



Educating Children With Autism and Sensory Processing Disorders in the Classroom

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ABSTRACT

Researchers have reported that children and adolescents with autism spectrum disorders (ASD) respond to sensory experiences contrarily than their peers without disabilities. Sensory processing disorders (SPD) in children are becoming more recognized among health professionals and educators. This study examined prevalence and incidence of autism and sensory processing disorders in addition to the science, red flags, parental support, treatment, and classroom modifications of sensory processing disorders. Also, highlighted were the characteristics of sensory processing disorders and the team of professionals who treat children with autism and sensory processing disorders

Key Words: Autism, Sensory processing disorders

INTRODUCTION

The very first reports of autism goes back to the 1960s and 1970s. At that time, autism was thought to be a condition accompanied with an intellectual disability. Autism was first classified as a clinical diagnosis by the American Psychiatric Association with Publication in the Third edition dated to 1980 of the Diagnostic Statistical Manual of

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Mental Disorders (DSM-III). It was in 1992 when the DSM-IV was introduced with a revision of the diagnostic criteria/subtypes of the disorder. According to the Fifth edition of the DSM-V, autism was once again redefined as an actual single disorder including diagnostic classification of autism compared to previous years reported. Several definitions of autism have been well documented in literature. Autism is a neurodevelopmental disorder that is characterized by impairments in social interaction and communication skills, along with a restricted repetitive and stereotypic pattern of behavior [1,2].

Review of Literature

Researchers have reported that children and adolescents with autism spectrum disorders (ASD) respond to sensory experiences contrarily than their peers without disabilities. These sensory processing disorders have been well acknowledged in the science literature [3-5], clinical literature [6-8], and first person accounts of living with autism [9,10].

Sensory processing disorders in children is becoming more recognized among health professionals and educators. These children are often misunderstood and may be labeled, misdiagnosed as learning disabled, slow, clumsy or naughty, or having a behavior disorder/mental health impairment [11]. Identifying sensory processing disorders is a vital first step towards helping these children to achieve their potential. Sensory processing disorder in children can be present in any or all of these three areas of dysfunction: Sensory Modulation Disorder, Sensory Motor Difficulties and Sensory Discrimination Difficulties [2,12]; Individuals with sensory processing disorders have difficulty processing and acting upon information received through their senses, and this creates challenges for them in performing a variety tasks that impact their daily lives [2]. Some of these challenges may be: depression, school failure, anxiety, behavioral problems, clumsiness, poor attention, frustration, and moodiness. This disorder is commonly diagnosed in children but individuals who reach adulthood without any forms of treatment also experience symptoms and characteristics that affect their interpretation of sensory messages daily. Sadly, misdiagnosis is common because many health care professionals are not properly trained to recognize sensory issues.

The human sensory system is an extremely complex system. It enables human beings to experience the world in so many ways. According to Kranowitz [11 p3] it is through our senses that we receive sensory information from the environment and that we need this information to survive, learn and function smoothly throughout a lifetime. The brain is able to receive sensory information from our bodies, environmental surroundings, construct these messages, and then organize our purposeful responses. According to Schoeman [13 p57], the child needs to be sensory intact in order to make contact, increase awareness and to build a trusting therapeutic relationship.

Sensory contact is of prodigious concern for both the therapist and/or the health care professional/educator in order to establish a therapeutic relationship. It is also important for the play therapist to assess the child's sensory contact process as this can help the therapist to determine how the child copes with other issues in his life [13:p57].

Emmons and Anderson [14] explained that sensory integration is a child's ability to feel, understand and organize sensory information from the body and the environment. When the brain integrates sensory information correctly, the child's body movements are highly adaptive, learning is easy and 'good' behavior is a natural outcome. Sensory integration is reflected in a child's development, learning, and feelings about himself and sensory integration has a direct influence on social and emotional development [14 p14]. The child's senses provide him the information that he needs to function in the world. These senses help with the survival mode and aid in learning and being able to take an active part in society and become a sociable person.

