Impact of Attention Training on School Children with Attentional Deficiencies

A Thesis

Submitted for partial fulfillment of the requirement for the award of degree of

MASTERS OF ARTS IN PSYCHOLOGY

Submitted by:

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UNDER THE SUPERVISION OF

Dr. Sarika Alreja

Assistant Professor

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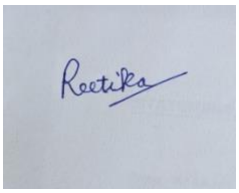
CERTIFICATE

This is to certify that the dissertation entitled “Impact of attention training on school children with attentional deficiencies” submitted by Reetika Jha (Regd. No. 862202033) in the partial fulfilment of the requirement for the award of the degree of Master of Arts in Clinical Psychology, to Thapar Institute of Engineering and Technology is a record of a student's own work carried out by her under my guidance and supervision. The report has not been submitted for any other degree or certificate award in this or any other university or Institute.



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MA Psychology

Date 14.05.2024

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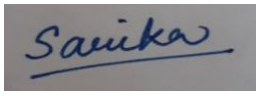

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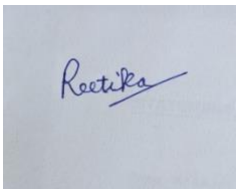
CANDIDATE'S DECLARATION

I, hereby declare that the work being presented in the thesis entitled, "Impact of attention training on school children with attentional deficiencies" in the partial fulfilment of the requirement for the award of the degree of Master of Arts in Clinical Psychology, Thapar School of Liberal Arts and Sciences, Thapar Institute of Engineering and Technology, Patiala, India. The content in this dissertation has not been submitted to any other university or institute for the award of any other degree.



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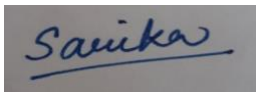

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ABSTRACT

This study examines the impact of attention training on school children with attentional deficiencies. The study involves sixty children, aged 6-12, selected through a purposive sampling technique from a school in Patiala, India. They were assigned to either the intervention (n=30) or control group (n=30). The intervention group was given attention training for 1 month. The attention module from Brainwave-R: Cognitive strategies and techniques for brain injury rehabilitation were used for the intervention. Pre and post-assessments were conducted using the Digit Vigilance Test, the Triad Test and brief impairment scale to measure errors, time taken and functional impairment respectively. Results indicated post-intervention, the intervention group exhibited remarkable improvements in the tests, showing a significant reduction in errors and time taken and improvements in interpersonal relationship, school functioning as well as self care compared to the control group. The Independent t-test revealed significant differences between the groups' pre-post changes in the tests and Paired t-test revealed within group differences before and after the intervention. The findings suggest that attention training has a substantial positive impact on enhancing sustained and divided attention as well as functional impairments in children with Attentional deficiencies.

Keywords: ADHD-IA, attention training, digit vigilance test, triad test, sustained attention, divided attention, functional impairments, school functioning, interpersonal relationships, self-care, brief impairment scale

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CHAPTER 1

INTRODUCTION

1.1 ATTENTION

Attention is a fundamental cognitive process crucial in various aspects of human functioning, including perception, memory, decision-making, and problem-solving (Posner & Petersen, 1990).

Attention is the cognitive mechanism that lets us focus on particular information elements while disregarding others. It functions as a focal point amidst many stimuli, like a spotlight. Various forms of attention exist, with sustained focus and divided attention being essential. Sustained attention, sometimes called vigilance or focused attention, is the ability to keep cognitive concentration on a particular task or stimuli for a prolonged duration. It refers to the capacity to maintain focus in the company of possible interruptions or tedium. Predict the capability to read a complex novel for prolonged periods without lose comprehension of the plot or maintaining focus on a task despite interruptions.

This focus is crucial in multiple facets of life, from educational efforts to career endeavors. It enhances productivity by enabling individuals to thoroughly engage in complex work, examine intricate details, and maintain mental exertion in the face of protracted challenges.

Sustained attention is fundamental to learning, problem-solving, and task completion. It helps maintain focus and perseverance, which are necessary for accomplishing goals. Divided attention refers to the cognitive capacity to handle and analyze numerous tasks or stimuli concurrently. It involves the skill of multitasking, which includes simultaneously handling tasks such as responding to emails during a meeting, texting while strolling, or cooking while engaging in conversation.

Divided attention enables us to effectively manage the requirements of our multitasking-oriented society by distributing cognitive resources across many tasks. Efficient cognitive control and task-switching abilities are required for this kind of attention. Although technology allows us to manage multiple tasks concurrently, it also presents difficulties. Allocating attention to multiple tasks

simultaneously might diminish overall performance and heighten the probability of errors due to restricted cognitive capacity and probable interference between tasks.

1.2 ATTENTIONAL DEFICIENCIES

A significant symptom of attentional deficiencies is inattention. Regarding attention deficit, parents and educators frequently note that ADHD kids struggle with focus, detail-oriented attention, and long-term attention span maintenance. Children with Attentional deficiencies also has difficulties with planning, organizing, and completing given tasks since they are often distracted (Barkley, 2006). They also require more guidance and correction when doing chores than healthy children. Results of a well-regulated, laboratory-based research supports this that demonstrated notable deficits in neuropsychological measures of attention in children with Attentional deficiencies (Borger et al., 1999; Lockwood et al., 2001; Perugini et al., 2000). Using a multi-dimensional attention model, Tucha et al. (2006c) determined that children who have Attention deficit have a global attention deficit, including vigilance, focused attention, divided attention, and shifting.

Persistent symptoms of inattention, hyperactivity, and impulsivity characterize Attention Deficit, a neurodevelopmental condition (American Psychiatric Association, 2013). Children with this condition have problems paying attention, controlling their movements, suppressing impulses, and controlling their behavior—all of which impact socialization, everyday living, and communication (Roberts et al., 2015). The literature indicates that executive functioning deficiencies are the source of these problems (e.g., Rapport et al., 2001; Sonuga-Barke, 2003; Willcutt et al., 2005; Nigg, 2006; Barkley, 2015).

1.3 ATTENTION TRAINING

A basic cognitive function, attention is essential to many parts of human functioning, such as perception, memory, decision-making, and problem-solving (Posner & Petersen, 1990). It acts as a cognitive filter, enabling people to ignore distractions and focus only on the information that is truly important. Considerable attention has been drawn to cognitive psychology and neuroscience research because of its importance in daily life and its consequences for social, professional, and academic achievement.

Attention training is the systematic practice of a collection of procedures to improve attentional abilities (Tang et al., 2015). It is often referred to as attentional control training or attentional bias correction. Improved attentional control mechanisms, such as sustained attention, attentional switching, and selective attention, will result in more effective cognitive processing and improved performance on tasks requiring attention (Posner & Rothbart, 2007). This is the main objective of attention training.

Mindfulness meditation is a crucial paradigm in attention training that entails developing present-moment awareness and nonjudgmental attention to one's thoughts, feelings, and sensations (Tang et al., 2015). According to Tang et al. (2015), mindfulness-based therapies have been shown to alter attentional processes by fostering attentional stability, flexibility, and awareness of both internal and external stimuli. According to research, for instance, practicing mindfulness on a daily basis is linked to better selective attention and disengagement from unimportant stimuli (Tang et al., 2015; Jha et al., 2007).

Cognitive training activities created especially to target attentional control mechanisms are another method of attention training. These exercises frequently involve computerized tasks that call for people to restrain proponent responses, engage in prolonged attention, and transition between several attentional sets (Mackworth, 1965). To improve these attentional processes, for example, training programmes based on this paradigm evaluate the three primary attentional networks—alerting, orienting, and executive control—using the commonly used Attention Network Test (ANT) (Fan et al., 2002).

