Original Research Paper

Volume-8 | Issue-8 | August-2018 | PRINT ISSN No 2249-555X

Pediatrics

RESPONSIVENESS OF APP: ATTENTION DEFICIT & HYPERACTIVITY DISORDER (ADHD) PARTICIPATION PROFILE

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ABSTRACT

Introduction: The Attention Deficit & Hyperactivity Disorder (ADHD) symptoms of impulsivity, inattention and hyperactivity, prevents the child from participating in many situations. Recently, to determine to determine the parent's perception about the level of participation the caregiver questionnaire known as the "APP" (ADHD Participation Profile) had been developed and preliminarily validated among Indian population. The aim of the present study was to determine the responsiveness of the APP questionnaire.

Method: Thirty three children with (aged 5-12 years) with a diagnosis of ADHD were enrolled. The parents or caregiver were instructed to fill in the APP questionnaire accordingly. After six weeks of receiving Ayres Sensory Integration Therapy, all of them were asked to fill in the questionnaire again.

Results: After Ayres Sensory Integration Therapy, mixed differences (small, moderate & large effect sizes) in the APP result were found in different domains. But significant difference was found in total score with large effect size.

Conclusion: APP showed good responsiveness to intervention. The clinical usefulness of the APP in assessing patients with ADHD was further supported by the present study.

KEYWORDS : ADHD, ADHD Participation Profile (APP), responsiveness, effect size

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is a highly prevalent disorder of childhood. ADHD affects child's participation in different life situations. It might be school, playground, home or any other community settings. Most often, the typical symptoms of impulsivity, inattention and hyperactivity, prevents the child from participating in many situations. Initial affectation because of this disorder might be low self-esteem, learning delay and poor social skills. But later on it might lead to school exclusion, conduct disorder, substance abuse and criminal behavior (VA., 2005).

Recently, a Caregiver questionnaire, known as the ADHD Participation Profile (APP) had been developed and validated among English speaking population. The purpose of the questionnaire is to determine to determine the parent's perception about the level of participation according to caregiver. It is a caregiver-reported questionnaire that utilizes a 5-point Likert scale and has 20 items categorized under four domains

1. Mobility, Self-care and Domestic life (10 items)
2. Interpersonal interactions and Relationships (5 items)
3. Combination of Learning/ applying knowledge & General Tasks/ demands (4 items)
4. Communication (1 item)

Its content validity, face validity and internal consistency (reliability) were reported to be valid and consistently reliable (Nandgaonkar Hemant P., 2017) . More research is required to further explore the usefulness of the ADHD Participation Profile questionnaire (Terwee CB, 2007) (Rainey, 2014) . The aim of the present study, therefore, was to determine the responsiveness of the ADHD Participation Profile questionnaire (i.e., its ability in detecting changes after a specific treatment is given).

Responsiveness: of an instrument assesses whether the instrument can detect changes over time that matter to patients. It is measured using the Cohen effect size. A Cohen effect size of 0.8 or more is considered large . (Verhoef, 2008)

MATERIALS AND METHODS

In the present study that employed a repeated measures design, eligible subjects were selected randomly among patients of Occupational Therapy Training School and Centre, Seth G.S. Medical College, K. E. M. Hospital, Mumbai, India.

Participants & recruitment: "Informed consent was obtained from all individual participants included in the study." All of them reported to Occupational Therapy after diagnosis of ADHD based on DSM IV Criterion from Child Guidance Clinic of Department of Psychiatry, Department of Pediatric and Pediatric Research Laboratory. The children were between age of 5 years and 12 years from Mumbai and Thane district. The participants were with an average intelligence.

After undergoing the screening for Sensory Processing Issues on Sensory Processing Measure, the parents were participants were required to fill in the ADHD Participation Profile questionnaire.

Parents of subjects were involved in determining the responsiveness of the ADHD Participation Profile questionnaire. The 25-item ADHD Participation Profile questionnaire that utilized a five-point Likert scale was developed to grade to the parent's perception about the level of difficulty in performing the relevant and important aspects of daily activities of children with diagnosis of ADHD.

After completing the questionnaire, the intervention commenced. In the present study, the Ayres Sensory Integration® Therapy method offered by the Occupational Therapist at Sensory Integration Therapy clinic. The therapy was given to each participant for six weeks.