Our senses receive information from both outside and inside the body. Every move a child makes every bite that a child eats, every smell a child smells and every object that he touches creates sensations. [12]. When all this information from the senses is integrated by the central nervous system, sensory integration takes place. This process tells the child what is going on, where, why, when and how he must respond, thus it influences his decisions and behavior. Kranowitz [15, p52] distinguishes between external and internal senses. Our external senses contain the five sensory systems that receive sensory information from outside our body. The touch or tactile sense provides information about touch, which is established through contact with the skin. Olfactory (smell) and gustatory (taste) senses provide information about smell and taste, through contact with the nose and mouth. Visual and auditory senses provide information about sights and sounds coming from the environment without actual contact with the eyes and ears. A person has some control over these senses. For example, a child can cover his ears when he hears loud shouting, can close his eyes when the sun is too bright, can bang his head up against the wall, and can also not eat certain foods because he doesn't like the taste. There are many more examples that could be discussed but at this time the authors only wanted to mention a few that would be good reminders of these populations that you may have in your classrooms and/or other practice.

According to Kranowitz [15 p54; 2]. There are two outlined internal senses. The vestibular sense provides information about the position of the head in relation to the surface of the earth and the movement of the body through space and balance. The proprioceptive sense provides information about body position and movement of body parts. Information comes from elongating and contracting the muscles. Unfortunately, not every child experiences competency with sensory processing disorders. When some aspect of sensory processing does not function efficiently, the child may experience stress in the course of everyday life because processes that should be automatic or accurate are not according to findings of [16, p338].

Heller [17,p94] believes that each baby is born with his own 'style' based on how well he organizes sensation. Differences in sensory reactivity and recovery from disturbing sensory stimuli are obvious soon after birth and sensory defensiveness can be detected as soon as two weeks after birth. Emmons and Anderson (14,p:43) however stated that most pediatricians and parents agree that many behaviors seen in babies tend to be temporary and should only become 'diagnostic' when viewed through the lens of time.

There are many signs of sensory processing disorders that can go undetected and the child can end up with a multitude of diagnoses if the appropriate professionals are not involved and knowledgeable in working with this population Enwefa and Enwefa, (18). Children may have all or some of the listed signs below.

Signs of Sensory Processing Disorders

Unusual reactions or overreactions to sounds, sights, movement, tastes, or smells, include:

- Bothered by clothing fabrics, labels, tags, etc.
- Distressed by touch or unexpected touch
- Dislikes getting messy
- Resists grooming activities
- Very sensitive to sounds (volume, quality, or pitch)
- Squints, blinks, or rubs eyes frequently
- Bothered by lights or visual pattern
- High activity level or very sedentary
- Unusually high or low pain threshold
- Deliberately bumps into people and things
- Inappropriate biting, licking, and touching people and objects
- Poor focus, highly distractable
- Difficulty handling transitions, rigidity about change
- Poor regulation of energy level and mood
- Easily overstimulated or uncomfortable in group settings
- Difficulty with self-confidence and independence
- Anxiety about everyday sensations
- Very high or low activity level
- Withdraws or refuses to participate, tunes out what's happening
- Impulsivity, particularly with seeking sensations
- Poor attention and focusing

Motor skill and body awareness difficulties

- Fine motor delays (difficulty with crayons, buttons/snaps, beading, scissors)
- Gross motor delays (difficulty walking without tripping, running, climbing stairs, catching a ball)
- Illegible handwriting
- Moves awkwardly or seems clumsy
- Low or high muscle tone
- Oral motor and feeding problems

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Red Flags of Sensory Processing Disorders for Classroom Teachers



The following is a descriptive checklist of some of the commonly seen behaviors in children who exhibit sensory processing disorders. [19]

- Hand flapping/repetitive movements
- An acute awareness of background noises
- Fascination with lights, fans, water
- Spinning items, taking things apart
- Walking on tip-toe
- Clumsy
- Little awareness of pain or temperature
- Coordination problems
- Unusually high or low activity level
- Difficulty with transitions (doesn't "go with the flow")
- Self-Injury or aggression
- Fearful in space (on the swings, seesaw or heights)
- Avoidance of physical contact with people and with certain "textures," such as sand, paste and finger paints
- Uncomfortable with stimuli on face, hands and feet
- Short attention span
- Easily distracted
- Strong dislike of certain grooming activities, such as brushing the teeth, washing the face, having hair brushed or cut
- Unusual sensitivity to sounds and smells
- A child may refuse to wear certain clothes or insist on wearing long sleeves/pants so that the skin is not exposed
- Frequently adjusts clothing, pushing up sleeves and/or pant legs