The creation of easily accessible attention-training games and apps that can be customized to suit personal tastes and requirements is another result of recent technological breakthroughs (Boot et al., 2013). According to Anguera et al. (2013), in order to maximize training effectiveness and engage users, these digital interventions generally mix gamification, cognitive training, and real-time performance feedback. According to preliminary data, these interventions may be useful for enhancing attentional capacities in clinical populations with attentional deficiencies as well as healthy persons (Anguera et al., 2013; Klingberg, 2010).

The potential of attention training to improve cognitive functioning and maximize performance in a variety of domains is encouraging. Through the use of digital treatments, mindfulness meditation, and cognitive exercises, people can target attentional control mechanisms and enhance their capacity to focus, withstand distractions, and allocate cognitive resources in an adaptable manner.

CHAPTER 2

REVIEW OF LITERATURE

Oliver Tucha et al. (2011) conducted a study to evaluate how an attention training program affects children with ADHD's ability to focus. In the study, 16 healthy children and 32 ADHD children took part. The two conditions—an attention training program that taught vigilance, selective attention, and divided attention, or a visual perception training that taught perceptual skills were randomly assigned to children with ADHD. The training programs were administered in separate sessions twice a week for four consecutive weeks. Healthy children have no training. The following were assessed before and after the interventions: flexibility, divided attention, alertness, vigilance, and selective attention. While using ADHD medication, children with the disorder were evaluated and trained. Data analysis showed that the attention training utilized in this study significantly improved vigilance, split attention, and flexibility, among other characteristics of attention. The results show that children with ADHD receiving medication for their condition may benefit from attention training programs in terms of improved attention performance.

A study was conducted by Leanne Tamm et al. (2010) to investigate the feasibility of implementing the Pay Attention! Intervention focuses on improving sustained, selective, alternating, and divided attention in a clinical context for children diagnosed with ADHD. The study also aimed to determine if children who underwent the intervention improved attention and executive functioning. The findings indicated that the intervention is both implementable and well-received by the participants. Parents and clinicians report improved executive function and reduced ADHD symptoms after the intervention. The neuropsychological evaluations of children revealed enhancements in working memory, cognitive flexibility, and fluent reasoning.

In a 2017 study, Khan N. A. et al. examined the impact of attention and fine motor coordination issues on other functional deficits in children diagnosed with ADHD-Inattentive type (IA). Twenty elementary school kids from various Mysuru, India, schools were selected based on their fulfillment of the criteria for ADHD-IA type. The Fine Motor Checklist and the NIMHANS Neuropsychological Battery for Children were used to assess neuropsychological deficits. The Brief Impairment Scale was use to evaluate functional deficits. For three months, the kids in the experimental group received exceptional motor instruction together with focused attention. Three

months later a post-training examination was finished. The results of the study show that kids with ADHD-IA have a variety of cognitive deficits. The results also show that working memory, visual fluency, focused and selective attention, attention fine motor training, and new learning ability were all positively boosted. Children with ADHD-IA diagnosed with motor impairment It was also found that other functional deficiencies in children with ADHD-IA, like academic performance, were influenced by attention and fine motor coordination. According to the study, children with ADHD-IA who get neuropsychological therapy can effectively improve their functional deficiencies.

In a randomized clinical trial, Chacko, A. et al. (2014) confirmed that school-age ADHD children benefitted from Cogmed Working Memory Training. The study used a control condition and a large sample size. According to the study, children with Attentional deficits who received Cogmed Working Memory Training had better attentional control and academic success.

A study by Zylowska, L. et al. (2008) evaluated the feasibility of teaching mindfulness meditation to adults and teenagers with ADHD. According to preliminary findings, children with ADHD may benefit from mindfulness meditation training in terms of their attention and behavioral functioning.

A study on therapies that address the academic difficulties faced by children and adolescents with ADHD was carried out in 2006 by Raggi, V. L., and Chronis, A. M. Programmes for classroom-based attention training have shown promise in improving classroom behavior and academic performance in children with ADHD.

A comprehensive evaluation of various therapies aimed at enhancing the development of executive function in children between the ages of 4 and 12 was conducted by Diamond and Lee (2011). According to their research, some activities can significantly improve executive functions like working memory, cognitive flexibility, and inhibitory control. These activities include computerized training, physical exercise, and traditional martial arts. The study highlights the importance of continuing to engage in these activities, suggesting that sustained practice over an extended period of time is necessary to get notable and lasting benefits. In order to keep kids engaged and motivated, the authors also stress the value of encouraging social environments and the need for challenging yet enjoyable treatments.

A thorough evaluation of evidence-based psychosocial therapies for children and adolescents with ADHD is carried out by Evans, Owens, and Bunford (2014). Behavioral classroom management, behavioral parent education, and organizational skills training are just a few of the helpful interventions that their findings suggest. The efficacy of these interventions in reducing symptoms of ADHD and improving social and academic functioning is highlighted in the study. The authors stress the importance of combining these therapies with other therapeutic modalities and medication in an all-encompassing strategy. They promote modifying therapies to meet the needs of each individual and stress the significance of ongoing support and reinforcement for sustaining treatment outcomes.

CHAPTER 3

RESEARCH GAP

3.1 Research gap

A limited number of researches has been done using Brainwave-R manual on Attentional deficiency population. The majority of research that has been conducted employed computerized training sessions.

3.2 Objective

To assess the impact of attention training on school children with attentional deficiencies.

3.3 Hypotheses

H1 There will be a significant effect of attention training on sustained and divided attention.

H2 There will be a significant effect of attention training on Functional impairment.

CHAPTER 4

METHODOLOGY

4.1 Sample

A purposive sampling was used to select 60 children, of either gender, aged between 6-12 years, who had average or above average intelligence, no physical or sensory impairments, met the criteria outlined in the ADHD-IA checklist, and whose parents given consent for their participation in the present study. The children were selected from elementary school located in Patiala, India. The study eliminated children who exhibited severe hyperactivity/impulsivity, were taking medication, and had below average IQ. The children were randomly divided into an intervention group and a control group, consisting of 30 participants each.

4.2 Design

A pre and post treatment with control group design was used for the present study.

4.3 Tools

Screening Tools:

1. Swanson, Nolan and Pelham Questionnaire (SNAP-IV, Swanson et al., 1983)

The SNAP-IV is a diagnostic tool used to categorize children who have ADHD or its various forms. Summarized items have been incorporated for the Inattention and Hyperactivity/Impulsivity domains of ADHD. The scale has excellent concurrent validity and internal consistency of 0.90.

2. Stanford –Binet intelligence test (Hindi version)

It was created in France in the early 1900s by Alfred Binet and Théodore Simon and is called the Stanford-Binet test. For the evaluation of intellectual capacity in a variety of populations, the exam has been modified and translated into Hindi among other languages. The Stanford-Binet Intelligence Test in Hindi seeks to quantify cognitive capacities in Hindi-speaking people and offers intuitive information about their intellectual functioning.

Assessment Tools:

1. NIMHANS Neuropsychological Assessment Battery for Children (NIMHANS- NBC: Kar et al., 2004)

There are twenty-two assessments in the present battery. Selective neuropsychological tests are designed to assess specific neuropsychological functions: verbal working memory (WM), visuospatial WM, planning, motivation, visuo-perceptual ability, apraxia, expressive speech, verbal fluency, behavioral inhibition, perseverance, creativity, and verbal and motor coordination. Children from five to fifteen years old can use it. The tests' reliability ranges from 0.53 to 0.83. The construct validity of the tests is good.

