the dentist, doctor's office, grocery store, playground, a family member's house, the car, and other modes of transportation, to name a few. Teachers can apply the ASECRET tool in their classroom, a special class such as art, music and computers, recess, gym, the lunchroom, transitions, the restroom, and more.

Background

Sensory processing disorders (SPD) are impairments in responding to sensory stimuli such as deficits in detection, modulation, or interpretation of stimuli (Miller, L. J., Fuller, D. A., & Roetenberg, J. 2014). Sensory processing problems affect the responses of children to sensory events in daily life (Yochman, A., Parush, S., Ornoy, A. 2004). In the pediatric population, sensory processing disorders can present differently according to each separate child, and their sensory processing condition, such as sensory under-responsivity, sensory over-responsivity, or sensory craving. For elementary aged students, sensory processing disorder could present as challenging behavior, diminished learning capabilities, variable need requirements, dysregulation of the mind, body, and emotions, and finally impairment to the child's ability to adapt appropriately to a situation requiring specific needs and attention. This literature review was to create a tool for parents and teachers to use to detect and resolve dysregulation and build connections with the child.

Connection with a dysregulated body can influence how the child responds to efforts made to help calm down or restore equilibrium. The parent or teacher must build a relationship of quality which in turn can be used to help with a dysregulated child. A child's response is highly dependent on the level of connection with the adult or caregiver and can continue to flourish with time and positive experiences. Connection also allows for a foundation of trust to be built, and the child may adapt to their parent or teacher by recognizing they are safe because of the relationship. This sense of safety could greatly influence the child's regulation experienced in day-to-day activities.

Sensory processing disorder has many different forms, one of them being sensory modulation disorder. To introduce, sensory modulation is the ability of a person's autonomic

nervous system (ANS) to regulate the activity between the sympathetic (arousal) and parasympathetic (inhibition) systems, allowing them to increase or decrease activity so that the desired outcome of activity creates harmony in all functions of the central nervous system (Ayres. AJ., 1979). Sensory modulation disorders (SMDs) are impairments in regulating the degree, intensity, and nature of responses to sensory input, resulting in considerable problems with daily roles and routines (Miller, 2006). Often, children get in trouble for their behavior, which could be caused by SMD (Sensory modulation disorders). Sensory modulation is the ability of the body to regulate sensory systems, which could be present in three distinct categories: Sensory Over-Responsivity, Sensory Under-Responsivity, and Sensory Seeking. Each strategy for self-regulation or modulation is sensitive to the child's needs as follows:

1. Sensory Over-Responsivity (SOR) – sensory defensiveness

- Detect sensory events more often
- Get distracted more easily
- Get upset by seemingly unnoticeable things
- Notice more details in life
- Notice changes in setting or moods more quickly
- Get interrupted from completing tasks
- Respond more intensely and faster for longer durations (Miller, 2006)

2. Sensory Under-Responsivity (SUR)

- Miss more cues than others
- Fail to notice details
- May be easier going
- Take no notice when called

- Drift away during activities
- Find it hard to get tasks completed on time
- Require intense input before they even respond such as having a higher pain threshold (Miller, 2006)

3. **Sensation Craving**

- Enjoy sensory experiences and input
- Move more, hum during the day
- Jump up and down, rub hands together often
- May be distracted by new sensory experiences
- May have more difficulty completing tasks
- May lose track of daily life tasks (Miller, 2006)

Additionally, sensory processing disorder has a second subcategory: sensory-based motor disorder (SBMD). Sensory-based motor disorder concerns a child who has trouble controlling, planning, and supporting their movements in a smooth, coordinated, and sequential way. There are two types of SBMD:

1. **Dyspraxia**

- Difficulty processing sensory information to create unfamiliar or sequenced movements, such as riding a bike (Miller, 2006)

2. **Postural Disorder**

- Difficulty keeping enough control of the body to meet demands of a given motor task, such as still being in an upright sitting position for writing tasks (Miller, 2006)

Finally, sensory processing disorder also includes Sensory Discrimination Disorder (SDD), which is the difficulty distinguishing between those affected need added time to process sensory information and their ability to perceive the information as quickly and naturally as others do is reduced. (Miller, 2006). For example, they may be unable to find their pencil in their pencil case without looking (Miller, 2006).

