STUDIA UBB PSYCHOL.-PAED., LVIII, 2, 2013, pp. 5 – 20
(RECOMMENDED CITATION)

TESTING A MINDFULNESS-BASED PROGRAM ON A NON-CLINICAL SAMPLE OF ROMANIAN CHILDREN: THE EFFECTS ON THE LEVELS OF INTERNALIZING, EXTERNALIZING AND ATTENTION-RELATED PROBLEMS

ALEXANDRA C. NATANGA*, ALINA S. RUSU**

ABSTRACT. Mindfulness-based therapeutic interventions are used for a large area of physical and psychological problems in adult and elderly people, including anxiety disorders, personality disorders, chronic pain and anger. Recently, researchers have started to investigate the effectiveness of mindfulness-based programs on children. The aim of this study is to test the effects of a Mindfulness-based Program (MBP) on the levels of internalization, externalization and attention-related problems of children (41 participants, average age of 8.5 years, SD = 0.4), as compared to the effects of a standard procedure, i.e., Rational Stories program for children. The results revealed that the Mindfulness-based Program had higher effects than the Rational Stories program on the decrease of the attention-related problems, while no statistically significant differences were found at levels of internalizing and externalizing problems (i.e., both programs were associated with a decrease of the two types of problems).

Keywords: *attention-related problems, mindfulness, emotion regulation.*

KURZFASSUNG. Die therapeutische Interventionen durch Aufmerksamkeitstraining werden für ein breites Spektrum an physischen und psychischen Problemen der Erwachsenen und älteren Personen, wie Angststörungen, Persönlichkeitsstörungen, chronische Leiden und Aggression benutzt. Neulich haben Wissenschaftler ein Studium begonnen, um die Effektivität der Aufmerksamkeitstrainingsprogramme bei Kindern zu recherchieren. Ziel der Forschung ist das Testen der Wirkung von Mindfulness-based Program (MBP)/ Aufmerksamkeitstrainingsprogramme auf die Niveaus von Verinnerlichungs-, Äußerungs- und Aufmerksamkeitsproblemen bei Kindern zu ermitteln. Es wurden 41 Teilnehmer mit einem Altersmittelwert von 8,5 Jahre, SD = 0.4 in Betracht genommen, die verglichen wurden laut standardisierte Verfahren, mit dem Programm Rational-Stories für Kindern. Das Resultat zeigte, dass

* HR Intern, Smart Training & Recruiting, Cluj, Romania, email???????
** Department of Special Psycho-Pedagogy, Faculty of Psychology and Sciences of Education, "Babeş-Bolyai" University, Cluj-Napoca, Romania. Corresponding author: alina.rusu@ubbcluj.ro

das Aufmerksamkeitstrainingsprogramm bessere Resultate auf die Senkung der aufmerksamkeitsgebundenen Probleme hatte als das Rational-Stories-Programm. Es wurden keine erheblichen statistischen Unterschiede in den Bereichen Verinnerlichungs- und Äußerungsprobleme beobachtet, obwohl beide Programme mit einer Minderung beider Problemtypen beobachtet werden konnte.

***Schlüsselwörter**: Aufmerksamkeitsprobleme, Aufmerksamkeit, Gefühlsregulierung*

INTRODUCTION

The concept of mindfulness refers to a particular way to give attention to the present moment, with a receptive and nonjudgmental attitude (Kabat-Zinn, 1994). Mindfulness was often described as a state of mind that implies a clear awareness of the inner and outer world, at level of thoughts, feelings, emotions, and actions as they are in a given moment (Gunaratana, 1993; Chiesa et al., 2010). Mindfulness is a concept derived from Buddhism and has received an increased attention over the past 20 years from clinicians and researchers in psychology and medical areas (Bishop et al., 2004; Shapiro et al., 2006). Although mindfulness-based interventions are used for over a decade, the concept of mindfulness has started to be discussed as a psychological construct only recently. In this light, several authors have tried to establish a consensus on the operational definition, elements and processes involved (Kabat-Zinn, 2003; Gilbert & Waltz, 2010). Thus, mindfulness is considered "the degree of awareness resulted from intentionally paying attention, without judgments, to the experience of the present moment, and maintaining this state in time" (Kabat-Zinn, 2003). Mindful attention is seen as an inherent human capacity that can be developed and strengthened through practice (Kabat-Zinn, 2003).

Bishop et al. (2004) proposed a two-component model of mindfulness. The first component refers to *the self-regulation of attention,* which involves skills in sustained attention, attention switching and inhibition of some secondary elaborative processing. In this context, mindfulness can be considered a meta-cognitive skill, which requires both the control of cognitive processes and the monitoring the stream of consciousness. The second component involves the adoption of a particular *orientation toward one's experience* in the present moment, which is characterized by curiosity, openness and acceptance. Mindfulness is thus a process of adopting a decentralized perspective on thoughts and emotions by letting them to be experienced based on their subjective and transient nature (Bishop et al., 2004).

