



COMPARATIVE STUDY OF TWO DIFFERENT WEIGHTED VESTS AND ITS EFFECT ON JOINT ATTENTION IN CHILDREN WITH AUTISM SPECTRUM DISORDER.

^{1*}K.ALLI, MOT, (pediatrics) AND C.CHRISTOPHEL YESHUANA, MOT

^{1*} Assistant professor, Department of occupational therapy,
Srm university, kattankulathur, kanchipuram, Tamilnadu, india.

² Department of occupational therapy, Srm university,
kattankulathur, kanchipuram, Tamilnadu, india.

ABSTRACT

To evaluate the effectiveness of weighted vests on joint attention in children with ASD. The objective of this study is to compare the two different weighted vests and its effect on joint attention in children with ASD. Quasi-experimental design was used to find the effectiveness of the study. This study was conducted at corner stone therapy centre and Tiny toods therapy centre, Chennai. Subjects consisted of 14 children with ASD both male and female between 1.5-2 years of age. The result shows that there was no replicated treatment effect on JA, but there was slight improvement in experimental group I (5% group), the pre and post test scores showed differences. The result has been consistent with null hypothesis. The weighted vests used in this study may not provide the necessary deep touch pressure input to optimally affect a child's nervous system as often assumed by occupational therapist. Rigorous research is still needed to explore other sensory regulation treatment methods (e.g., pressure vests) in association with other confounding and interacting factors, which may improve early learning, communication, attention and focus and problem solving competing behaviours for young children with ASD.

KEYWORDS: Autism spectrum disorder, Joint attention, weighted vest, sensory integration therapy.



*K.ALLI, MOT

Assistant professor, Department of occupational therapy, Srm university,
kattankulathur, kanchipuram, Tamilnadu, india.

Received on : 29-08-2016

Revised and Accepted on : 08-12-2016

DOI: <http://dx.doi.org/10.22376/ijpbs.2017.8.1.b349-352>

INTRODUCTION

Autism Spectrum Disorder (ASD) is a neurological based developmental disorder that has significant impact on individual's life-long function.¹ Reviews tend to estimate a prevalence of 6 per 1,000 for Autism Spectrum Disorder as a whole.² In 2012, Mayada Elsabbagh et al proved that the median of prevalence estimates of autism spectrum disorders was 62/10 000.³ It is a developmental condition which affects individuals in two main areas: Individuals have impaired communication and social interaction, Individuals have restricted and repetitive patterns of behavior, interests or activities. ASD can be distinguished by their social communication difficulties, often observed as joint attention (JA) deficits.⁴ In some children, the apparent initial signs and symptoms vary widely in the early developmental period; and social deficits and behavioral patterns might not be recognized as symptoms of ASD or they may be masked by learning strategies in later life.⁵ Joint attention is the shared focus of two individuals on an object. It is achieved when one individual alerts another to an object by means of eye gazing, pointing or other verbal and non verbal indications. An individual gazes at another individual, points to an object and then returns their gaze to the individual. Joint attention abilities play a crucial role in the development of autism.⁶ children with ASD frequently experience sensory integration dysfunction (SID) which prevents them from taking full advantage of natural learning opportunities in their social environments. SID with ASD affects toddler's participation in typical preschool activities because the compensating behaviours compete with the ability to pay attention, which, in turn, contributes to early social difficulties and muted learning experiences.⁷ SIT through weighted vests would be a significant intervention used by interdisciplinary teams of pediatric clinicians, it provides a young child with the increased ability to attend and participate in fundamental early social play because of reduced competing behaviours.⁸ The purpose of the study is to find the effectiveness of two different weighted vest's to improve joint attention in children with ASD

METHODOLOGY

The research design is quasi-experimental design. Sample population is children with ASD (1.5-2 years) and sample size taken in this study is 14. The samples were taken from centers in Chennai, Corner Stone Therapy Centre, and Tiny Toods Therapy Centre. Sample techniques Non probability convenient sampling. The inclusion criteria for this study are Children with ASD (1.5- 2years). Children with playfulness and Children without hearing impairments. The exclusion criteria are Children with motor impairment.

Instruments used

Scale used for screening is Infant toddler sensory profile caregiver questionnaire. It's a questionnaire used to assess the sensory processing disorder. Scale used for assessment is communication and symbolic behavior

scales developmental profile. The Checklist is a first step in routine developmental screening for children 6 to 24 months of age. The following 7 predictors can be identified using this scale, Emotion and Use of Eye Gaze, Use of Communication, Use of Gestures Use of Sounds, Use of Words, Understanding of Words, and Use of object.

Tools used

Weighted vest: Weighted vests are used for toddlers with ASD presumably to influence their somato-sensory systems.⁹ Weighted vest is clothing that adds weight to various parts of the body, usually as part of resistance training. The effect is achieved through attaching weighted pieces to the body (or to the garments). The vest was made by the researcher in this study. The vests that buttoned down the front, pockets from old jeans were removed and sewn into the inside of the vests so that weights could be placed into the pockets and would be evenly distributed. Weighted vest means applying deep pressure, which can be helpful in decreasing purposeless behavior, inattention and hyperactivity often seen in AUTISTIC, ADHD children and those with sensory processing difficulties. The weights to the weighted vest are added by sand bags, a cloth packet is made and it is filled with sand. The sand filled packets are fitted inside the pockets of the vest.