Children with processing challenges have difficulty detecting, regulating, interpreting, and responding to sensory input (Miller, et al., 2007). As a result, inappropriate behaviors according to the specific circumstance could arise. This research supplies recommendations to parents and teachers, based on analysis of seven factors related to sensory processing. This analysis leads to a more holistic approach to meet the child's distinct sensory regulation needs.

Methods (theoretical framework - ASECRET)

A literature review was conducted to find resources related to regulating a child experiencing sensory processing disorder. Many sources were reviewed and the ASECRET clinical reasoning model was chosen to guide the development of a regulation resource for both parents and teachers. ASECRET is an acronym for the categories in which strategies can be drawn to regulate a child. Table 1 below includes the categories and considerations in which strategies are drawn from the *Sensational Kids* book by Lucy Miller.

A ttention	S ensation	E mootional Regulation	C ulture/ Context/ Current Conditions	R elationships	E nvironment	T asks
Is there a way to draw the child's attention away from sensory dysregulation?	Is there a sensation causing alarm right now? What is it., and how and it be changed? Can the sensation be overridden?	What emotion is my child experiencing and what techniques work best when they feel this way?	What part of the situation's culture can be changed to avoid provoking situations in the future?	Is there something within the relationship with me or someone else right now that is causing the behavior?	What in the environment could be provoking my child? How can it be changed?	What about the task is troubling my child? How can the task be changed so that it is not as problematic for the child? Can the task be substituted?

(Miller et. al., 2014)

The A SECRET framework addresses sensory related behaviors among children who are diagnosed with SPD or have sensory processing difficulties that may occur concurrently with other medical, behavioral, or developmental conditions (Miller, L J., Fuller, D.A., & Roetenberg, J. 2014). In the charts below, each Letter of the ASECRET mnemonic is represented in its own table with one side which applies for parents, and the other a teacher. This framework was created to address different sensory inputs, and questions to aid parents and teachers in evaluating what is causing dysregulation, and diverse ways to diffuse dysregulation

These graphs are unique as they include similarities and differences in skills a parent or teacher may need to consider using, as sensory inputs have a variety of inputs and distributing needs sensitive to the environment. This study is unique as it provides not only reflective questions on behavior but can be used as a regular tool throughout daily life activities and schoolwork to promote the child's wellbeing, along with the family and classroom functioning.

ASECRET is an acronym for (A) Attention, (S) Sensation, (E) Emotional Regulation, (C) Culture/Context/Condition, (R) Relationships, (E) Environment, and (T) Task. (Gee, et al., 2014). Attention pertains to what the child is focused on, and how their focus changes. Sensation refers to what a child could be feeling, and how the feelings could be changed or overridden. This applies to the seven senses including: Sight (Vision), Hearing (Auditory), Smell (Olfactory), Taste (Gustatory), Touch (Tactile), Proprioceptive (deep pressure touch and body in space awareness) and Vestibular (Movement). Emotional regulation refers to what the child is experiencing and what methods work most effectively when a child feels that way. Culture, Context and Condition consider the situation and how it could be altered to avoid provocation. Relationships refer to something within the relationship with the child that could be causing the behavior, and environment refers to something within the child's surroundings that could be provoking them. Finally, task refers to what the child is doing that could trouble them, and how the task could be changed to be less problematic for the child.

A SECRET is a problem-solving framework developed for parents, caregivers [and teachers] to enhance problem-solving abilities for their child/client's challenging sensory related behaviors. The framework captures how clinicians think about sensory related behaviors and the questions to ask that may lead to the design and implementation of strategies to reduce duration, frequency, and/or intensity of episodes for a child with SPD (Miller, et al., 2011). In developing the ASCERET chart, questions relating to each letter of the mnemonic were inserted, and some questions are like the questions parents and teachers should ask. Readers should note that some categories could overlap, but questions were sorted to be most applicable for this research. Additionally, the charts are not final and could be added to or altered as needed to optimally support a specific child.

