

Impact of Tangible Integration on Rest Unsettling Influence among Children with Tactile Handling Disorder

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Abstract: This study was done to find the impact of sensory integration on sleep disturbance among children with sensory processing disorder and for this purpose 20 SPD children with sleep disturbance were assigned according to convenience into the experimental and control group. The objective of this study is to find the impact of Sensory integration on sleep disturbance among children with sensory processing disorder. The results were Pre-test score in experimental group in CSHQ had a mean value of 56.10, and control group had 56.70. The post test results of the experimental group had a mean value of 37.90 and the control group had 55.70. Post test of experimental group with a value of 0.005 (<0.05) indicating reduction in sleep disturbances. Pre-test score in experimental group had a mean value of 45n VAS, and control group had 44. The post test results of the experimental group had a mean value of 80 and the control group had 47. This can be summarized by the findings which prove that the sensory integration for child with sleep disturbance in experimental group varied from child with sleep disturbance of control group by showing a little improvement in their sleep quality.

Keywords: Tactile Handling Disorder, Sensory, Control, Experimental, Sleep

1. Introduction

Sleep is naturally recurring state of mind and body, characterized by altered consciousness, relatively inhibited sensory activity, inhibition of nearly all voluntary muscles, and reduced interaction with surrounding. Sleep is a vital function for all living creatures; not merely a state of shutdown, but as a state of activity that serves to facilitate maturation, reorganization, and restoration. From an ontogenic perspective, sleep pattern vary throughout development will more sleep needed during critical periods of brain growth.

During the first 2 years of life, children spend more hours asleep than awake² and it is during this period in early childhood that neurological connections are formed in the central nervous system, providing the foundation for all future cognitive, sensory-motor, and social emotional development. As such, from an evolutionary perspective, sleep has not only retained its status as a vital occupation but has proven to be critical in the establishment of all other areas of development.

According to Hirshkowitz (2004), sleep is a brain process similar to other homeostatic processes such as thirst or hunger. Influenced by a circadian rhythm, sleep consists of two main stages: rapid eye movement (REM) sleep and non-REM sleep². Although the reasons for sleep are not fully clear, it is known that sleep is essential to our health and survival. Adequate amount of sleep is very much essential for the optimal growth and development of children. Lack of sufficient sleep has a myriad of negative consequences for a typical child, such as clumsiness and impaired attention to task. Chronically disrupted sleep can lead to problems in cognitive functioning including memory, attention, and abstract complex tasks. Significant behaviour, mood, and performance impairments have also been documented.

Most children will have difficulty falling or staying asleep. Temporary sleep difficulties are normal. However, studies have shown that significant sleep problems occur in 40%-80%

of children with autism. Sleep monitoring studies have shown that children with autism take longer to fall asleep, are awake for longer in the middle of the night, and sleep for shorter periods than typically developing children.

It is extremely common for children with ASD to have difficulty getting to sleep, sleeping for a few hours at a time, and/or staying asleep without frequently waking throughout the night. These poor sleep habits are easily created and can be extremely difficult to change.

Mayes and Calhoun (2009) found that sleep problems increased with severity of autism symptoms and suggested that sleep disturbance is part of the overall autism symptom complex. Children on the autism spectrum (ASD) appear to experience these sleep disturbances more frequently and intensely than typically developing children. In addition, sensory processing patterns involving avoiding sensations, seeking out sensations, and not registering environmental stimuli, have been associated with changes in sleep quality. Although issues with sleep have been identified in children with sensory processing difficulties, the association of sensory processing patterns with sleep in infants and toddlers aged 0-36 month is largely unknown.

2. Aim and Objectives

Aim

To find the impact of Sensory integration on sleep disturbance among children with sensory processing disorder.

Objectives:

- To evaluate the effectiveness of sensory integration therapy on sleep disturbance among children with SPD.
- To compare the effectiveness of sensory integration therapy with sleep schedule for sleep disturbance in children with SPD

Hypothesis:

Null Hypothesis: Sensory integration therapy is not effective in decreasing sleep disturbance among children with SPD.

Alternate Hypothesis: Sensory integration therapy is effective in decreasing sleep disturbance among children with SPD.

3. Methodology

Study:

The study was conducted in Jaipur Occupational Therapy College & Hospital, Dhand, Amer, Jaipur

Sampling: Convenience sampling method was used to select the sample based on criteria.

Sample population: Children with SPD having sleep problems are included for the study purpose.

Sample size: The study includes 20 samples:
Experimental group:10
Control group:10.

Selection criteria

Inclusion criteria

- Children with conditions like ASD, ADHD, LD, fragile X, Aspergers syndrome etc. with Sensory Processing Disorder (SPD).
- Children between 3-10 years of age
- Both boys and girls

Exclusion criteria

- Children who have any type of physical dysfunction including CP, muscular dystrophy, congenital amputation, spinal muscular dystrophy etc..
- Children with severe visual and hearing impairments.
- Serious confounding life events such as the death of a parent, abuse or neglect, or residence in a foster home.

Tools, Equipment's and Outcome Measures

- The Sensory Profile is a 125-question caregiver-completed profile that reports the frequency of the person's response to various sensory experiences (Dunn, 1999).
- Caregivers are asked to check the box that best describes the frequency with which the subject engages in the listed behaviours.
- Choices are never (five points); seldom (four points); occasionally (three points); frequently (two points); and always (one point).
- On the Sensory Profile, lower scores indicate greater SPD symptoms.
- The Sensory Profile includes high and low threshold items. High threshold items measure an individual's lack of response or need for more intense stimuli. Low threshold items measure a person's notice of or annoyance with sensory stimuli.