The test assesses the cognitive abilities associated with the frontal, parietal-occipital, and temporal lobes. The administered tests are as follows:

1. Digit Vigilance Test

With performance measured by accuracy, completion time, and error rate, the Digit Vigilance Test asks students to recognize and label specific target digits (like the numbers 6 and 9) within a never-ending stream of non-target digits in order to gauge their sustained attention span and response speed. Faster completion speeds and greater accuracy point to more focused attention.

2. Triad Test

The Triad Test measures problem-solving abilities, pattern identification, cognitive flexibility, and divided attention. Children are asked to choose which of three objects in the trid doesn't belong. Simultaneously, the child must recognize and say out a number that is written on their dominant hand. The quantity of right answers indicates how divided the child's attention and cognitive flexibility are.

2. Brief Impairment Scale

Hector R. Bird and colleagues created the Brief Impairment Scale (BIS), a brief assessment instrument intended to assess children's and teenagers' functional impairment in many spheres of their everyday lives. The three primary areas of assessment for the measure are self-care or self-fulfillment activities, school or work performance, and interpersonal relationships. Every domain

is assessed taking into account the influence of emotional, behavioral, and social issues on the child's capacity to perform well in those areas. For clinical evaluations as well as research, the BIS offer a standardized approach to determining how much a child's psychological problems affect their daily functioning. The internal consistency of the test is from 0.81 to 0.88. It has high convergent and concurrent validity.

Intervention Package:

Brainwave-R: Cognitive strategies and techniques for brain injury rehabilitation (Kit B. Malia,, et al.1997)

The basic concepts of the Brainwave-R programme, a general review of brain injury, and an outline of the content covered in each of the program's cognitive domains are all included in this book that serves as an introduction to the programme. At the end of this book are Initial and the Final Client Questionnaires to help the therapist with the client interview.

The five modules, each with a reproducible Therapist and Client Workbook, are included with this introduction book. The Therapist Workbook contains a list of supplies required for every module, therapist guidelines, client performance record sheets, client exercise descriptions, and answer sheets. The Client Workbook has charts for self-ratings and performance predictions as well as exercises to help the client get better in the module areas. These activities seek to inform the client about the problematic areas and offer practice chances to improve deficit skills and application of technique to raise functional performance. The present study focuses on the Attention module:
This module aims to enhance focused, sustained, selective, and alternate attention abilities to maximize amounts of arousal and alertness.

Every week focuses on a certain facet of attention, utilizing activities that are specifically designed to gradually test and enhance that ability:

Week 1: Fundamental Abilities
1. An overview of attention ideas and practices for self-monitoring.
2. Exercises that specifically target fundamental selective attention skills, such as visual cancellation tasks with a limited number of distractions.

3. Developing and enhancing sustained attention by engaging in activities that demand concentrated focus for brief periods of time.

Week 2: Developing Cognitive Focus

1. Implement more intricate selective attention tasks that include a greater number of distractors.
2. Techniques to enhance the ability to maintain focused attention for extended durations.
3. Begin implementing divided attention activities, which involve concurrently attending to two stimuli (e.g., listening to instructions while performing a straightforward task).

Week 3: Enhancing Attention Abilities

1. Implement exercises that stimulate alternate attention, such as swiftly shifting concentration between several tasks.
2. Enhance split attention abilities by engaging in increasingly intricate dual-task exercises.
3. Commence integrating activities that necessitate directing attention, such as transitioning emphasis to unfamiliar noises or instructions.

Week 4: Generalization and Maintenance

1. Engage in the practical application of acquired attention methods in real-life situations under the guidance of a therapist.
2. Present techniques for sustaining focus improvements in everyday activities.
3. Evaluate and resolve any remaining obstacles.

Structure of the session:

The sessions, which occur daily and continue for 45 minutes, adhere to a same format each week.

Review: Provide a concise overview of important principles and tactics discussed in the prior session.
Warm-up: Participate in activities that gently prepare the attention system for the upcoming exercises.

Focused Practice: Execute exercises specifically tailored to target the specific area of concentration for the week.
Abstraction Activities: Engage in the practical application of acquired abilities to tackle intricate challenges that closely resemble real-life scenarios.
Evaluate and provide input: Analyze advancements, tackle challenges, and strategize for the upcoming session.

4.4 Procedure

The study was done in an elementary school in Patiala and lasted a period of one month. The study started by selecting a suitable school and engaging in a discussion with the school administration regarding the significance and necessity of the study, as well as the advantages that the students and teachers may get from it. An informed consent was obtained. The teachers of students in grades 3 to 6 were asked to identify any students who seemed unfocused and inattentive during class. 68 children from various courses were identified with the assistance of teachers. Teachers were subsequently cvvfinstructed to provide the SNAP-IV assessment to these students. After identifying the signs of ADHD-IA, a comprehensive neuropsychological evaluation was conducted. The Stanford-Binet IQ test (adapted in Hindi), and the NIMHANS NBC were conducted, resulting in the selection of 60 students for the present study. Parents of the selected children were asked to fill a brief impairment scale. The participants were assigned to either the experimental group (N-30) or the control group (N-30) in a random manner. The selected children in the experimental group received attention training for duration of 30 days, with sessions 6 times a week. The training was given to the children in group. The children in the control group did activities different from attention training. The duration of each session was 45-60 minutes. Following the completion of the intervention session, a post-test was administered after 1 month to both groups once more.

4.5 Statistical analysis

The Statistics was done with the help of Statistical Package for Social Sciences 23 (SPSS 23).

To analyze socio-demographic variables like age, IQ and SNAP-IV, descriptive statistics were computed.

To analyze baseline Status of Digit vigilance test, Triad test and functional impairment of Intervention and Control Groups, Independent t-test was applied.

Paired t-test was applied for analyzing the data to evaluate the changes in all the variables, i.e Digit vigilance test, Triad test and functional impairment within the intervention Group. Evaluation was done from change from baseline and post assessment.

Paired t-test was applied for analyzing the data to evaluate the changes in all the variables, i.e Digit vigilance test, Triad test and functional impairment within the Control Group. Evaluation was done from change from baseline and post assessment.

CHAPTER 5

RESULTS

5.1 Descriptive statistics

	N	Mean	Std. Deviation
Age	60	10.72	1.16
IQ	60	99.33	5.78
SNAP-IV	60	23.45	0.50

Table 5.1 shows the descriptive statistics of the sample. The mean age of the participants was 10.72 ± 1.16 years. The mean IQ of the participants was 99.33 ± 5.78. And the mean level of SNAP-IV was 23.45 ± 0.50.

5.2 Showing Baseline Status of Digit vigilance test and Triad test of Intervention and Control Groups

Areas of assessment		Intervention group Mean ±SD	Control group Mean ±SD	Independent t-test t value
Digit vigilance test	Errors	61.33±10.99	61.73±9.79	-0.149(NS
	Time taken	13.81±1.16	13.23±1.51	1.653(NS)
Triad test	Errors	7.77±1.30	7.17±1.23	1.830(NS)

NS: Non sig.

Table 5.2 shows the baseline status of Digit vigilance test and Triad test of Intervention and Control groups.