ASECRET for Parents

As mentioned before, ASECRET won't be effective without emotional connection (cite). A healthy parent-child relationship is essential for connectivity, security, and trust (cite). The parent-infant dyad is the foundation for developing trust. Emotional connectivity is fostered through proactive, responsive care supplies when the child is hungry, feeling unwell or uncomfortable, needing a diaper change, and adequate and proper sensory stimulation to enhance security and safety. That which continues to develop and thrive as a child grows. The quality of parental connection is key to the effectiveness of regulation.

ASECRET for Teachers

The position a parent holds is different from that of a teacher's role, as the teacher cannot greatly influence how a child is parented, what happens at home, and is with the child for a shorter amount of time compared to that of a parent. For a teacher, the connection process to a child has similarities and differences to that of a parent. Some points in the charts below are duplicated for both roles, as application is valid for each role. As a teacher, building trust and creating a strong connection with each child can pose difficulty with managing an entire class of students. Over time, allowing students to express themselves and their needs will give teachers the chance to get to know the child's personality, behaviors, and tendencies. Immediate intervention can be difficult for a classroom teacher, as tending to one child leaves the rest of the class unattended. Teachers could implement time within the daily schedule for students to express themselves through art, free time with fine motor toys and fidgets, and classroom games to build connections throughout the room. Teachers can use verbal reinforcement when working with the students, especially when they're learning something new, and become dysregulated

from frustration. In charts below, many questions ask the teacher about several different dysregulatory sources, and recommendations to aid in remedying unwanted behaviors.

Results

Attention: Is there a way to draw the child's attention away from sensory dysregulation? (Miller et. al., 2014)

Parent	Teacher
<ul style="list-style-type: none"> • Searching for clothes that appeal to the child's interest to redirect attention away from wearing clothes to what is on the clothes, or for a loose, soft, seamless item that may meet their sensory specifications. (Kranowitz, 2016) • Use short, direct questions or prompts for a child • Supply different forms of attention grabbers for longevity (does the child enjoy reading, listening to music, bike riding) • Work towards approximating attention for longer periods of time to not trap the child (Yack et. al., 2015) • Use sources of motivation to prolong participation when appropriate • Establish motivators (Yack et. al., 2015) • Use equipment and resources to aid sensory regulation (Yack et. al., 2015) 	<ul style="list-style-type: none"> • Use teaching tactile media (such as putty, sandpaper letters, bumpy materials, shaving cream, sand, glue) (Lavin, 2021) • Try different activities to learn what a child enjoys. • Use different modalities to teach content-adapting to the child • Allow time for the child to process instruction (Lavin, 2021) • Move the student towards a space from which they learn best, such as the front of the room or off to the side • Establish motivators (Yack et. al., 2015) • Motivators such as prizes, rewards, tokens, and classroom privileges could be useful for the child to earn individually. • Use equipment and resources to aid sensory regulation (Yack et. al., 2015)

Sensation: Is there a sensation causing alarm right now? What is it., and how and it be changed? Can the sensation be overridden? (Miller et. al., 2014)

Parent	Teacher
<ul style="list-style-type: none"> • Rubbing the child’s back or a ball on their skin may get input into the child’s skin and muscles to ready the child to get dressed. This could decrease the level of discomfort caused by the change of attire. (Kranowitz, 2016) • To increase tolerance for a wider range of foods and food odors, encourage the child to sniff the smells during pretend play prep activities, and gradually expand the intensity of smells and tastes (Parham et. al., 2019) • Engage in different tactile, oral, fine, and gross motor skills to introduce various sensations before meals. • Instead of introducing 3 new foods a week, introduce 1 each week to allow for sensory adaptation that can be supported. (Parham et. al., 2019) • Use natural rather than florescent lighting. • Use multiple methods to approximate tasks that are safe and structured. 	<ul style="list-style-type: none"> • Use language the child understands rather than complex terminology • Quiet music can be used to calm and organize a child (Lavin, 2021) • Evaluate surrounding sensations such as sound, texture, uneasiness, and modify • Use fidgets to keep hands busy and promote focus

Emotional Regulation: What emotion is the child experiencing and what techniques work best when they feel this way? (Miller et. al., 2014)