After the intervention six weeks period, they were required to fill in the ADHD Participation Profile questionnaire again. The pre- and post-intervention results were then compared and analyzed. All procedures performed were approved by Human Ethics Committee of KEM Hospital.

The responsiveness of the ADHD Participation Profile questionnaire was determined using the effect size and the standardized response mean (SRM) (with pooled standard deviation). In the literature the SRM is also sometimes referred to as a Responsiveness- Treatment (RT) coefficient or an efficiency index.(Janice A. Husteda, 2000)

RESULTS

This study included a total of 33 subjects, ages ranging from 5 years to 12 years. For demographic information including gender, age see Table 1.

Table 1 : Demographics of Study Population

Total Number of Children	**33**
Male	**26 (78.78%)**
Female	**7 (21.22%)**
Mean Age	**7.272727 years**
Standard Deviation	**1.736964 years**
Minimum Age	**5 years**
Maximum Age	**12 years**

A standardized measure of effect size (ES) was calculated using the Cohen's d. Cohen's d computes the difference in score between the baseline and the follow-up and then divides this difference by the baseline score standard deviation.

The standardized response mean (SRM) is another important indicator of ES, similar to the paired t-test, but removing dependence on sample size from the equation. This is computed as the mean difference between baseline and follow-up APP scores divided by the standard deviation of difference scores, reflecting individual changes in scores. Although there is not perfect consensus, recommended guidelines for interpreting SRM values are similar to interpretation of Cohen's d.

To determine the responsiveness of the APP questionnaire, 33 children were enrolled. As revealed in Table 2, significant differences in the score were found in the Learning and total score domains, as well as in the composite score with moderate effect sizes. In the mental domain, no significant difference in the score was found between the sessions and the effect size was small (d=0.34).

Table 2 : Responsiveness of APP from baseline

Domain	Pre Intervention		Post Intervention		Effect Size	Difference in means			Interpretation
	Mean & SD		Mean & SD			Mean	SD	SRM	
Learning & applying knowledge General Tasks/ demands	6.121212	6.716136	2.909091	5.066241	1.033481.	3.212121	3.434727	0.93519	Large
Communication	0.787879	6.840366	0.333333	5.152103	0.318885.	0.454545	1.301223	0.349322	Small
Mobility, Self-care & Domestic life	4.848485	6.843044	1.272727	5.119995	0.87338	3.575758	4.879999	0.732737	Moderate
Interpersonal interactions & Relationships	3.727273	6.842668	4.777096	5.083241	0.73105.	1.969697	2.888391	0.681936	Moderate
Total Score	14.55556	9.524238	5.75	5.405685	1.137111.	8.805556	6.610898	1.331976	Large

DISCUSSION

The ability of the ADHD Participation Profile questionnaire to detect the treatment progress was determined. For measuring the responsiveness of an assessment tool, the effect size should be reported. An effect size of ≥0.80 is considered as large, 0.50- 0.79 as moderate, 0.20-0.49 as small, and 0.00-0.19 as very small.

In the present study, moderate effect sizes were noted in the mobility & Self-care, Interpersonal relationships of the ADHD Participation Profile questionnaire. Large effect sizes were noted in the Learning and applying knowledge, Total Score of the ADHD Participation Profile questionnaire. Small effect sizes were noted in the communication domain of the ADHD Participation Profile questionnaire. We need to consider the presence of only one item for comparison. Also attention should be paid to the fact that communication is not the prime area of concern.

This indicates that the ADHD Participation Profile questionnaire has good responsiveness and can document the treatment progress. Nevertheless, if the duration of treatment were longer, perhaps bigger effect sizes would be obtained for the ADHD Participation Profile questionnaire.

It is worth noting the pre and post-intervention scores were statistically different in all the domains except communication domain of the ADHD Participation Profile questionnaire. These findings might be related to the nature of treatment given. On the other hand, if a medical treatment is given, bigger effect sizes (better improvements) might be seen in the total of all domain score of the ADHD Participation Profile questionnaire.

In conclusion, the responsiveness of the ADHD Participation Profile questionnaire has been proven to be good. Herein, the ADHD Participation Profile can be used reliably to document the treatment progress of patients with ADHD for research and clinical purposes. Nevertheless, future bigger scale studies are encouraged to further verify the present study findings.

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