The mean number of errors that were made in the Digit Vigilance Test were compared between the intervention group (M = 61.33, SD = 10.99) and the control group (M = 61.73, SD = 9.79) at

the beginning of the study. It was determined through the use of an independent t-test that there was no significant difference between the two groups (t = -0.149, p = 0.882). Similarly, the mean of time of the Digit Vigilance Test came out to be- the intervention group (M = 13.81, SD = 1.16), and the control group (M = 13.23, SD = 1.51). The result of the independent t-test (t = 1.653, p = 0.104) indicates that there was not a significant difference.

With regard to the Triad Test, the mean number of errors was 7.77, with a standard deviation of 1.30, while the mean number of errors in the control group was 7.17, with a standard deviation of 1.23. This difference was not statistically significant by the independent t-test (t = 1.830, p = 0.072).

5.3 Functional impairment of children with attentional deficiencies of Intervention and Control group at baseline.

Areas of assessment		Intervention group Mean ±SD	Control group Mean ±SD	Independent t-test t value
Brief impairment scale	Interpersonal relationship	0.43±0.72	0.50±0.68	-0.366(NS)
	School functioning	3±1.93	2±1.68	0.214(NS)

NS: Non sig.

Table 5.3 shows the Functional impairment of children with attentional deficiencies of Intervention and Control group at baseline.

The scores of Interpersonal relationship were compared between the intervention group (M = 0.43, SD = 0.72) and the control group (M = 0.50, SD = 0.68). It was determined through an independent t-test that there was no significant difference between the two groups (t = -0.366, p = 0.716). Similarly, the scores of School functioning did not differ significantly between the intervention group (M = 3, SD = 1.93), and the control group (M = 2, SD = 1.68). The result of the independent t-test (t = 0.214, p = 0.832) indicates no significant difference between the two groups.

5.4 Showing Status of Digit vigilance test and Triad test on the Intervention Group and Control Groups after intervention.

Areas of assessment		Intervention group Mean±SD			Control group Mean±SD			Independent t-test
		Pre	Post	Difference (pre-post)	Pre	Post	Difference (pre-post)	t value
Digit vigilance test	Error	61.33±10.99	54.27±10.17	7.06±10.7	61.73±9.79	62.47±10.53	-.73±4.6	3.66**
	Time taken	13.81±1.16	11.12±1.14	2.69±1.47	13.23±1.51	13.42±1.48	-.18±.96	8.94***
Triad test	Error	7.77±1.30	2.97±.96	4.8±1.51	7.17±1.23	7±.98	.16±.64	15.37***

**p<0.001 level of sig. ***p<0.000 level of sig.

Table 5.4 shows the status of Digit vigilance test and Triad test on the Intervention and Control groups after the intervention. Both groups had a similar error rate before to the intervention, with the Intervention Group having a mean of roughly 61.33 and the Control Group having a mean of approximately 61.73. A significant decrease in errors was found in the Intervention Group after the intervention, with the mean number of errors falling to 54.27. The Control Group demonstrated a slight rise in errors, reaching 62.47. This resulted in a difference that was statistically significant (t=3.66, p=0.001**), it can be concluded that the intervention was successful in minimizing errors in the Intervention Group. After the intervention, the Intervention Group showed a major decrease in the amount of time required (11.12) with comparison to the Control Group (13.42), with a difference of 2.69 on a substantial scale. The difference was significant (t=8.94, p=0.000***), which suggests that the intervention played a role in improving performance efficiency in terms of finishing the task in a shorter amount of time.

When comparing the error rate of the Triad Test between the Intervention Group and the Control Group, a significant difference was discovered. Both groups exhibited error rates that were similar prior to the intervention; however, after the intervention, the Intervention Group demonstrated a significant reduction in errors (2.97) in comparison to the Control Group (2.00). A significant difference was found as a result of this (t=15.37, p=0.000***).

5.5 Functional impairment of children with attentional deficiencies of Intervention and Control group after intervention.

Areas of assessment		Intervention group Mean±SD			Control group Mean±SD			Independent t-test
		Pre	Post	Difference (pre-post)	Pre	Post	Difference (pre-post)	t value
Brief impairment scale	Interpersonal relationship	0.43±0.72	0.20±.55	0.23±0.56	0.50±0.68	0.50±0.68	0.00±0.00	2.24*
	School functioning	3±1.93	2.47±1.77	0.53±0.81	2±1.68	2.93±1.55	-0.03±0.41	3.38**
	Self-care	1.90±1.60	1.40±1.40	0.50±0.93	3.37±1.69	3.30±1.66	0.06±0.25	2.44*

*p<0.05 level of sig. **p<0.001

Table 5.5 shows the Functional impairment of children with attentional deficiencies of intervention and control group after the intervention. The intervention group demonstrated a significant improvement in the interpersonal connections from the pre-assessment to the post-assessment, as indicated by a mean decrease from 0.43 to 0.20 within the evaluation period. The control group demonstrated an increase from 0.23 to 0.50, which indicates that this positive change was statistically significant in comparison to the control group. The results of the independent t-test showed that there was a significant difference between the two groups ($t = 2.24$, $p = 0.028$*), which indicates that the intervention was successful in improving the participants' interpersonal connection abilities.

When it came to the functioning of the school, the intervention group showed significant gains, with the mean score falling from 3.00 to 2.47 when the intervention was completed. When compared to the experimental group, the control group demonstrated an increase in mean score, which went from 2.00 to 2.93. When compared to the control condition, this difference between the groups was statistically significant ($t = 3.38$, $p = 0.001$**), which indicates that the intervention had a favorable impact on the operation of the school. The individuals in the intervention group showed signs of improvement in terms of self-care, with the mean score experiencing a decrease from 1.90 to 1.40 after the intervention. Comparing this improvement to the control group, which

showed only a slight decrease from 3.37 to 3.30, the statistical significance of this improvement was demonstrated. The results of the independent t-test showed there was a significant difference between the groups (t = 2.44, p = 0.018*), which suggests that the intervention was responsible for the participants in the intervention group having improved capacities to deal with their own self-care activities.

5.6 Status of Digit vigilance test, Triad test and Functional impairment of Intervention Group Pre and Post Intervention.

Areas of assessment		Pre test	Post test	Paired t-test
		Mean ±SD	Mean ±SD	t value
Brief impairment scale	Interpersonal relationship	0.43±0.72	0.20±0.55	2.24*
	School functioning	3±1.93	2.47±1.77	3.56**
	Self care	1.90±1.60	1.40±1.40	2.92*
Digit vigilance test	Error	61.33±10.99	54.27±10.17	9.99***
	Time taken	13.81±1.16	11.12±1.14	3.61**
Triad test	Errors	7.77±1.30	2.97±.96	17.32***

*p<0.05 level of sig. **p<0.001 level of sig. ***p<0.000 level of sig.

Table 5.6 shows the status of Digit vigilance test, Triad test and Functional impairment of Intervention group Pre and Post intervention. After the intervention, the group who received the intervention showed a significant improvement in their interpersonal interactions, with a mean decrease from 0.43 to 0.20. This improvement was statistically significant in comparison to the assessment that was conducted before the session (t = 2.24, p = 0.032*) indicates that there were positive changes in interpersonal skills as a result of the intervention. It was noted that the intervention group saw a significant improvement in their school functioning, as evidenced by a fall in mean scores from 3.00 to 2.47 after the intervention. There was a statistically significant difference between the scores on the pre-assessment and the post-assessment (t = 3.56, p =

0.001**). With the mean score falling from 1.90 to 1.40 after the intervention, participants also demonstrated an increase in their ability to care for themselves. Statistically this improvement was significant (t = 2.92, p = 0.007*).