Parent	Teacher
<ul style="list-style-type: none"> • Is there something in the room to set the mood? Brightening or dimming the light to wake the child up or playing their favorite music for a set time could set the child into the mood to get dressed, eat, play, relax, or work. (Kranowitz, 2016) • Use a feelings chart to help the child tell you how they are feeling • Call attention to the child’s emotions and feelings • Approach the child slowly, in a calm and proper form • Initiate physical contact when right for the child. If the child does not want to be touched, do not force contact. • Name a safe place created according to the child’s needs. This could be their bedroom 	<ul style="list-style-type: none"> • Bring the noise level down • Place children in groups with students who fit together • Analyze other children in the room and separate students accordingly • Allow for movement throughout the day (Lavin, 2021) • Create a backup plan in case the child needs to leave the room • Create a visual representation of emotions so a child can tell you how they feel (Kuypers et. al., 2021) • 6 sides of breathing (Kuypers et. al., 2011) • Provide/allow students who want to use a sensory toy such as a fidget, sensory chair, gum, or tools to enhance individual regulation.

with anything the child enjoys, and remove any potential triggers	<ul style="list-style-type: none"> • Use a feelings chart to help the child tell you how they are feeling • Call attention to the child's emotions and feelings • Approach the child slowly, in a calm and proper form
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Culture/Context/Current Conditions: What part of the situation's culture can be changed to avoid provoking situations in the future? (Miller et. al., 2014)

Parent	Teacher
<ul style="list-style-type: none"> • Evaluate routines throughout the day in the order tasks are completed. Could getting dressed after breakfast rather than before be beneficial? Brushing teeth before or after a meal? • Establish a schedule or checklist that a child could follow in an order that promotes functioning. • Prepare the child for what is going to happen by talking, also use visual representations such as a picture of a car, a grandparent's house, school, a store, animals, restroom • Ensure the rules are right for the child's regulatory needs rather than what a parent's expectations • Establish age-appropriate activities that the child could master, rather than choosing activities of a higher level of difficulty. • If the child can complete a task by themselves, allow the time for them to do so rather than helping to go faster. • Use sensory strategies to approximate targeted behavior such as sleeping, dressing, grooming, washing, toileting, teeth or hair brushing, hair cutting, eating, and play. (Yack et. al., 2015) • Introduce the child to the recent activity prior to completion more than once so it becomes familiar. • Use equipment and resources to aid sensory regulation (Yack et. al., 2015) 	<ul style="list-style-type: none"> • Large groups are often overwhelming and limit individual participation. Small group activities target involvement in a controlled setting. • Motivate the child using positive body language and verbal encouragement • Prepare the child for transitions ahead of time • Use visual representations to show the child what is going to happen next, what they need, and where they're going • Establish a routine children can follow. This could be a visual on their table or on a board for the entire class to see. • Prepare the child for what is going to happen by talking, also use visual representations such as a picture of a bus, a fire alarm, safety drill locations, restroom, lunchroom, gymnasium, music, or art room (etc.) • Ensure the rules are proper for the child's regulatory needs rather than the teacher's expectations • Establish age-appropriate activities that the child could master, rather than choosing activities of a higher level of difficulty or lower than age. • If the child can complete a task by themselves, allow the time for them to do so rather than helping to go faster.

Relationship: Is there something within the relationship with me or someone else right now that is causing the behavior? (Miller et. al., 2014)

Parent	Teacher
<ul style="list-style-type: none"> • Name potential playmates that are less tactile, noisy, and physical. Talk about the activities with peers before they occur to explain expectations clearly. This ends unpredictability (Miller et. al., 2014) • Letting the child wear what is comfortable rather than what looks best may motivate a quicker routine. Picking out clothes the night before can also cut the unpredictability of dressing in the morning. (Kranowitz, 2016) • Establish time for children to relax and enjoy tasks of choice with caregivers to promote relationships. What about the situation, people involved or task at hand is triggering? • Allow the child time to warm up to others such as a new teacher, distant family, classmates, school, stores, and playgrounds. • Simplify how a child is feeling by substituting words ‘low arousal or high arousal’ with something child friendly, such as ‘your engine seems to be running too high or too low’ and create a connection for the child to understand their feelings in a suitable way. This way, when a child is expressing their needs, they can talk about their engine and how it runs. This will help decide their needs of intervention and initiate adaptations the teacher can implement (Williams et al., 1996) 	<ul style="list-style-type: none"> • Group children according to their social needs and volume • Grouping homogenous students could result in a friendship • Keep children who enjoy each other’s company together rather than random assignment • Simplify how a child is feeling by substituting words ‘low arousal or high arousal’ with something child friendly, such as ‘your engine seems to be running too high or too low’ and create a connection for the child to understand their feelings in a proper way. This way, when a child is expressing their needs, they can talk about their engine and how it's running. This will help decide their needs of intervention and initiate adaptations the teacher can implement (Williams et al., 1996)

