Case Report

Effects of Self-monitoring Technique on Inattentive Behaviors of Students with Attention Deficit Hyperactivity Disorder

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Beneficial effects of stimulants on core symptoms of Attention Deficit Hyperactivity Disorder (ADHD) have been reported in several studies. Behavioral interventions have also been proposed as empirically supported interventions for ADHD. Although cognitive-behavioral therapies (CBT) have been criticized for the lack of evidence-based data, some studies have indicated the positive effects of CBT techniques on children with attention deficit hyperactivity disorder (ADHD). This article reports the effects of self-monitoring technique, as a CBT technique, on inattentive behaviors of children with ADHD.

Keywords: *Attention deficit hyperactivity disorder, Behavior therapy, Self monitoring, Students*

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Many interventions have been applied to reduce core symptoms and associated behaviors of attention deficit hyperactivity disorder (ADHD). However, only three treatments, which have been studied extensively in the literature, have obtained empirical support as effective treatments for ADHD, and they are as follows: central nervous system (CNS) stimulants; behavioral interventions; and combined treatment approaches (1, 2). Different types of cognitive-behavioral therapies including problem solving strategies, cognitive reconstructing, relaxation training, self-monitoring, cognitive modeling, and affective education have been extensively proposed for children with ADHD (3). Although these approaches have been criticized for the lack of evidence-based data**,** their positive effects on reducing ADHD symptoms have been broadly studied (4). In this article, the effects of self-monitoring technique on inattentive behaviors of children with ADHD have been reported.

Cases Report

Participants consisted of 4 students who attended two special education schools at the elementary level. All students were diagnosed as having ADHD, and their age range was between 9 to 11 years. Three of the four students were diagnosed with a combined type of ADHD, and one person was diagnosed to have the hyperactive – impulsive type by a child psychiatrist.

A multiple baseline single-subject experimental design was used. The researcher directly observed the inattentive behaviors (such as inattention to teacher and materials, not following through instructions, leaving seat) of the participants in the classroom. Observations of target behaviors were continued through the experimental phases.

Inattentive behaviors of participants (target behaviors) were observed during two sessions each week (each session lasted 30 minutes). All target behaviors were recorded using "*duration per occurrence*" recording procedure, and percentages of the behaviors were calculated. Inter-observer agreement was calculated, and a level of 78% was achieved. Self-monitoring of attention was used as a cognitive-behavioral technique for increasing self-control in the participants. The package was organized using Hallahan and Hudson's self-monitoring program. The programs included the following components:

Self-monitoring cues tape: An audiotape including tones or beeps at irregular intervals. When a student first begins to use self-monitoring, the pre-recorded tones are essential for his/her success (5).

A self-monitoring card: It includes a self-assessment question (was I paying attention?) and spaces in which