The Digit Vigilance Test showed a considerable decrease in errors, with the mean score going from 61.33 to 54.27 after the intervention. This demonstrated that the test was much improved. The fact that this reduction in errors was statistically significant (t = 9.99, p = 0.000***) suggests that the intervention resulted in improvements in the ability to pay attention and concentrate with greater ease. Following the implementation of the intervention, the participants demonstrated a noteworthy decrease in the amount of time required to finish the Digit Vigilance Test, with the mean duration reducing from 13.81 to 11.12. This improvement in processing speed was statistically significant (t = 3.61, p = 0.001**). The intervention group demonstrated a significant reduction in the number of errors that occurred during the Triad Test, with the mean number of errors falling from 7.77 to 2.97 after the intervention. Showing increased cognitive function, particularly in pattern recognition and problem-solving skills, this reduction in errors was highly significant (t = 17.32, p = 0.000***), showing that the errors were significantly reduced.

5.7 Status of Digit vigilance test, Triad test and Functional impairment of Control Group Pre and Post Intervention.

Areas of assessment		Pre test	Post test	Paired t-test
		Mean ±SD	Mean ±SD	t value
Brief impairment scale	School functioning	2±1.68	2.93±1.55	0.32(NS)
	Self care	3.37±1.69	3.30±1.66	-0.44(NS)
Digit vigilance test	Error	61.73±9.79	62.47±10.53	1.43(NS)
	Time taken	13.23±1.51	13.42±1.48	-1.06(NS)
Triad test	Errors	7.17±1.23	7±0.98	-0.87(NS)

NS: Non sig.

The results of the Triad test, Digit vigilance test, and functional impairment of the control group before and after the intervention are displayed in Table 5.7. With mean scores marginally rising from 2.00 to 2.93 overall, the control group did not show any discernible difference in school functioning between the pre-intervention and post-intervention periods. The control group did not demonstrate any discernible increase in school-related abilities, as evidenced by the non-statistically significant difference ($t = 0.32$, $p = 0.662$) in the ratings obtained before and after the evaluation. as demonstrated by the decrease in mean scores from 3.37 to 3.30. The statistical analysis revealed that there was no discernible change between the pre- and post-assessment scores ($t = -0.44$, $p = 0.161$).

The control group on the Digit Vigilance Test saw a slight rise in mean scores (from 61.73 to 62.47), but no significant difference in the number of errors they committed. The results showed that there was no statistically significant difference ($t = 1.43$, $p = 0.294$) between the scores obtained before and after the examination.

The control group's mean scores stayed very stable, ranging from 13.23 to 13.42, and their completion time for the Digit Vigilance Test showed no noticeable variation. The results of the exam were compared before and after, and it was found that there was no statistically significant difference ($t = -1.06$, $p = 0.390$). The mean scores of the control group decreased from 7.17 to

7.00, although there was no appreciable change in the amount of mistakes made on the Triad Test. There was no statistically significant difference between the scores received before and after the evaluation, as indicated by ($t = -0.87$, $p = 0.169$).

CHAPTER 6

DISCUSSION

The study was aimed to study the impact of attention training on school children with attentional deficiencies. A person who has attentional impairments may struggle to keep attention, organization, focus, or stay on task; the challenges aren't attributed to disobedience or poor comprehension. Attention training, also known as attention control training or attention bias correction, is a set of approaches for improving attentional abilities through systematic practice (Tang et al., 2015). Attention training's major goal is to increase attentional control mechanisms such as selective attention, sustained attention, and attentional switching, resulting in more efficient cognitive processing and superior performance on attention-demanding tasks (Posner & Rothbart, 2007). The youngsters were assessed utilizing the digit vigilance test, triad test, and short impairment scale. The Independent t-test results showed no significant changes in performance between the intervention and control groups on the Digit Vigilance Test and the Triad Test. This shows that the two groups had similar levels of attentional performance before the intervention. The lack of significant differences in errors and time taken on the Digit Vigilance Test (errors: $t = -0.149$, $p = 0.882$; time taken: $t = 1.653$, $p = 0.104$) and errors on the Triad Test ($t = 1.830$, $p = 0.072$) suggests that the groups had similar attentional capacities at the start of the study. This is critical to ensuring that any future differences detected post-intervention are due to the intervention itself rather than pre-existing discrepancies between the groups (Green et al., 2008).

The Digit Vigilance Test and Triad Test did not show any significant different at baseline, but they are sensitive assessments of attentional functions. Their proven usage in neuropsychological examinations demonstrates their reliability and validity in detecting changes in attentional performance after therapies (Lezak et al., 2012). This supports the use of these assessments as appropriate method for assessing the effectiveness of attention training programmes. Similar studies have discovered that initial similarity in attentional performance is a vital element in deciding the success of interventions. Tucha et al. (2011), for example, found that establishing similar baseline measures is critical when implementing attention training programmes in children with ADHD. Their findings suggested that the increase in attentional performance could be confidently assigned to the intervention, which supported the approach used in the study.

The lack of significant differences in interpersonal connection scores (t = -0.366, p = 0.716) and school functioning ratings (t = 0.214, p = 0.832) indicate that the two groups had similar functional deficits at the start of the study. The BIS is a validated test that assesses functional deficits in children and adolescents. Its sensitivity to changes in functional areas, such as interpersonal connections and school functioning, makes it an appropriate measure for this research. The lack of baseline differences strengthens the BIS's usefulness for capturing any intervention-related changes. According to research, the BIS is excellent at identifying functional deficits and tracking changes over time (Bird et al., 2005).

The findings of this study show that the attention training intervention has a significant impact on the performance of schoolchildren with attentional deficits, as indicated by changes in the Digit Vigilance Test and Triad Test scores. The intervention group had a significant reduction in Digit Vigilance Test errors, with mean errors falling from 61.33 to 54.27, resulting in a 7.06 difference (t = 3.66, p = 0.001***). In comparison, the control group saw a minor increase in mistakes (difference of -0.73), which was not significant. This significant improvement in the intervention group implies that the attention training programme significantly improves sustained focus while decreasing attentional lapses. These findings are consistent with Tucha et al.'s (2011) research, which found that attention training programmes considerably enhance alertness and minimize errors in tasks requiring sustained attention.

The intervention group also showed a substantial decrease in the time required to complete the Digit Vigilance Test, with mean durations falling from 13.81 to 11.12, a difference of 2.69 (t = 8.94, p = 0.000***).

The control group's completion time increased slightly, but not significantly (difference of -0.18). This increase in processing speed demonstrates the effectiveness of the intervention in improving cognitive processing efficiency. Previous research has demonstrated that targeted cognitive training can result in faster information processing and better task performance (Klingberg et al., 2005).

The intervention group showed a significant reduction in Triad Test errors, with mean errors falling from 7.77 to 2.97, resulting in a 4.8 difference (t = 15.37, p = 0.000***). The control group revealed no significant change (difference = 0.16). This improvement indicates that the

intervention significantly improves cognitive processes such as pattern recognition and problem solving. Therefore, the hypothesis, there will be a significant effect of attention training on sustained and divided attention, is accepted. According to research, cognitive training programmes can considerably improve executive functions and problem-solving abilities in children with attention deficits (Diamond and Lee, 2011). The statistically significant gains in sustained attention (Digit Vigilance Test) and cognitive function (Triad Test) demonstrate the helpfulness of the attention training programme. Structured activities, such as paced random numbers and complex addition and subtraction, most likely contributed to these gains by offering repetitive and increasingly difficult tasks that improved attentional control and cognitive flexibility. This systematic approach is backed by the cognitive load hypothesis, which states that sufficiently taxing tasks can improve cognitive function by maximising mental effort (Sweller et al.,2011).