Environment: What in the environment could be provoking the child? How can it be changed? (Miller et. al., 2014)

Parent	Teacher
<ul style="list-style-type: none"> • Select textures throughout the home that are comfortable to your child (Miller et. al., 2014) • Remove scents in the home that could overwhelm the child such as odors from foods or air fresheners (Miller et. al., 2014) • Dimming the light in a room or installing soundproofing to reduce harsh and distracting visual and auditory stimuli to make environment less disturbing • If a child struggles with shirts on hangers, could hooks make hanging things easier? Or setting up labeled bins instead of a plain dresser? Could the dresser be labeled? (Kranowitz, 2016) • If the child cannot pick out clothes that are right for the weather, could pictures of example outfits be posted? (Kranowitz, 2016) • Use visual representations to prepare for the environment to come such as a car, store, restaurant, school, bathtub, or park 	<ul style="list-style-type: none"> • Sensory chairs that allow students to move while working could promote comfort as well as attention • Introduce the child to the unfamiliar environment such as the classroom, music or art room, gym, lunchroom, and restrooms before sending the child off. • If a child is not comfortable with a coat or winter clothing, keep the child inside rather than going outside for recess. This will encourage the child to be alone from the class and allow for regulation. • Refrain from candles and any added scents that could trigger a child that are not natural to the school environment, such as an air freshener or oil diffuser

Tasks: What about the task is troubling to the child? How can the task be changed so that it is not problematic for the child? Can the task be substituted?

Parent	Teacher
<ul style="list-style-type: none"> • Avoid or prepare the child for settings that feature intense sensory stimulation and plan the stay length at a comfortable event (Miller et. al., 2014) • Introduce chores to support emerging praxis abilities such as carrying out the trash or getting the laundry. This expands new abilities and supplies a key role at home. (Parham, et. al., 2019) • Could the task be done the night before, such as picking clothes out, or packing lunch? (Kranowitz, 2016) • Evaluate whether the child can do the task independently or with aid • Establish safety boundaries for designated areas such as the kitchen. • Facilitate discussion, inviting the child to share tools they found helped to calm them down, wake them up, and discuss that everyone is different. (Kuypers, et al., 2011,) 	<ul style="list-style-type: none"> • Assign tasks according to the child’s abilities in which they can succeed. • Evaluate the child’s comfort with the task and change (texture, sound, scent, taste) • Simplify tasks • Provide the child with a checklist for everyday use • Facilitate group discussion, inviting the students to share tools they found helped to calm them down, wake them up, and discuss that everyone is different. Discuss that what works for one student will be different from what works for another. (Kuypers, et al., 2011, 110)

Discussion

This study contributes to current research in creating a cumulative resource for parents and teachers rather than searching for all different answers to their questions which apply to each letter of the ASECRET chart, whether it be based off attention, sensation, emotional regulation, culture/context/condition, relationships, environment, or task.

Added research is needed to discuss autism spectrum disorder (ASD), a neurodevelopmental disorder that typically manifests during the first 3 years of life. High functioning autism spectrum disorder (HFASD) is the least severe expression of autistic spectrum disorders (American Psychiatric Association [APA (American Psychiatric Association)], 2013). Children with HFASD have relatively high cognitive and language abilities and are often integrated into the regular school system. Nonetheless, these children usually

present with severe difficulties in social communication (Sansosti & Sansosti, 2013; Volkmar & Lord, 2007); behavioral inflexibility; coping with changes; restricted, repetitive, and/or stereotypical behaviors; and sensory processing disorders (Wright & Northcutt, 2005). To apply the ASECRET tool for children with ASD and HFASD, further evaluation should be made to meet the needs of the child beyond the chart's contents.