The Children's Sleep Habits Questionnaire (CSHQ)

- Eight subscales reflecting the following sleep domains: 1) Bedtime Resistance, 2) Sleep Onset Delay, 3) Sleep Duration, 4) Sleep Anxiety, 5) Night Wakings, 6)

Parasomnias, 7) Sleep- Disordered Breathing, 8) Daytime Sleepiness.

- Parents are asked to recall sleep behaviors occurring over a —typicall recent week. Items are rated on a three-point scale: —usuallyl if the sleep behavior occurred five to seven times/week; —sometimesl for two to four times/week; and —rarelyl for zero to one time/week.

4. Analysis and Results

To reach the aim of finding association between sleep disturbance and sensory processing disorder, the study was conducted with the objective to evaluate the effectiveness of sensory integration therapy on sleep disturbance among children with SPD.

Table 1.1: Demographic Details of the Participants in the study (Gender)

Gender	Group	n	%
Boys	Exp	8	80%
	Cont	8	80%
Girls	Exp	2	20%
	Cont	2	20%

Table 1.2: Demographic Details of the Participants in the study (Age)

Groups	Mean	SD	Min	Max
Exp	3.95	0.55	3.10	5.00
Cont	3.99	0.73	3.00	6.60

Table 1.1 & 1.2 as shown in the study consisted of 20 children with SPD among who 16 boys and 4 girls, the children age ranged from 3-10 years with a mean age of 3.95 SD 0.55 and mean age of 3.94 SD 5.60 in experimental and control group respectively.

Table 2.1: Comparison of Pre & Post Test Scores of Children Sleep Habit Questionnaire for Experimental And Control Group

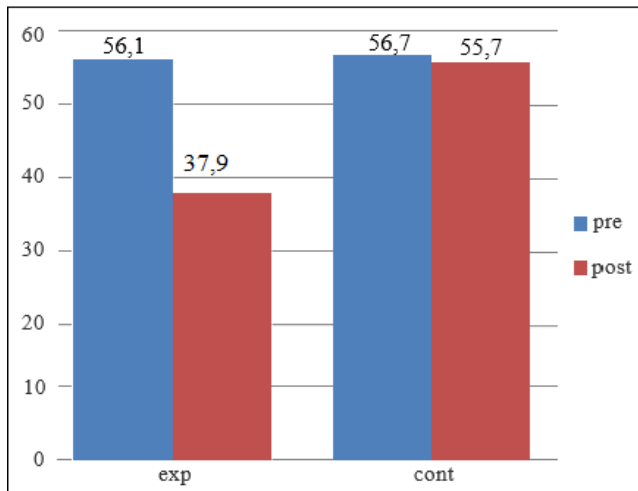
Group	Test	Mean	SD	Z scores	sig
Exp	Pre	56.10	3.34	-2.810	.005
	Post	37.90	1.72		
Con	Pre	56.70	51.00	-.841	.400
	Post	55.70	50.00		

Shows that mean & SD and the result shows that there is significant difference in the pre & post test scores of experimental groups, but not in the control group.

Table 2.2: Comparison between control and experimental group scores [Pre test and Post Test on children sleep habit questionnaire]

Test	Group	Mean Rank	Sum of rank	U score	Sig (2tailed)
Pre	Experimental	11.25	112.50	42.500	.568
	Control	9.75	97.50		
Post	Experimental	5.50	55.00	.000	.000
	Control	15.50	155.00		

Mann whitney U test reveal that there is no significant different in pre test scores indicating homogeneity of the group prior to intervention and shows there is significance difference in the post test of sleep disturbance.



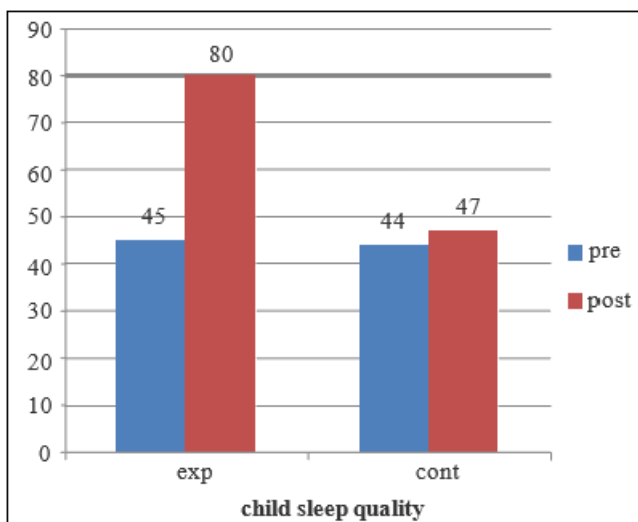
Graph 2: Comparison between pre & post test scores on children sleep habit questionnaire for experimental and control group

The graph shows the reduction in sleep disturbance on experimental group groups not incontrol group.

Table 3.1: Comparison of pre & post test of visual analogue –child sleep quality for experimental and control group.

Group	Test	Mean	SD	Z scores	sig
Exp	Pre	45.00	5.27	-2.844	.004
	Post	80.00	6.66		
Con	Pre	44.00	5.16	-1.732	.083
	Post	47.00	4.83		

Shows the mean & SD of VAS: children sleep quality The results shows that there is significant differences in the experimental group in the measures of VAS: children sleep quality p is 0.04(<0.05), but not in the control group.



Graph 3: Comparison between pre and post test VAS- child sleep quality for experimental & control group.

The graph shows the improvement in sleep quality of both groups. It is evident that the experimental group have shown higher improvement than control group.

5. Conclusion

Sensory integration therapy has an effect in sleep disturbance

for children with SPD. Treatment in combination with sleep schedule and sensory integration therapy will be a better choice for children with SPD. Occupational therapists can teach calming based sensory integration therapy with sleep schedule to the parents of children with SPD to achieve adequate sleep.

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