The fact that there were no significant changes in the control group across all metrics supports the intervention's effectiveness. The control group's performance remained largely consistent, implying that the observed improvements in the intervention group were due to the attention training programme rather than external variables or natural maturation. This distinction is critical for confirming the intervention's success and is constant with the findings of controlled trials, such as those reported by Chacko et al. (2014), which highlight the need of a control condition in determining the genuine effects of cognitive training therapies. The significant increases observed in the intervention group on the Digit Vigilance Test and Triad Test provide solid support for the attention training program's efficacy in improving attentional and cognitive functioning in school-aged children with attention deficits.

The intervention group has improved significantly in interpersonal connections, with the mean scores falling from 0.43 to 0.20, resulting in a 0.23 difference ($t = 2.24$, $p = 0.028$*). In comparison, the control group showed no change (difference = 0.00). This increase shows that attentiveness training can improve social interactions while reducing interpersonal conflicts. Improved attentional control and less impulsivity may lead to better social behaviour and relationships. Mikami et al. (2010) found that therapies focusing on attentional abilities can improve social functioning in children with ADHD. The intervention group showed a significant improvement in school functioning, with mean scores changing from 3.00 to 2.47, a 0.53 difference ($t = 3.38$, $p = 0.001$***).

The control group's scores slightly increased, but not significantly (difference of -0.03). This shows that the attention training programme improves academic achievement and school-related behaviours. Improved attention and cognitive function are likely to result in greater task completion, classroom behavior, and academic performance. Rabiner et al. (2010) discovered that attention training therapies dramatically improved academic performance in children with attention problems. The intervention group improved significantly in self-care abilities, with mean scores changing from 1.90 to 1.40, resulting in a 0.50 difference ($t = 2.44$, $p = 0.018$*). The control group experienced no significant change (difference of 0.06). This shows that attention training can improve daily life skills and self-management. Therefore, the hypothesis here will be a significant effect of attention training on Functional impairment, is accepted. Improved attentional capacity can help children better organise and carry out daily tasks, increasing their independence and self-care. Evans et al. (2014) supported the findings, reporting cognitive training programmes improve several areas of daily functioning in the children with attentional issues. The large increases in various areas of the BIS for the intervention group demonstrate the broad effects of attention training programmes.

Structured practices aimed at improving sustained and divided attention are likely to have contributed to these overall improvements. Paced random numbers and sophisticated addition/subtraction activities assist children improve their attentional control, which transfers to a diversity of functional domains. This multimodal improvement is consistent with the findings from cognitive training studies, such as those by Holmes et al. (2009), which demonstrate that targeted cognitive exercises can result in widespread cognitive and functional improvements.

The lack of significant changes in the control group demonstrates the intervention's effectiveness. The consistency of the control group's scores suggests that observed improvements in the intervention group were due to attention training programme rather than external variables or natural maturation. This distinction is crucial for determining the efficiency of the intervention. Chacko et al. (2014) discovered significant improvements in the intervention group compared to a stable control group, demonstrating the intervention's unique influence on cognitive and functional outcomes.

The intervention group showed significant gain in interpersonal connections, school functioning, and self-care, providing strong evidence for the attention training program's efficacy. The large

gains in interpersonal connections, school functioning, self-care, and performance on the Digit Vigilance and Triad Tests give strong evidence that attention training programmes are effective. These findings, which are confirmed by current literature, indicate that systematic cognitive training can result in significant improvements in a variety of functional and cognitive areas for children with attentional impairments. Future study can look into the long-term effectiveness of these interventions and their applicability to a wide range of groups and contexts.

CHAPTER 7

CONCLUSION, IMPLICATIONS, LIMITATIONS AND FUTURE DIRECTION

7.1 Conclusion

The impact of attention training on school children with attentional deficiencies was the spotlight of this study. The intervention package used for the present study was the Attention module from Brainwave-R. Between the intervention and control group, a significant difference was found in post assessment for digit vigilance, triad test and brief impairment scale.

7.2 Implications

To see the long-term effectiveness of attention training programmes in children with attentional impairments, follow-up sessions are crucial. Creating supportive environments that reinforce the skills and tactics taught during attention training also requires teachers and parents to work together in a collaborative manner. By incorporating these strategies into lessons, teachers can make sure that the learning environment for their students is well-organized and supports sustained attention. By creating routines, giving positive reinforcement, and participating in activities that improve attention skills, parents can assist this endeavour at home.. Together, parents and teachers may build a thorough support network that improves the efficiency of attention-training programmes and eventually benefits the child's general wellbeing and academic performance.

7.3 Limitations

Lack of follow-up to assess the durability of observed improvements. Group training setting might not address the unique requirements of every child. Since the sample was taken only from school in Patiala only the results cannot be generalized.

7.4 Future Direction

Children from different schools and different districts can be approached for the study. Furthermore, using qualitative methods, like parent and teacher interviews, can yield insightful information on the personal and environmental elements that leads to attentional deficits. These interviews can provide in-depth, detailed data regarding children's behaviors, the efficacy of various approaches, and the difficulties teachers and other care givers encounter in dealing with these problems. Individual sessions can be done in future studies to address the needs of each

child. The other modules in Brainwave-R such as memory, executive functioning, etc. can also be used in the training program.

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APPENDICES

APPENDIX A: SNAP-IV

Name: _____ Gender: _____ Age: _____ Grade: _____

Ethnicity (circle one which best applies): African-American Asian Caucasian Hispanic Other _____

Completed by: _____ Type of Class: _____ Class size: _____

For each item, check the column which best describes this child:	*Not At All*	*Just A Little*	*Quite A Bit*	*VERY MUCH*
1. Often fails to give close attention to details or makes careless mistakes in schoolwork or tasks	_____	_____	_____	_____
2. Often has difficulty sustaining attention in tasks or play activities	_____	_____	_____	_____
3. Often does not seem to listen when spoken to directly	_____	_____	_____	_____
4. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties	_____	_____	_____	_____
5. Often has difficulty organizing tasks and activities	_____	_____	_____	_____
6. Often avoids, dislikes, or reluctantly engages in tasks requiring sustained mental effort	_____	_____	_____	_____
7. Often loses things necessary for activities (e.g., toys, school assignments, pencils, or books)	_____	_____	_____	_____
8. Often is distracted by extraneous stimuli	_____	_____	_____	_____
9. Often is forgetful in daily activities	_____	_____	_____	_____
10. Often has difficulty maintaining alertness, orienting to requests, or executing directions	_____	_____	_____	_____
11. Often fidgets with hands or feet or squirms in seat	_____	_____	_____	_____
12. Often leaves seat in classroom or in other situations in which remaining seated is expected	_____	_____	_____	_____
13. Often runs about or climbs excessively in situations in which it is inappropriate	_____	_____	_____	_____
14. Often has difficulty playing or engaging in leisure activities quietly	_____	_____	_____	_____
15. Often is “on the go” or often acts as if “driven by a motor”	_____	_____	_____	_____
16. Often talks excessively	_____	_____	_____	_____
17. Often blurts out answers before questions have been completed	_____	_____	_____	_____
18. Often has difficulty awaiting turn	_____	_____	_____	_____

19. Often interrupts or intrudes on others (e.g., butts into conversations/games) _____ _____ _____ _____
20. Often has difficulty sitting still, being quiet, or inhibiting impulses in the classroom or at home _____ _____ _____ _____

