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A COMPARITIVE STUDY OF THE SENSORY PROCESSING ABILITIES AMONG SPASTIC AND ATHETOID CEREBRAL PALSY CHILDREN ON THE SENSORY PROFILE.

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Introduction

Life is a sensory experience. Effective sensory processing is essential Effectively function within the environment. Recent literature states that understanding the nature of one's sensory Processing needs the background knowledge for constructing daily life. Various studies provide evidence about how the sensory systems contribute to the experience of being human.

Sensory integration is the neurological process that organizes senses from ones own body and from the environment and makes it possible to use the body effectively within the environment. Ayres defined sensory integration process as "the ability to organize Sensory information for use".

Sensory processing dysfunctions manifest in the conditions like autism, attention deficit hyperactive disorder, learning disability and cerebral palsy. It is imperative for the occupational therapist to attend this problem in order to devise an effective treatment plan. To aid in assessment this study analyses the effectiveness of the sensory profile as a tool among children with spastic and athetoid cerebral palsy.

Review of Literature

Dunn w. (2001) did a study on "The sensations of everyday life: empirical, **theoretical, and pragmatic considerations**". Studies indicate that the persons with disabilities respond differently than peers on these questionnaires, suggesting underlying poor sensory processing in certain disorders, including autism, attention deficit hyperactivity disorder, developmental delays, and schizophrenia.

Kientz MA, Dunn W.(1997) conducted a study on **"A comparison of the performance of children with and without autism on the sensory profile**". They are taken the sample of parents of 32 children with autism and 64 children without autism. They concluded that the sensory profile can provide information about the sensory processing skills of children with autism to assist occupational therapists in assessing and planning intervention for these children.

Watlimg RL, Deitz J, White O.(2001) conducted a study on **"comparison of sensory profile scores of young children with and without autism spectrum disorders.** They are taken a sample of 40 children with autism and 40 children without autism. The study suggests that young children with autism have deficits in a variety of sensory processing abilities as measured by the sensory profile.

Methodology

Aim of the Study

To compare the sensory processing abilities among children with spastic and athetoid type of cerebral palsy on sensory profile.

Objectives

To identify the items and components on sensory profile that discriminate between children with spastic and athetoid cerebral palsy.

To find out the usefulness of sensory profile in discriminating children with spastic and athetoid cerebral palsy.

Inclusion criteria

- Children diagnosed with spastic and athetoid type of cerebral palsy
- Age group between 5- 10 years
- Both male and female children

Exclusion criteria

- Children's with other type of cerebral palsy
- Autism, severe mental retardation
- Age below 5 and above 10 years

Sample size
50 Children were selected for the study. Out of them 25 children are diagnosed as spastic type of cerebral palsy and the other was diagnosed as athetoid type of cerebral palsy.

Administration
After obtained due consent the sensory profile was explained and given to the parent of the children's taken for the study. Clarifications done as and when necessary by the therapist. After completion of all the items the forms are collected and scored. Then the data was subjected to statistical analysis. Average duration taken by the parents to complete the questionnaire was one hour.

Statistical Method
Mann whitney U test has been used for statistical analysis.

Data Analysis
Responses given by the parents for each variable has been taken for taken for statistical analysis. Mean, standard deviation, median has been calculated for each variable individually for spastic and athetoid group.

Mann whitney "U" test [Non- Parametric test] has been employed for Statistical analysis. "U" value has been identified for each variable. Then corresponding "P" value is identified to analyze statistical significance.

Statistical Analysis

	Spastic		Athetoid		Mann Whitney U test		
Variables	**Mean**	**SD**	**Mean**	**SD**	**U**	**P**	**Difference**
Q1	3	2	3	1.6	-0.049	0.960	Not significant
Q2	4.3	1.14	3.4	2.1	-0.053	0.958	Not significant
Q3	1.7	1.14	3.4	2.1	-0.852	0.394	Not significant
Q4	1.3	1.04	2	1.2	-1.158	0.247	Not significant
Q5	2.7	1.04	3.2	1.5	-2.586	0.010	Significant
Q6	2	1.41	3.2	1.3	-2.905	0.004	Significant
Q7	3	2	4	1.4	-2.823	0.005	Significant
Q8	2	1.73	2.8	1.8	-1.194	0.232	Not significant
Q9	4.3	1.14	1.6	0.6	-0.449	0.653	Not significant
Q10	4.7	1.07	4.4	1.4	-0.678	0.498	Not significant
Q11	3.3	2.08	5	0	-5.658	0.0001	Significant
Q12	3.3	1.65	2.8	1.6	-1.481	0.138	Not significant
Q13	1.7	1.07	1.2	0.4	-1.512	0.130	Not significant
Q14	5	0	4	1.7	-3.361	0.001	Significant
Q15	4.3	1.14	4.2	1.8	-0.302	0763	Not significant
Q16	2.7	1.65	3.4	1.5	-2.196	0.028	Significant
Q17	3.7	1.15	3	1.9	-1.632	0.103	Not significant
Q18	4.7	1.07	3	1.9	-5.638	0.0001	Significant
Q19	2.3	2.30	2	1.7	-0.997	0.319	Not significant
Q20	4.7	1.07	3.8	1.6	-2.012	0.044	Significant
Q21	4.7	1.07	5	0	-1.640	0.101	Not significant
Q22	4.7	1.07	4.2	0.7	-1.617	0.106	Not significant
Q23	3.7	2.30	3.2	1.6	-1.642	0.101	Not significant
Q24	3.7	1.15	1.8	0.8	-4.201	0.0001	Significant
Q25	3	2	2.6	1.5	-1.610	0.107	Not significant
Q26	4.7	1.07	4.2	0.8	-1.632	0.103	Not significant