Procedure

The purpose of the study was explained to the authorities of the therapy clinic involved and informed consent form was obtained from parents. 14 children were taken for this study. The parental interview and baseline assessment was done for 14 children. They were assessed with ITSP for screening and CSBS-DP was used for assessment in pre and post test. They were divided into experimental group I and experimental group II. Each group had 7 children and the Intervention was done using weighted vests, with 5% and 10% of the body weight of the child to improve joint attention in children with ASD. The toddlers wore weights in their vests that equaled 5% and 10% of their body weight during the therapy session. The duration of intervention was 45 minutes per day for three days in a week for the period of 2 months. The sessions were individual session. Five-percent of body weight was average amount used by occupational therapists in clinical practice and 10% of the body weight was chosen by the researcher.

RESULTS

This chapter deals with statistical analysis of the data and the results obtained from the analysis of different variables of the research. A statistical analysis was performed with statistical package for social sciences (SPSS -18) with alpha level set at 0.05. Since the "p" value is greater than 0.05, the test is not statistically significant. Hence, there is no difference between the post test scores of two groups. There was no replicated treatment effect on JA, but there was slight improvement in experimental group I (5% group) the pre and post test scores showed differences. The result has been consistent with null hypothesis.

Table 1
comparison of pre and post test of experimental group I and experimental group II

Group		Mean	S.D	Minimum	Maximum	P value
5%	Pre-test	23	10.58301	12	37	0.018*
	Post-test	30.14286	8.820971	18	44	
10%	Pre-test	10.57143	4.314979	4	16	0.018*
	Post-test	21.57143	5.623082	13	28	

Table 2
Comparison between post test of experimental group i and ii

		Mean	Standard deviation	Min	Max	Mann whitney U	P Value
Post-test	5%	30.14286	8.820971	18	44	10.5	0.07
	10%	21.57143	5.623082	13	28		

DISCUSSION

The objectives of the study were to gather information, modify methods, and examine intervention effects for planning a group comparison weighted-vest intervention study for toddlers with ASD and SID. Studying this intervention was crucial for two reasons: To determine which is important, effective intervention variables should be included in a group study and to proactively plan for otherwise unforeseen problems that could occur with toddler participant Table 1: shows the value of 30.14 in 5% weighted vest group and 21.57 In 10% weighted vest group, this value proved that 5% weighted vest group has shown an improvement compared with 10% based on the mean value. The 'P' value of both group (5% and 10%) shows that the value is not significant. This results will be consistent with the study which was done by Shirley v. lee, 2010¹⁰ were the vest didn't show any replicated effect on competing behaviours and joint attention in children with ASD. This shows that both group has proved that there is no significant results based on the mean value of the group (5% and 10%) , the post test scores has scored more than the pretest scores, so that indicates there is mild improvement in using the weighted vest. some research and surveys have suggested that the effects of weighted vests may be both immediate and delayed or delayed rather than immediate. We explored only the immediate effects on attentional and behavioral performance of wearing a weighted vest loaded with 10% of the child's body weight; therefore, the delayed effect was not detected.(Hung-Yu Lin, 2015)¹¹ Table 2 Shows the post test values of both 5% and 10% experimental group there is no much difference between the 5% and 10% groups. The reasons might be because of the various factors which affected the study which includes the time duration in the key article was considered as 6months but in this study the intervention period wasn't sufficient. Irregularity was present parents often forgot to bring the vest. Parent and caregiver was asked to follow the intervention in their houses since there was no proper supervision. During the post test evaluation the researcher found that the parents hesitated to use the weighted vest because children were uncomfortable to

wear the vest. Consistent with other studies, weighted vest did not decrease the rate of problem competing behaviours of 2-yr-old children with ASD and SID, The researcher based on the references in Jenifer Stephenson,2009¹² used weighted vest for problems such us inattentiveness, hyperactivity, stereotypic behaviors and clumsiness wearing weighted vest did not show any improvement by Morrison , Erin E 2007¹³ used weighted vest for children with ASD who had problem behaviours and social attention but there was no replicated effect. Hodgetts et al. (2011)¹⁴ showed "moderate evidence" that the use of WV decreased off-task behavior in children with ASD.

CONCLUSION

The weighted vests neither alleviate problem solving behaviors nor facilitate JA for 14 toddlers with ASD/SID. The vests used in this study may not provide the necessary deep touch pressure input to optimally affect a child's nervous system as often assumed by occupational therapist. Rigorous research is still needed to explore other sensory regulation treatment methods (e.g., pressure vests) in association with other confounding and interacting factors, which may improve early learning, communication, attention and focus and problem solving competing behaviours for young children with ASD.

ACKNOWLEDGMENT

First and foremost, I thank GOD ALMIGHTY for the immense blessing bestowed on me and for giving me the opportunity and strength to pursue this study. My deepest tribute and most sincere appreciation to my parents and family, whose prayers, blessings and vision have enabled me to complete my study.

CONFLICT OF INTEREST

Conflict of interest declared none.

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