

Commentary

The Significance of Sensory Disorders in Autism

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Received: October 16, 2023; Accepted: October 23, 2023; Published: October 30, 2023

Abstract

Background: Autism is said to be a Neurodevelopmental Disorder which has a whole range of different strands. One of the most overlooked and misunderstood is the sensory differences – often referred to as Sensory Processing Disorder (SPD) or Sensory Integration Disorder (SID).

Aim: The aim of this study is to improve the understanding of the sensory differences and their implications in autism.

Methodology: Qualitative methods that include observation, personal accounts and ongoing research.

Current situation: Today unusual responses to sensory stimuli are recognized by many individuals with autism, their families and many professionals working in the field of Occupational therapy who work with them, although their significance is often overlooked by professionals working in other disciplines.

Summary: This study will show that both the sensory differences and their significance has been known for centuries. It will also propose that they are of great significance in autism for they affect every aspect of individual's daily life.

Keywords: Autism, Neurodevelopmental delay, Sensory differences, Sensory processing disorder (SPD), Sensory integration disorder (SID), Soft neurological signs, Aberrant reflexes, Visual differences, Auditory differences, Tactile differences

The significance of our senses in development has been known for centuries, as was summed up by the German philosopher Immanuel Kant in the 18th century when he said, "All our knowledge begins with the senses, proceeds to understanding, and ends with reason." During the 19th century great doctors like Drs. John Langdon Down and the French physician Édouard Séguin worked with a range of children with learning disabilities of various kinds, while some of their other contemporaries worked with children who were blind, deaf or deaf-blind. As a group they were all keenly observant as can be seen from their books and papers, all having a real understanding of the sensory differences and their implications. During the time that Dr J.L. Down ran the Earlswood Asylum he noted that some of the children there fitted into different groups, some having savant skills and others having the "mannerisms and behaviour" that we would connect with autism today.

In a paper written in 1907 Dr Séguin made a comment worth repeating and, although his terminology is unpleasant to our ears, its importance is undeniable. As he noted, "Deafness and blindness from birth have the same effects as paralysis on ungifted children, by depriving them of the cognizance of a whole series of phenomena. But it is a fact curious enough to be noted, that partial obliteration of one of these channels of knowledge will produce the symptoms of superficial idiocy surer than its complete destruction." Moving into the 20th century we find that the importance of the sensory differences and their possible link to autism was highlighted by Bergman and Escalona in their [1] paper "Unusual Sensitivities in Very Young Children." As they wrote "Colors, bright lights, noises, unusual sounds, qualities of

material, experiences of equilibrium, of taste, of smell, of temperature, seemed to have an extraordinarily intensive impact upon these children at a very early age."

In 1964 the seminal book *Infantile Autism* by Dr Bernard Rimland noted that many such children had unusual sensitivities in several, if not in all, their senses; an idea he supported by quoting from several studies that described peculiar reactions such as "ill focused eyes," "functionally blind," "blind while seeing, and deaf while hearing."

Interest in this area has fluctuated over the decades. It gained attention in the 1960s and 1970s due to the work of several experts including the late Dr's. Ornitz and Ritvo. In their 1968 paper they noted how common, and extremely important, those perceptual differences and their consequences were and postulating that the sensory differences could be the basis of autism [2-4].

In his book *The Ultimate Stranger: The Autistic Child*, Dr Carl Delcato detailed his research. While it was dismissed by many in the scientific community, his findings are important because he found that there were three categories of sensory difference each with its own specific effects. Those three categories included children who were hypersensitive, others who were hyposensitive and a third category that he called White Noise in which those sensitivities were mixed. He also found that their mannerisms were directly linked to the sensory differences. He explained that "One or more of their intake channels (sight, sound, taste, smell, or feel) was deficient in some way. Their strange repetitive behavior was their attempt, through much repetitive stimulation, to normalize that channel or channels [5].

Delacato concluded that the sensory differences were “the most unique feature of autism.” Ornitz took that idea a stage further by suggesting that the seemingly unusual responses to sensory stimuli could be “used to identify autism in young children.”