Q27	3.7	2.3	2.6	1.5	-2.704	0.007	Significant
Q28	3.7	2.30	2.8	1.3	-1.619	0.105	Not significant
Q29	4.7	1.07	3.6	2	-2.114	0.034	Significant
Q30	4.3	1.15	3	1.6	-2.554	0.011	Significant
Q31	4.7	1.07	5	0	-0817	0.414	Not significant
Q32	4.7	1.07	3.8	1.1	-1.628	0.103	Not significant
Q33	5	0	5	0	0.012	0.990	Not significant
Q34	4.3	1.15	4.8	0.4	-1.512	0.130	Not significant
Q35	5	0	4.8	0.4	-0.232	0.816	Not significant
Q36	2.3	2.30	4.4	0.9	-4.176	0.0001	Significant
Q37	5	0	4.2	1.7	-0.207	0.836	Not significant
Q38	4.7	1.07	5	0	-1.617	0.105	Not significant
Q39	4.7	1.07	4.8	0.4	-0.154	0.828	Not significant
Q40	3.7	2.3	4	1.7	-1.642	0.101	Not significant
Q41	3.7	2.3	4.6	0.9	-1.622	0.104	Not significant
Q42	5	0	5	0	-0.217	0.828	Not significant
Q43	4.7	1.07	4.6	0.6	-1.594	0.111	Not significant
Q44	5	0	4.8	0.4	-0.942	0.346	Not significant
Q45	2.3	2.30	4.4	1.4	-5.286	0.0001	Significant
Q46	2.3	2.30	1.2	0.4	-3.790	0.0002	Significant
Q47	5	0	1.8	1.8	-6.102	0.0001	Significant
Q48	3.7	1.07	2	1.4	-5.118	0.0001	Significant
Q49	3.3	1.65	2.4	1.2	-1.626	0.103	Not significant
Q50	2.7	2.08	2.4	1.5	-1.514	0.130	Not significant
Q51	4.7	1.07	4	1.7	-1.551	0.120	Not significant
Q52	4.7	1.07	5	0	-1.617	0.106	Not significant
Q53	4.3	1.15	4.8	0.4	-0.561	0.575	Not significant
Q54	3.3	2.08	4.4	1.4	-3.129	0.002	Significant
Q55	2.7	2.08	4.2	1.3	-3.928	0.0001	Significant
Q56	2.7	2.08	3.8	1.6	-1.642	0.101	Not significant
Q57	4.3	1.15	3.6	1.3	-1.519	0.129	Not significant
Q58	2	1	3.8	1.6	-4.101	0.0001	Significant
Q59	5	0	5	0	-0.012	0.990	Not significant
Q60	4.7	1.07	5	0	-1.645	0.100	Not significant
Q61	2	1	4	1.7	-5.328	0.0001	Significant
Q62	3	1	3.8	0.6	-1.599	0.109	Not significant
Q63	2.3	1.07	4.4	1.4	-5.418	0.0001	Significant
Q64	4.7	1.07	1.8	0.6	-6.118	0.0001	Significant
Q65	4.3	1.07	1.4	0.3	-6.204	0.0001	Significant
Q66	5	0	4.2	1.3	-1.594	0.110	Not significant
Q67	3.3	2.08	3.2	1.6	-0.364	0.716	Not significant
Q68	4.7	1.07	2	0.7	-5.914	0.0001	Significant
Q69	2.7	2.08	2	0.7	-1.613	0.107	Not significant
Q70	2.7	2.08	2	0.7	-1.613	0.107	Not significant
Q71	2.7	2.08	1.4	0.6	-4.126	0.0001	Significant