Prevalence and Incidence of Autism and Sensory Processing Disorders

Autism and Sensory Processing Disorders affect all racial, ethnic, and/or socioeconomic status [2]. There are approximately 3.5 million Americans that have autism. It is estimated that 1 in 68 children have been diagnosed with autism [21]. In the United States, an estimate of 1 to 1.2 million children under the age of 21 have been diagnosed with autism. It is one of the fastest growing developmental disabilities in the United States. Researchers have shown that boys are 4.5 times more likely than girls to have [2,20]. The current statistics suggest that 35% of young adults in the age range of 19-23 years have autism and have not had a job or received post graduate education after leaving high school. It is projected that more children will be diagnosed with autism in the next decade. The annual expenditure for autism services for United States citizens ranges from \$236-\$262

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billion dollars [2]. The costs of caring for a child with autism can exceed \$2 million over a lifetime. The cost to educate a child with autism averages \$8600 per year. Globally, about 1% of the world population has autism [18]. Studies have shown that 1 in 20 children in the United States can be affected by Sensory Processing Disorders. While 5 to 16% of school age children have sensory processing disorders, about 5-13% of children entering school have sensory processing disorders. [2].

Characteristics of Sensory Processing Disorders [2]

Sensory Over-Responsive Symptoms

- Textures on body, face, hands, or feet, having hair or nails cut; hair combed
- Background noise, loud, unexpected sounds, and fragrances
- Playing on swings and slides, being upside down
- Bright lights or sunshine

Sensory Under-Responsive Symptoms

- Doesn't feel pain, doesn't notice when being touched
- Doesn't like physical activities; prefers sedentary activities
- Slow or unmotivated and unaware of what's going on within their environment
- Unaware of body sensations such as hunger, hot or cold or need to use toilet

Sensory-Seeking Symptoms

- Is on the move constantly, crashing, bashing, and is unable to sit still
- Constantly touches objects and/or intrudes on people
- Seems unable to stop talking and takes excessive risks
- Often licks, sucks, chews, smells, or tastes objects

Dyspraxia/Motor Planning Problem Symptoms

- Difficulty learning new motor activities or those that require more than one step
- Is clumsy, awkward, and/or accident-prone, tripping or bumping into other people
- Takes a long time to write things down and to do self-care activities like dressing
- Has difficulty organizing personal spaces or playing with small objects

Postural Disorder Symptoms

- Has poor muscle tone, seems weak, slumps when sitting or standing
- Has difficulty crossing the middle of the body to complete a task
- Has poor balance and falls over easily, sometimes even when seated
- Has poor endurance and gets tired easily

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Sensory Discrimination Disorder symptoms

- Difficulty know what is in their hands or telling what is touching them
- Judging how much force is required for a task
- Identifying and distinguishing between different sounds or letters
- Organizing writing on a page, e.g., spacing between letters or words

Professionals such as Special Education Teachers are likely to have at least one child in their classroom whose sensory issues are significant enough to inhibit their learning, social development functioning within the classroom, and the school environment. These children are likely to have some other conditions such as ADHD, autism, developmentally delayed, learning disabled, to include deficits in social skills, and are in need of a lot of support because they have been born prematurely. There are more males with SPD but you will also find many girls with SPD within the educational environment. More importantly, we must be sure that we accommodate these populations of children successfully since it is on the rise and now given the appropriate recognition as a disorder now according to the DSM-V criteria. Additionally, SPD is also hidden and some children may not be given the correct diagnosis or the parents may not be open to learning that their child has SPD. We must be proactive and as resourceful as possible in order to educate and bring about an awareness of understanding in meeting the needs of these populations of children. Listed below are some suggested strategies and modifications that may be helpful in working with SPD populations. The same information provided is also available to all children with communication disorders, deficits, or related disabilities.