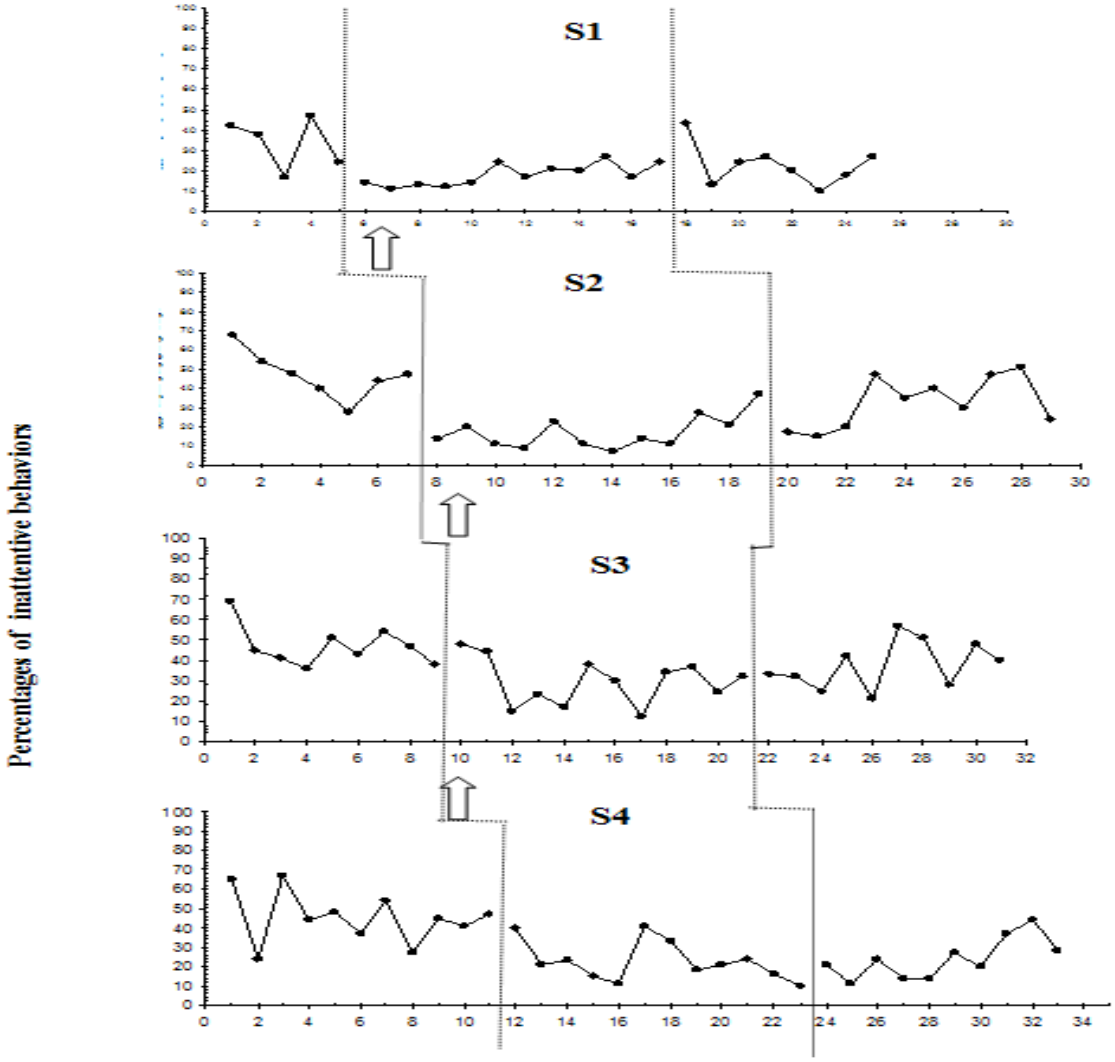

Fig1. Percentages of inattentive behaviors in experimental phases

participants indicate being off-task or on-task when the tones sound.

Appropriate tasks to complete while using self-monitoring

During self-monitoring, students were engaged to work in classroom assignments or follow their teacher's instructions (5).

The desired goal of self-monitoring was to achieve self-control in classroom situation and to work without external cues features (tape and card). Thus, during self-monitoring sessions, external cues were phased out, and students were expected to control their off-task behaviors internally.

The results indicated that the percentages of off-task or inattentive behaviors in the classroom situation reduced as a result of the self-monitoring program. This decreasing trend from baseline to the intervention phase is displayed for all the four participants. Levels of inattentive behaviors in the follow-up are approximately similar to the intervention, and are lower than the baseline phase (particularly for the first and fourth participants).

Discussion

Direct observation of inattentive behaviors in a school-based special education situation showed that the behaviors reduced in the intervention phase of a single-subject experimental design. However, maintaining the treatment effects was difficult for the participants.

Based on the results of this study, two important points should be considered: firstly, increased effectiveness of self-monitoring technique was only observed in the context of the intervention phases and not in the follow-up phases. In other words, treatments were not

effective over an extended period of time after the intervention.

Secondly, individual differences are important in accepting treatment.

From a practical perspective, the findings of this study indicate that self-monitoring techniques can be applied for students with ADHD in school-based special education settings. With respect to the short-term effectiveness of self-monitoring technique, continued treatment for ADHD is needed so that parents and teachers could understand the outcomes of each approach. Lastly, it should also be noted that parent management training (6, 7) is an important factor to be considered in CBT techniques.

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