Q72	4	1.73	2.8	1.6	-4.113	0.0001	Significant
Q73	3.7	2.3	2.2	1.3	-5.217	0.0001	Significant
Q74	2.7	2.08	2.6	1.2	-0.312	0.755	Not significant
Q75	4.7	1.07	2.6	1.5	-2.869	0.004	Significant
Q76	3.3	2.08	2.2	1.6	-2.967	0.003	Significant
Q77	2.3	2.30	2	1.2	-1.312	0.189	Not significant
Q78	3.7	2.30	1.2	0.4	-5.937	0.0001	Significant
Q79	5	0	1.8	1.8	-7.812	0.0001	Significant
Q80	4.7	1.07	4.2	1.8	-1.629	0.103	Not significant
Q81	4.3	1.15	4.2	1.8	-0.392	0.695	Not significant
Q82	1.7	1.15	2.2	1.1	-1.512	0.130	Not significant
Q83	4.7	1.07	4	1.7	-1.637	0.102	Not significant
Q84	5	0	4.2	1.8	-1.644	0.100	Not significant
Q85	4.7	1.07	2	1.7	-6.296	0.0001	Significant
Q86	3	2	2	1.7	-3.413	0.0006	Significant
Q87	4.3	1.15	2.2	1.7	-6.194	0.0001	Significant
Q88	4.7	1.07	2.4	1.5	-5.915	0.0001	Significant
Q89	4.7	1.07	2	1.7	-6.209	0.0001	Significant
Q90	5	0	4.2	1.8	-1.631	0.102	Not significant
Q91	3.7	1.15	3	1.6	-1.562	0.118	Not significant
Q92	4.3	1.15	1.6	1.4	-6.933	0.0001	Significant
Q93	5	0	2.4	1.7	-6.897	0.0001	Significant
Q94	2.3	2.30	3.2	0.8	-1.569	0.116	Not significant
Q95	1.7	1.15	3.4	1.7	-5.991	0.0001	Significant
Q96	2	1	4	1.4	-6.007	0.0001	Significant
Q97	3	2	2.6	1.4	-1.216	0.224	Not significant
Q98	1	0	1.8	1.3	-1.626	0.104	Not significant
Q99	4.7	1.07	4.2	1.3	-1.571	0.116	Not Significant
Q100	4.7	1.07	2.6	2.2	-5.997	0.0001	Significant
Q101	3.7	2.30	1.6	1.4	-6.301	0.0001	Significant
Q102	1	0	1.6	0.9	-1.616	0.106	Not significant
Q103	3.7	1.65	3.8	1.6	-0.091	0.927	Not Significant
Q104	5	0	3.4	0.9	-5.614	0.0001	Significant
Q105	4.7	1.07	3.8	1.1	-1.092	0.275	Not significant
Q106	4.7	1.07	3.6	1.3	-1.108	0.268	Not significant
Q107	2	1	2.8	1.5	-0.911	0.362	Not significant
Q108	3	1.73	2.6	1.5	-0.578	0.563	Not significant
Q109	4.3	1.15	3	1.4	-4.916	0.0001	Significant
Q110	4.7	1.07	1.6	0.9	-7.107	0.0001	Significant
Q111	5	0	4	1.2	-0.912	0.362	Not significant
Q112	4	1.73	1.6	1.3	-6.119	0.0001	Significant
Q113	4.7	1.07	3.8	1.3	-1.618	0.105	Not significant
Q114	5	0	3.8	1.3	-4.817	0.0001	Significant
Q115	4.7	1.07	1.8	1.8	-6.970	0.0001	Significant
Q116	4.3	1.15	1.6	1.4	6.712	0.0001	Significant

Q117	4.3	1.15	4.2	1.3	-0.309	0.757	Not significant
Q118	4	1.07	1.8	1.8	-5.126	0.0001	Significant
Q119	5	0	1.8	1.8	-7.009	0.0001	Significant
Q120	4	1.07	2.4	1.5	-5.458	0.0001	Significant
Q121	4	1.07	3.2	1.5	-1.016	0.309	Not significant
Q122	4	1.07	3.2	1.1	-1.020	0.307	Not significant
Q123	4	1.73	2.4	1.7	-5.458	0.0001	Significant
Q124	5	0	4.6	0.9	-1.616	0.106	Not significant
Q125	4	1.07	4	1.2	-0.071	0.943	Not significant

Results

Certain items on the sensory profile discriminate children's with spastic and athetoid type of cerebral palsy. Hence its an useful tool to use in the evaluation of sensory processing abilities among children's with cerebral palsy.

Discussion

Statistical analysis shows that 53 items in sensory profile discriminates Children's with spastic and athetoid type of cerebral palsy. Among 14 components 4 components shows very significant differences. Touch and oral sensory processing are the components which is having lot of items that discriminating children with spastic and athetoid type of cerebral palsy.

Some of the items shows equal mean value for both cerebral palsy and athetoid children. As the sample size was less it is difficult to analyze each component separately.

Among the other components visual processing, visual input modulation consist of very least items that discriminate spastic and athetoid type of cerebral palsy.

Conclusion

This study shows that sensory profile can be used to identify sensory processing problems among cerebral palsy children. As the detailed assessment is imperative to devise an effective occupational therapy intervention. Occupational therapist's can use this profile to record the sensory processing deficits. This study showed that items in the sensory profile has been to discriminate between spastic and athetoid types of cerebral palsy.

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