Modifications/Accommodations Checklist for SPD Children in the Classroom Environment [2]

- Natural Lighting
- Flower Bach Therapy
- Aromatherapy
- Homeopathy
- Rope Lights
- Therapy balls
- Stress Balls
- Fidget toys
- Music (classical, hemi-sync, prescription audio)
- Rhythmic activities (such as metronome or playing drums)
- Colorful wall colors (calming colors)
- Use alternative seating (such as: therapy balls, sit in spin, air wedges, bean bags, etc.)
- Fidget desk top
- Chewy pencil toppers
- Set up a tent in the classroom

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- Headphones
- Sensory bins
- Allow gum chewing
- Allow snacks at desk
- Do not clutter wall with too much decoration
- Weighted vests and/or blankets

Parental Support and Counseling

It is essential that counselors understand how to interpret behaviors of the child diagnosed with SPD, develop an awareness of the behavioral, emotional, and relational challenges faced by children with this disorder, and appreciates the processes by which secondary issues such as mental health problems and dysfunctional family dynamics develop in families with SPD children. Counselors, parents, and teachers can adapt certain aspects of a child's environment [22], as well as their own interactions with that child, to help him or her work around the dysfunction and create the meaningful interactions needed for healthy development [23,24]. Most teachers and school counselors, however, are unfamiliar with the disorder [25]. Counselors can help parents advocate for needed modifications at school. Counselors can assist parents, teachers, and even peers in reframing and trouble-shooting the child's behavior, and helping him or her interact in a more normative and facilitative way. Families of children with SPD are hit hard by the disorder [26], and family therapy can be used to change functional patterns that were laid on the basis of misinterpretation. If your child has sensory issues and doesn't receive special education services, help is available through a 504 plan and/or IEP depending on the appropriate screening, assessment, and program development to meet the needs of the child.

SPD is challenging to diagnose. Many are intellectually gifted and as intelligent as their peers. There are a number of professionals that must be involved in order to treat SPD. Listed below are some of the professionals on the team that have been successful with treating autism and sensory processing disorders.

Teams of Professionals That Help Treat Children with Autism and Sensory Processing Disorders

- Occupational Therapist
- Speech Language Pathologist
- Parents
- Special Education Teachers
- Regular Education Teachers
- Social Workers
- Principals
- Pediatricians

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- Counselors
- Psychologists
- Psychiatrists

Despite the high rate of SPD, information and resources, knowledge and awareness, training is still limited. The challenge is that SPD looks a lot like other disorders and often results in misdiagnosis, improper categorization and placement. Most insurance companies do not cover the cost of treatment but this will soon change in the near future. Additionally, some of the child find service personnel available in all states are not highly trained on working with SPD, so most children are the labeled developmentally delayed. Future and clinical implications are to bring about awareness and training at all levels. Below are some recommended standards of treatments that have been tried and successful with SPD and autism.

Recommended Treatments of Autism and Sensory Processing Disorders

- Bioenergetic Medicine
- Nutrition
- Homeopathy
- Hair Sampling Analysis
- Aromatherapy
- Flower Bach Therapy
- Vibroacoustics
- Music Therapy

Behavioral Interventions such as:

- Applied Behavior Analysis (ABA)
- Epsom Salt Baths
- Melatonin Supplementation
- Clay Packs
- Castor Oil Packs
- Digestive Enzymes
- Essential Fatty Acids
- Sensory Diets

CONCLUSION

The US has an estimate of about two million individuals with autism. This indicates that autism prevalence figures are increasing boys are four times more likely to have autism than girls. Currently, there are more children diagnosed with autism than AIDS, Diabetes, and Cancer all combined. It appears that autism is the fastest

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growing serious developmental disability in the United States. Presently, there has been a large increase in the types of reported cases related to autism but researchers/scientists are not sure if this is due to the fact of the expansion of the definitions that is being used. Additionally, there has been a greater emphasis on the actual diagnosis/increase in the actual number of individuals identified to have autism. The rise in the prevalence of autism will cause an enormous increase and burden upon the society. It is interesting to point out that much of the data that has been reported by the Centers of Disease Control does not include children not in schools and those who are being homeschooled or receiving some type of intensive services within the home. There is no known cure or medical detection for autism. The reported increase in prevalence rate cannot be explicated simply by better diagnosis. Some studies have indicated that autism is being better diagnosed today than decades ago. Still others have alluded to the fact that many cases of intellectual disability are now identified as autism. Many young children have experienced significant improvement as a result of early diagnosis and the use of effective intervention approaches. The projected cost to society by 2025 is anticipated to possibly reach up to \$1 trillion annually. It is known that of the many childhood diseases, autism receives about 5% of government research fund.

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