Sensory processing disorder and anxiety are often concurrent conditions. For example, one study conducted with a large sample of 1,394 toddler-aged twins found that children with a fearful or anxious temperament were more likely to react with defensiveness towards auditory and tactile stimuli, such as fussing when being groomed (Goldsmith et al., 2006). This relationship has also been found in older children with Asperger's syndrome, as higher SPD symptoms and anxiety were related within children ages 6–10 and 11–17 years old. Looking at how this relationship unfolds over time, longitudinal studies in infants (Kagan et al, 1991) and toddlers (Pfeiffer et al., 2005) found that high reactivity to sensory stimuli predicts anxious behavior up to 1 year later. These studies suggest that, for some people, there may be a developmental trajectory early in life from sensory processing impairments to problems with childhood anxiety. However, more research is needed to understand if this trajectory also manifests across the lifespan, from childhood to adulthood, and how this affects the ASECRET charts with a child's needs through anxiety and trauma.

Regarding eating behavior, it can be considered a multisensory experience where tactile, olfactory, visual and oral channels play a relevant role in transmitting sensory information to brain (Scarpina F, et al. 2016); as such, in some SPD cases, sensory processing of those channels can be impaired either independently or in a combined way, disturbing the perception of specific textures, smells, colors and tastes, giving rise to a peculiar SPD profile, characterized by hyper o

hypo-reactivity to certain type of foods. This kind of SPD profile, like that of some eating disorders like Avoidant-Food Restrictive Intake Disorder (ARFID), Pica or Anorexia Nervosa (AN), could be named “sensory eating disorders” (Adrian, et al., 2017). Such eating disorders paired with sensory processing disorder could need further allocation to one category of the ASECRET chart over another, such as allocation towards Sensation rather than Culture, but all should still be considered.

Limitations and Additional Considerations

This study addresses children with sensory regulation problems only and does not consider any other concurrent conditions or disabilities. Added considerations when using these ASECRET resources should be taken when working with children with further needs.

The present study does have some limitations in that the ASECRET resources include several different recommendations and processes for parents and teachers to try, all with varying results and restrictions. The current study does not have added resources for children with other needs and only views sensory processing difficulties, rather including other disabilities such as autism spectrum disorder, post-traumatic stress and anxiety disorders, and dietary restrictions. This brief list of comorbid conditions to sensory processing disorder is not limited to and should be added to for continued research.

In addition, the ASECRET charts from this literature do not account for different populations and influences that could affect sensory processing. Social determinants of health such as conditions of the environment people live in, where they’re born, learn, work, play, worship, and age should all be considered when developing an ASECRET chart for a specific individual. Cultural diversity, race and ethnicity, religion, age, gender and gender identity, sexual orientation, disability, socioeconomic status and background, education achievement, and

diverse interests are examples of added factors to consider as well as others not specified when helping parents, teachers, and anyone else creating an ASECRET chart for another person.

The ASECRET resource could be applied to several different scenarios and points of influence, such as employers, other family members, the doctor's office, therapy, a friend's house, intervention specialists, the dentist and more. This project's scope narrowed in on two of many categories which should be considered for future research to create resources.

Conclusion

Sensory processing disorder is a condition in which response to sensory stimuli, including detection, modulation, and interpretation is impaired. From an early age, children begin to experience different input from the environment, peers, and interoception, which can trigger an unexpected response to parents and teachers. With the use of ASECRET charts, parents and teachers have another resource to refer to when navigating regulation with a child whose sensory processing system is impaired.

