



Prevalence of Undiagnosed Sensory Processing Disorder in toddlers due to modern lifestyle

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Introduction and Background

The human sensory system is a highly complex system, which enables human beings to experience the world. It is through our senses that we receive sensory information from the environment and we need this information to survive, learn and to function smoothly. In other words, our brains receive sensory information from our bodies and surroundings, interpret these messages and organize our purposeful responses⁽¹⁾. This neurological process is known as Sensory Processing⁽²⁾ and the ability to regulate the degree, intensity, and nature of a response to a sensory input is called Sensory Modulation, and it significantly impacts the way a child relates to the world. When the brain has trouble receiving and responding to this information that comes in through the senses, there is problem in sensory processing and it is termed as Sensory Processing Disorder (SPD)⁽³⁾. Jean Ayres postulated that sensory integration dysfunction occurs when sensory neurons are not signaling or functioning efficiently, leading to deficits in development, and/or emotional regulation. In turn, it could influence the development of play, social participation, education, and self-care occupations. It also affects their behaviour, learning and the way they negotiate the world. If left unrecognized and untreated, children are often mislabeled, mismanaged, and misunderstood⁽³⁾. So, it is important to identify it as early as possible. In modern era, due to overprotective behaviour of parents, child may not be able to explore the surrounding at its maximum. So, there may be some type of SPD present in children of new generation. The severity may be mild, but there are chances that due to less exposure to environment, the sensory stimulus needed are not fulfilled. As we know that sensory processing is the core for motor and academic learning, presence of sensory issues may affect child ability to perform in academics and play. By early diagnosing the sensory issues lacking in child, we can help child to perform good in academics and play activity. Some studies have found that 10-55% prevalence rate of SPD is seen in child without disability. We have used Toddler's sensory profile to screen the sensory system and found the prevalence rate of SPD in toddlers of Surat due to modern lifestyle.

Keywords : Prevalence, Sensory Processing disorder (SPD), Sensory Issue, Toddler's Sensory Profile Questionnaire, Modern lifestyle.

Methods

We conducted Survey to find prevalence rate of SPD in toddlers due to modern lifestyle in Surat city. Pediatrician Clinic was selected for data collection as schools were closed due to Covid-19 pandemic. Study was started in June 2020. Total 200 toddlers of age 1.5-5 years were selected for the study. Parents Google meet was arranged for awareness about the importance of Sensory Processing and difficulty related SPD. The sensory system of toddlers were screened using Toddler's Sensory Profile Caregiver Questionnaire. And based on calculation child is said to be Typical developing, definite difference and Probable difference. Parents filled the google form of the Questionnaire. Data were collected from the area of Surat city and near by villages. After collection of data , prevalence rate was calculated.

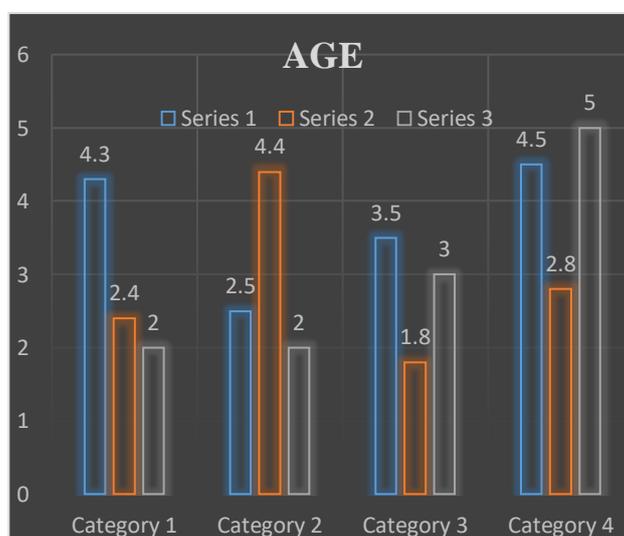
Result

Study shows that, 17.5% of toddlers shows under-responsive to touch, 7.5% are over-responsive to touch, 13.5% of toddlers shows over-responsive to movements, 11% of toddlers shows under-responsive behaviour, 15% of toddlers shows over-responsive behaviour.