21. Often loses temper _____ _____ _____ _____

22. Often argues with adults _____ _____ _____ _____

23. Often actively defies or refuses adult requests or rules _____ _____ _____ _____

24. Often deliberately does things that annoy other people _____ _____ _____ _____

25. Often blames others for his or her mistakes or misbehavior _____ _____ _____ _____

26. Often touchy or easily annoyed by others _____ _____ _____ _____

27 Often is angry and resentful _____ _____ _____ _____

28. Often is spiteful or vindictive _____ _____ _____ _____

29. Often is quarrelsome _____ _____ _____ _____

30. Often is negative, defiant, disobedient, or hostile toward authority figures _____ _____ _____ _____

31. Often makes noises (e.g., humming or odd sounds) _____ _____ _____ _____

32. Often is excitable, impulsive _____ _____ _____ _____

33. Often cries easily _____ _____ _____ _____

34. Often is uncooperative _____ _____ _____ _____

35. Often acts "smart" _____ _____ _____ _____

36. Often is restless or overactive _____ _____ _____ _____

37. Often disturbs other children _____ _____ _____ _____

38. Often changes mood quickly and drastically _____ _____ _____ _____

39. Often easily frustrated if demand are not met immediately _____ _____ _____ _____

40. Often teases other children and interferes with their activities _____ _____ _____ _____

41. Often is aggressive to other children (e.g., picks fights or bullies) _____ _____ _____ _____

42. Often is destructive with property of others (e.g., vandalism) _____ _____ _____ _____

43. Often is deceitful (e.g., steals, lies, forges, copies the work of others, or "cons" others) ___ _____ _____ _____

44. Often and seriously violates rules (e.g., is truant, runs away, or completely ignores class rules) _____ _____ _____ _____

45. Has persistent pattern of violating the basic rights of others or major societal norms _____ _____ _____ _____

46. Has episodes of failure to resist aggressive impulses (to assault others or to destroy property) _____ _____ _____ _____

47. Has motor or verbal tics (sudden, rapid, recurrent, nonrhythmic motor or verbal activity) _____ _____ _____ _____

48. Has repetitive motor behavior (e.g., hand waving, body rocking, or picking at skin) _____ _____ _____ _____

49. Has obsessions (persistent and intrusive inappropriate ideas, thoughts, or impulses) _____ _____ _____ _____

50. Has compulsions (repetitive behaviors or mental acts to reduce anxiety or distress) _____ _____ _____ _____

51. Often is restless or seems keyed up or on edge _____ _____ _____ _____

52. Often is easily fatigued _____ _____ _____ _____

53. Often has difficulty concentrating (mind goes blank) _____ _____ _____ _____

54. Often is irritable _____ _____ _____ _____

55. Often has muscle tension _____ _____ _____ _____

56. Often has excessive anxiety and worry (e.g., apprehensive expectation) _____ _____ _____ _____

57. Often has daytime sleepiness (unintended sleeping in inappropriate situations) _____ _____ _____ _____

58. Often has excessive emotionality and attention-seeking behavior _____ _____ _____ _____

59. Often has need for undue admiration, grandiose behavior, or lack of empathy _____ _____ _____ _____

60. Often has instability in relationships with others, reactive mood, and impulsivity _____ _____ _____ _____

61 Sometimes for at least a week has inflated self esteem or grandiosity _____ _____ _____ _____

62. Sometimes for at least a week is more talkative than usual or seems pressured to keep talking _____ _____ _____ _____

63. Sometimes for at least a week has flight of ideas or says that thoughts are racing _____ _____ _____ _____

64. Sometimes for at least a week has elevated, expansive or euphoric mood _____ _____ _____ _____

65. Sometimes for at least a week is excessively involved in pleasurable but risky activities _____ _____ _____ _____

66. Sometimes for at least 2 weeks has depressed mood (sad, hopeless, discouraged) _____ _____ _____ _____

67. Sometimes for at least 2 weeks has irritable or cranky mood (not just when frustrated) _____ _____ _____ _____

68. Sometimes for at least 2 weeks has markedly diminished interest or pleasure in most activities _____ _____ _____ _____

69. Sometimes for at least 2 weeks has psychomotor agitation (even more active than usual) _____ _____ _____ _____

70. Sometimes for at least 2 weeks has psychomotor retardation (slowed down in most activities) _____ _____ _____ _____

71. Sometimes for at least 2 weeks is fatigued or has loss of energy _____ _____ _____ _____

72. Sometimes for at least 2 weeks has feelings of worthlessness or excessive, inappropriate guilt _____ _____ _____ _____

73. Sometimes for at least 2 weeks has diminished ability to think or concentrate _____ _____ _____ _____

74. Chronic low self-esteem most of the time for at least a year _____ _____ _____ _____

75. Chronic poor concentration or difficulty making decisions most of the time for at least a year _____ _____ _____ _____

76. Chronic feelings of hopelessness most of the time for at least a year _____ _____ _____ _____

77. Currently is hypervigilant (overly watchful or alert) or has exaggerated startle response _____ _____ _____ _____

78. Currently is irritable, has anger outbursts, or has difficulty concentrating _____ _____ _____ _____

79. Currently has an emotional (e.g., nervous, worried, hopeless, tearful) response to stress _____ _____ _____ _____

80. Currently has a behavioral (e.g., fighting, vandalism, truancy) response to stress _____ _____ _____ _____

81. Has difficulty getting started on classroom assignments _____ _____ _____ _____

82. Has difficulty staying on task for an entire classroom period _____ _____ _____ _____

83. Has problems in completion of work on classroom assignments _____ _____ _____ _____

84. Has problems in accuracy or neatness of written work in the classroom _____ _____ _____ _____

85. Has difficulty attending to a group classroom activity or discussion _____ _____ _____ _____

86. Has difficulty making transitions to the next topic or classroom period _____ _____ _____ _____

87. Has problems in interactions with peers in the classroom _____ _____ _____ _____

88. Has problems in interactions with staff (teacher or aide) _____ _____ _____ _____

89. Has difficulty remaining quiet according to classroom rules _____ _____ _____ _____

90. Has difficulty staying seated according to classroom rules _____ _____ _____ _____

APPENDIX B: Brief Impairment Scale

The questions I am going to ask you now have to do with how _____ has been doing overall. Please answer them thinking only of the **last twelve months/past year** keeping in mind what one would expect of children of the same age and sex as _____.

1) OVER THE LAST 12 MONTHS/YEAR HOW MUCH OF A PROBLEM HAS HE/SHE HAD

GETTING ALONG WITH HIS/HER FATHER/STEPFATHER/FOSTER FATHER?

(score about father figure with whom he/she has most contact) (Read options):

0 - no problem
1 - some problem
2 - a considerable problem
3 - a serious problem
7 - refused
8 - not applicable (no father figure) 9 - don't know

2) HOW MUCH OF A PROBLEM HAS HE/SHE HAD GETTING ALONG WITH HIS/HER MOTHER/

STEP-MOTHER/FOSTER MOTHER? (score about

mother figure with whom he/she has most contact) (Read options): 0 - no problem

1 - some problem
2 - a considerable problem
3 - a serious problem
7 - refused
8 - not applicable (no mother figure)
9 - don't know

3) HOW ABOUT PROBLEMS GETTING ALONG WITH HIS/HER BROTHERS AND SISTERS?