References

- Adrian G-S, Victoria M-M, Luis B-F. Connecting Eating Disorders and Sensory Processing Disorder: A Sensory Eating Disorder Hypothesis. *Glob J Intellect Dev Disabil.* 2017; 3(4): 555617.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, D.C.: Author.
- Armstrong, R., Waters, E., Doyle, J., & Hall, B. J. (2011, March 1). *'Scoping the scope' of a cochrane review.* Academic.oup.com. <https://academic.oup.com/jpubhealth/article/33/1/147/1549781>
- Ayres, A.J. (1979). *Sensory Integration and the Child.* Los Angeles: Western Psychological Services.
- Brown, N. B. *The Relationship Between Context and Sensory Processing Patterns in Children with Autism.* ProQuest Dissertations Publishing, 2008.
- Gee, B. M., Strickland, J., Thompson, K., & Miller, L. J. (2017, January 10). *Exploring the influence of an e-learning sensory processing-based module for graduate level occupational therapy students on clinical reasoning: A pilot study.* Occupational Therapy International. <https://www.hindawi.com/journals/oti/2017/6515084/#B12>
- Goldsmith, H. H., Van Hulle, C. A., Arneson, C. L., Schreiber, J. E., and Gernsbacher, M. A. (2006). A population-based twin study of parentally reported tactile and auditory defensiveness in young children. *J. Abnormal Child Psychol.* 34, 393–407. doi: 10.1007/s10802-006-9024-0
- Kagan, J., and Snidman, N. (1991). Infant predictors of inhibited and uninhibited profiles. *Psychol. Sci.* 2, 40–44. doi: 10.1111/j.1467-9280.1991.tb00094.x
- Kranowitz, C. S. (2016). *The out-of-sync child grows up: Coping with sensory processing disorder in the adolescent and Young Adult years.* TarcherPerigee.
- Miller, L. J. (2006). *Sensational kids: Help and hope for children with sensory processing disorders.* New York: Putnam.
- Miller, L. J., Fuller, D. A., & Roetenberg, J., (2014). *Sensational kids: Hope and help for children with sensory processing disorder (Spd).* Penguin Group.
- Miller, L. J., Anzalone, M. E., Lane, S. J., Cermak, S. A., & Osten, E. T. (2007). *Concept evolution in sensory integration: A proposed nosology for diagnosis.* The American journal of occupational therapy: official publication of the American Occupational Therapy Association. <https://pubmed.ncbi.nlm.nih.gov/17436834/>
- Miller, L. J., Porter, L. I. M., & Bialer, D. S. (2011). *No longer a secret: Unique Common-Sense Strategies for children with sensory and regulation challenges.* <https://www.amazon.com/No-Longer-SECRET-Strategies-Challenges/dp/1935567292>
- Munn, Z., Peters, M. D. J., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018, November 19). *Systematic Review or scoping review? guidance for authors when choosing between a systematic or scoping review approach - BMC Medical Research methodology.* BioMed Central. <https://bmcmmedresmethodol.biomedcentral.com/articles/10.1186/s12874-018-0611-x>
- Parham, L. D., Clark, G. F., Watling, R., & Schaaf, R. (2019). *Occupational Therapy Interventions for Children and Youth with Challenges in Sensory Integration and Sensory Processing: A Clinic-Based Practice Case Example.* American Journal of Occupational Therapy. <https://research-aota->

- org.libproxy.library.wmich.edu/ajot/article/73/1/7301395010p1/6548/Occupational-Therapy-Interventions-for-Children
- Sansosti, F. J., & Sansosti, J. M. (2013). Effective school-based service delivery for students with autism spectrum disorders: Where we are and where we need to go. *Psychology in the Schools*, 50(3), 229-244. <http://dx.doi.org/10.1002/pits.21669>
- Scarpina F, Migliorati D, Marzullo P, Mauro A, Scacchi M, et al. (2016) Altered multisensory temporal integration in obesity. *Sci Rep* 6: 28382.
- Williams, M. S., & Shellenberger, S. (1996). *An introduction to "How does your engine run?": The alert program for self-regulation*. TherapyWorks, Inc.
- Wright, C. & Northcutt C., (2005). *ZERO TO THREE: Diagnostic classification of mental health and developmental disorders of infancy and early childhood: Revised edition (DC:0-3R)*. Washington.
- Yack, E., Aquilla, P., & Sutton, S. (2015). *Building Bridges through Sensory Integration: Therapy for children with autism and other pervasive developmental disorders*. Sensory World.
- Yochman, A., Parush, S., Ornoy, A., Responses of preschool children with and without ADHD (Attention Deficit Hyperactivity Disorder) to sensory events in daily life. *Am J Occup Ther.* 2004; 58:294–302.