In their book *Deaf-Blind Children and Infants* [6] Treffry and McInnes told us about the children they worked with, all of whom had a sensory impairment. The connection being that, as Treffry and McInnes told us, the result of those impairments was “... not a reflection of the child’s ability to process information and draw logical conclusions, but rather a measure of his ability to gather the information in the first place.”

By the late 1970s personal accounts had begun to creep into the literature. One came from Jerry, a former patient of Leo Kanner who told Dr. Jules Bemporad about his childhood world which he said had consisted of confusion and terror and was “frightening” because it was full of “painful stimuli that could not be mastered.” Then there was Tony W. who recalled his childhood experiences telling us that “I was afraid of everything! I was terrified to go in the water swimming, [and of] loud noises; in the dark I had severe repetitive nightmares and occasionally hearing electronic noises with nightmares. I would wake up so terrified and disorientated” [7].

In “An Inside View of Autism” Temple Grandin noted that “My senses were oversensitive to loud noise and touch. Loud noise hurt my ears and I withdrew from touch to avoid over-whelming sensation.” She talked about her tactile problems saying that “When people hugged me, I stiffened and pulled away to avoid the all-engulfing tidal wave of stimulation. The stiffening up and flinching was like a wild animal pulling away.” She follows that by noting that “The nerve endings on my skin were supersensitive. Stimuli that were insignificant to most people were like Chinese water torture” [8,9].

Since the 1970’s some professionals (both inside and outside the world of autism) have been researching both neurodevelopment delay and the individual senses. That has led to a strong body of research that links neurodevelopment delay (and what are termed “soft neurological signs” which include aberrant reflexes) to the sensory differences. There is also a great deal of evidence that hearing can have a major impact on behavior from people like Dr. G. Bérard, whose groundbreaking work continues to help many people worldwide, some with autism or other neurodevelopmental conditions [10].

Others work in the field of vision (an area in which the sensitivities are most complex). They include mild to severe Visual Impairment (VI) and what is often termed Visual Stress or Meares-Irlen syndrome. *Today research indicates that most children on the autism spectrum have severe visual stress which cause them to see the world around them as if everything is fragmented or distorted, with some even seeing faces as if they are totally blank. Since those early years there have been an increasing number of accounts (from individuals and families) about the sensory differences and the difficulties they cause. Many people are now taking those account seriously and today research is proving them to be true, as in “The pattern of sensory processing abnormalities in autism” by Janet Kern and her colleagues [11].

In 2007 the neuroscientists Henry and Kamila Markram came up with the Intense World Syndrome, based around hypersensitivity. Their initial interest in this topic was triggered by their son, who has autism. They and their colleague postulated that sensory overload interferes with social communication and language and that those obsessive and repetitive behaviors are the child’s attempt to bring order and predictability into a bewildering world. That led them to suggest that their hypothesis offers a unifying theory of autism. It is certainly a very positive theory and one that (in part) confirms previous research [12].

Comments

- Research into NDD has shown that while the sensory differences and their effects are common among the neurodivergent community they are most severe in autism.
- The Intense World Syndrome. The idea that sensory overload interferes with social communication and language and that those obsessive and repetitive behaviors are the child’s attempt to bring order and predictability into a bewildering world is certainly correct. The flaw being that it focusses solely on hypersensitivity whereas the sensory issues which are far more complex than that.

Conclusion

The link between sensory differences and autism is far clearer now that it has ever been. That is partially because of accounts by a range of different people from different countries across the world who are living with autism and because there is now a great body of evidence from reputable scholars working in a range of disciplines who confirm that neurodevelopmental delay can cause a range of sensory differences that have a major impact on people’s lives. In Lucy Blackman’s article “Reflections on Language” in [13-22] she asked “So, if one doesn’t have depth perception, what does that mean in terms of facial expression? If one hears the subtle sounds of speech out of order, which I do, how does one process language? If affection in the form of cuddles and kisses cause pain and discomfort in one’s infancy, how on earth does one develop interaction which might compensate for not interacting to speech and glance?” How indeed?

Conflict of Interest

The author has no conflict of interest to declare.

Funding

None.

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Citation:

Waterhouse SL (2023) The Significance of Sensory Disorders in Autism. *Psychol J Res Open* Volume 5(7): 1-3.