0 - no problem
1 - some problem
2 - a considerable problem
3 - a serious problem
7 - refused
8 - not applicable (no brothers or sisters)

9 - don’t know

4) HOW ABOUT PROBLEMS GETTING INVOLVED IN ACTIVITIES TOGETHER WITH THE REST OF THE FAMILY? (Read options):

0 - no problem
1 - some problem
2 - a considerable problem
3 - a serious problem
7 - refused

9 - don’t know

5) OVER THE LAST 12 MONTHS/PAST YEAR, HOW MUCH OF A PROBLEM HAS HE/SHE HAD WITH HIS/HER TEACHERS AT SCHOOL? (If not in school and working) OR WITH HIS/HER SUPERIORS AT WORK?

0 - No problem
1 - some problem
2 - a considerable problem
3 - a serious problem
7 - refused
8 - not applicable (has not worked or been in school during the past year) 9 - don’t know

6) HOW MUCH OF A PROBLEM HAS HE/SHE HAD GETTING ALONG WITH OTHER ADULTS OUTSIDE OF THE FAMILY? (Read options)

0 - No problem
1 - some problem
2 - a considerable problem
3 - a serious problem
7 – refused

9 - don’t know

7) HOW MUCH OF A PROBLEM HAS HE/SHE HAD MAKING FRIENDS?

0 - No problem
1 - some problem
2 - a considerable problem
3 - a serious problem

7 - refused

9 - don't know

8) HOW MUCH OF A PROBLEM HAS HE/SHE HAD

GETTING ALONG WITH THE FRIENDS THAT HE/

SHE HAS? (Read options)

0 - No problem
1 - some problem
2 - a considerable problem
3 - a serious problem or has no friends
7 - refused

9 - don't know

9) DURING THE LAST 12 MONTHS/PAST YEAR, HAS HE/SHE OFTEN MISSED SCHOOL/WORK?

(Read options)

0 - *never* misses school/work
1 - occasionally (*once a month or less*)
2 - many times (*2-4 times a month*)
3 - quite frequently (*more than 5 times per month*)
7 - refused
8 - not applicable, not in school and not working during the last 12 months 9 - don't know

IF Q. 9 coded 1, 2, or 3, ask

9A) WAS THIS BECAUSE HE/SHE WAS REALLY SICK?

0- No 1- Yes (If "yes", recode q.9 as "0")

10) DURING THE LAST 12 MONTHS/PAST YEAR,

HOW WELL HAS HE/SHE BEEN DOING IN HIS/

HER SCHOOL WORK? (Read options)

(If another grading system is used, code closest equivalent)

0 -better than average (mostly "B"'s or outstanding: mostly
A's, some B's

1 - just average: “C” work
2 - somewhat below average (mostly “C”’s and “D”’s)
3 - markedly below average (mostly “D”’s and “F”’s)
7 - refused
8 - not applicable (not in school during the past year)
9 - don’t know

If Q. 10 scored 8, ask

10A. HAS HE/SHE DROPPED OUT OF SCHOOL DURING THE LAST YEAR?

0- No 3 - Yes 7 - refused 9 - don’t know

11) HAS HE/SHE BEEN SUSPENDED FROM SCHOOL DURING THE LAST 12 MONTHS/PAST YEAR?

0 - No

3 - Yes

7 refused
8 - not applicable (has not been in school over the past year)
9 - don’t know

12) HAS HE/SHE BEEN EXPELLED FROM SCHOOL

OR ACTUALLY FIRED FROM A JOB DURING THE LAST 12 MONTHS/PAST YEAR?

0 - No

3 - Yes

7 - refused
8 - not applicable (has not been in school over the past year)
9 - don’t know

13) IN GENERAL, HOW MUCH OF A PROBLEM HAS HE/SHE HAVE HAD GETTING HIS/HER SCHOOLWORK/WORK DONE ON TIME? (Read options) 0 - No problem

1 - some problem
2 - a considerable problem
3 - a serious problem
7 - refused

8 - not applicable (not in school or working over the past year)
9 - don't know

14) DURING THE LAST 12 MONTHS/PAST YEAR,

HOW MUCH OF A PROBLEM HAS HE/SHE HAD DOING WHAT HE/SHE IS EXPECTED TO DO AT

HOME? (Read options)

0 - No problem
1 - some problem
2 - a considerable problem
3 - a serious problem
7 – refused

9 - don't know

15) HOW MUCH OF A PROBLEM HAS HE/SHE HAD

BEING RESPONSIBLE AT SCHOOL/ WORK OR IN

JOBS HE/SHE TOOK ON OUTSIDE OF HIS HOME?

(Read options)

0 - No problem
1 - some problem
2 - a marked problem
3 - a serious problem
7 - refused
8 - not applicable (not worked or in school during past year)
9 - don't know

16) IN THE LAST 12 MONTHS/PAST YEAR, HOW

MANY TIMES WERE YOU ASKED TO

COME TO HIS/HER SCHOOL TO DISCUSS SOME PROBLEM THAT HE/SHE HAS HAD?

0 - Never
1 - Once
3 - more than once

7 - refused
8 - Not applicable, not in school
9 - don't know

17) TO WHAT EXTENT DOES HE/SHE GET INVOLVED IN SPORTS? (Read options)

0 - frequently or member of a team
1 - some involvement, but not steady
2 - very rarely involved
3 - not involved at all
7 - refused
8 - not applicable, no opportunities for participation in sports
9 - don't know

18) OVER THE PAST 12 MONTHS TO WHAT EXTENT DID HE/SHE GET INVOLVED IN ACTIVITIES OTHER THAN SPORTS? (Read options)

0 - frequently involved in other activities
1 - only occasionally
2 - rarely got involved or dropped out easily
3 - never got involved in other activities
7 - refused

9 - don't know

19) TO WHAT EXTENT WOULD YOU SAY HE/ SHE IS A PERSON WHO HAS MANY INTERESTS? AGAIN THINK SPECIFICALLY ABOUT THE LAST 12 MONTHS/PAST YEAR. WOULD YOU SAY HE/ SHE (Read options)

0 - has many and varied interests
1 - has some interests
2 - few things interest him/her
3 - has no interests, is generally bored
7 - refused

9 - don’t know

20) COMPARED TO OTHER KIDS OF THE SAME AGE, HOW NEAT IS HIS/HER PHYSICAL

APPEARANCE MOST OF THE TIME? REMEMBER THAT WE ARE TALKING OF HOW IT’S BEEN DURING THE LAST 12 MONTHS/PAST YEAR. WOULD YOU SAY HE/SHE IS (Read options):

0 - like most kids his/her age
1 - a bit sloppier than most kids his/her age
2 - considerably more sloppy or peculiar than most
3 - extremely sloppy or bizarre compared to others
7 - refused

9 - don’t know

21) COMPARED TO OTHERS HIS/HER AGE, HOW

WELL DOES HE/SHE TAKE CARE OF HIS/HER HEALTH? HE/SHE (Read options):

0 - takes good care of him/herself
1 - is somewhat careless about his/her health
2 - is quite careless about his/her health
3 - is extremely careless about his/her health
7 - refused

9 - don’t know

22) HOW SAFETY CONSCIOUS IS HE/SHE? (Read options):

0 - very careful, attentive to safety rules
1 - somewhat careless
2 - quite careless
3 - extremely careless
7 - refused

9 - don’t know

23) DOES HE/SHE SEEM TO HAVE A PROBLEM

HAVING FUN AND ENJOYING LIFE? AGAIN,

THINK OF HOW IT'S BEEN DURING THE LAST 12 MONTHS. WOULD YOU SAY HE/SHE HAS HAD

(Read options):

0 - No problem
1 - some problem
2 - a considerable problem
3 - a serious problem
7 - refused

9 - don't know