Table 1.1 Descriptive Analysis of Demographic data

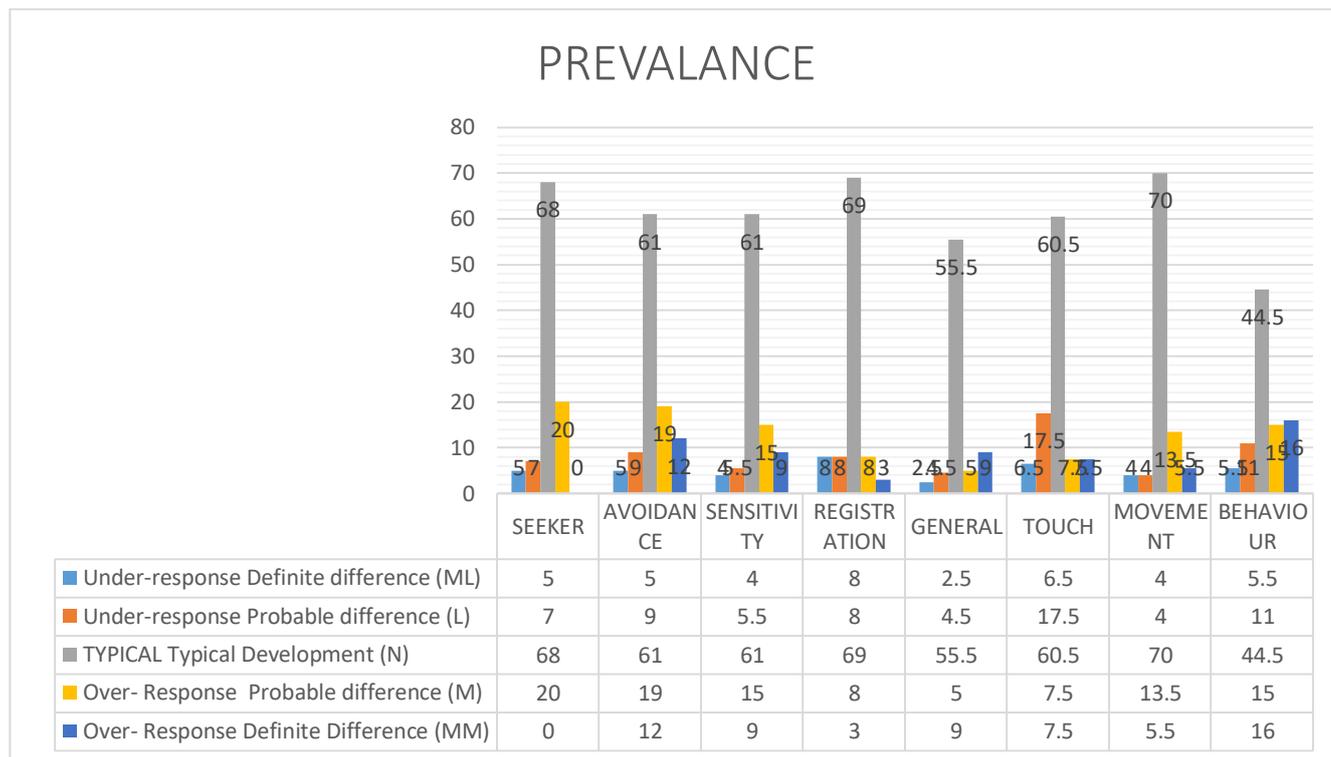
Characteristic	Number	Percentage
Gender		
Male	113	56.5
Female	87	43.5
Preterm		
Yes	47	23.5
No	153	76.5
No. of child		
1	113	56.5
2	84	42.0
3	3	1.5
Total	200	100.0

Graph 1 : AGE



Graph 1 : AGE

Graph 2 : Prevalence rate of SPD



Graph 2 : Prevalence rate of SPD

Discussion

The main purpose of this study was to find the prevalence of Sensory Processing Disorder present in toddlers.

Our research question asked that how much is the prevalence of sensory processing disorder in toddlers due to modern lifestyle. In the above study we had found the prevalence rate of Sensory Processing Disorder in toddlers due to new lifestyle. The study shows that, 17.5% of child are under-responsive to touch, 7% of child are over-responsive to touch. 13.5% of child are over-responsive in movement. 11% of child had under-responsive behaviour and stay more silent than other child. 15% of the child are over-responsive to behaviour and shows more tantrums. This study shows that, there are some amount of sensory issues present in toddlers due to new lifestyle.

There is lack of research showing importance of lifestyle on development of sensory system. Colette O'Connor, Sinéad Lambe, Sharon Gleeson and Áine Henry (2016), in the study Facilitating children's sensorimotor* development in DEIS schools: Relevance and recommendations, explain that children automatically play in way that facilitate sensorimotor development on which cognition skill are based. But due to problems like homelessness and cultural changes in the way children play means that such movement opportunities are no longer automatically part of many socioeconomically excluded children's experience⁽⁴⁾. Catherine Critz, 2015 in her study found that, among children without disabilities, the prevalence of Sensory Processing disorder ranges from 10% to 50%⁽³⁾. Contradict result for sensory processing disorder in child without disability in seen in study of Scott D., Winnie Dunn, describing comparison of sensory processing disorder in child with autism and child without disability. They reported that children with ASD were reported with sensory processing impairment whereas typically developing group were not⁽⁵⁾. Ermer J, Dunn W in their study, The Sensory Profile: A discriminant analysis of children with and without disabilities found that behaviour patterns associated with certain developmental disorders are also reflected in population of children without disabilities⁽⁶⁾.

We can say that, as there is less exposure to tactile stimulation due to less outdoor and indoor physical activity, fully covered clothes, interference in normal developing activity reduces the amount of touch stimulus child needs to receive, which may cause under-responsive to touch. The child over-responsive to touch avoids the tactile sensation due to more sensitivity. Use of spoon for eating, lack of play in sand due to hygiene worry, all this activity hinders touch sensation so the sensitivity is not reduced. The child over-responsive to movements fails to calm self, so requires constant movement to calm themselves.

Nowadays, the augmentation in technology and modern lifestyle has an enormous change towards the lifestyle we live in. Even in the case of children, technology and new lifestyle has been now rooted as an emerging part of learning and development. Usage of mobile phone for cartoons, rhyme, learning has been introduced in our society to make learning fun and meaningful since long. With fashion industries engulfing development at stages and availability of new clothes like mittens for hands and legs, usage of kangaroo bag etc has been inculcating children towards new learning and has a deep impact. All of this slashes the sensory stimulation that a child requires for development from the surrounding. More usage of mobile phone engages child at one place being stagnant. The use of audio and visual system over-compasses the tactile, vestibular and proprioceptive activities. Use of fully covered clothes reduces the mouth activities of a child bying him/her from seeking sensations of mouth activity and self-calming activity. Sucking of fingers gives tactile stimulation resulting put a calm on oneself. Now a days parents restrict their kids to explore in near surrounding on the account of cleanliness and hygiene. Which again becomes a core reason in depleting sensory stimulation. A more recent study in the UK carried out by Carroll, Solity & Shapiro (2015) examined the extent to which difficulties in auditory, visual and motor skills can be used to predict dyslexia in school age children. The results showed that deficits in visual and auditory processing, key perceptual motor skills, were present in a large minority of poor readers⁽⁷⁾.

So, with advancement of technology and adapting more advanced lifestyle, over-protection of parents the development of sensory system is compromised and child may face some sensory issues which later on can interfere in academics and social play.

Conclusion

The result of the present study of Prevalence of undiagnosed Sensory Processing disorder have rejected the null hypothesis of this study. Prevalence rate was seen more in tactile system and more over-responsive behaviour of toddlers were seen. Hence it concluded that modern lifestyle interferes with the development of child sensory system, so some amount of sensory processing disorder are seen in Toddlers.

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