Mindfulness was introduced as a therapeutic practice by Kabat-Zinn (1990) and used in clinical psychology most often as an adjunct to cognitive-behavioral interventions. Generally, mindfulness techniques involve developing awareness and acceptance of constant change of the experiential phenomena such as cognition, emotions, bodily sensations and external stimuli. The main premise of mindfulness practice type is that the experience of the present moment in an open and non-critical can effectively counter the effects of stressors in daily life (Hoffman et al., 2010; Hayes & Feldman, 2004; Hayes, Strosahl & Wilson,1999). Mindfulness – based interventions (MBT) are used for the treatment of many physical and psychological problems, including generalized anxiety (Roemer & Orsillo, 2005), obsessive-compulsive disorder (Hannan & Tolina, 2005), depression (Kumar et al., 2008), PTSD (Follette & Vijay, 2009), borderline personality disorder, chronic pain, addictions and eating disorders, and anger (Borders et al., 2010). The use of mindfulness – based therapeutic interventions grows in popularity in reducing symptoms of anxiety and depression (Hofmann et al., 2010).

The efficiency of this new wave of interventions has been demonstrated empirically for a broad category of clinical disorders in adult population (Hoffman et al., 2010). However, there are only few research addressing the use of mindfulness techniques in the pediatric population. Recently, Burke (2010) aimed to provide a preliminary review of the current research base of mindfulness-based aproaches (MBT) with children and adolescents, indicating that these interventions were accepted and tolerated by the participants. Mindfulness practices for children are not much different from those for adults, in terms that most of the exercises can be adapted to suit several needs related to specific age categories (Hooker & Fodor, 2008).

First step in the way of introducing the concept of mindfulness to children is to direct their attention to things from the environment, i.e. objects of their own experience (Fodor & Hooker, 2008). After this phase, the next step is to switch attention toward an experience of the body and to introduce the attention on the mind. Specific exercises for each of these steps include: object awareness, awareness of self in the environment (environmental mindfulness), attending the sense, meditation on the breath, meditation on the bubble, meditation through visualization etc. Through the practice of mindfulness, children can be encouraged to become introspective, i.e. to look more closely at their experiences, and to differentiate between internal and external processes in the context of social and non-social events (Kaiser-Greenland, 2006; Goodman & Greenland, 2009; Semple et al., 2010). In a recent study, Semple et al. (2010) investigated the effects of a mindfulness-based cognitive therapy (MBCT) program on the attention, anxiety and behavioral problems in children, i.e., pre-/post-test study. The results suggested that after the completion of a 12-sessions MBCT program, the children (aged between 9 and 13 years) had fewer attention problems than they had at the beginning of the study.

In adult population, mindfulness-based programs are associated with promising effects in reducing stress and symptoms specific to anxiety disorder. Similar to cognitive-behavioral therapeutic programs, mindfulness practice can help individuals to recognize anxiety states, to clarify repetitive or dysfunctional thoughts, to minimize avoidance behaviors and to self-monitor their own coping strategies with different stressors (Semple et al., 2010). Recent studies have started to test the efficiency of mindfulness programs on the anxiety-related symptoms in children, such as internalization and externalization problems (Lee et al., 2008). Besides the positive effects of the mindfulness programs in reducing the symptoms of internalization and externalization, the study indicates a high rate of adherence and acceptability of the treatment (Lee et al., 2008). The results of another study (Liehr & Diaz, 2010) on the effects of MBCT intervention on depression and anxiety in children indicate that mindfulness can be a promising approach to help children to regulate their emotions, with implications in areas such as academic performance, social development and quality of life, in general.

When designing a mindfulness program for children, several assumptions are usually taken into account (Semple et al., 2010), such as: (a) compared to adults, children are more challenging and they have more difficulties to stay engaged in one activity for a long time; (b) children often require more individual attention than adults do, and (c) children have less developed attentional and memory capacity than adults. Based on these assumptions, programs for children are usually designed over shorter periods of time and include shorter sessions of mindfulness-based exercises, as compared to the programs for adults (Semple et al., 2010; Kaiser-Greenland, 2010). Moreover, since play behavior facilitates learning in children, several play-based activities are more and more incorporated in the mindfulness programs for this category of population (Kaiser-Greenland, 2010). In this direction, the "InnerKids" program (www.innerkids.org) is currently one of the most known mindfulness-based programs for children, that incorporates play activities with meditation exercises, in order to enhance the emotional and attentional skills of children (Kaiser-Greenland, 2010). The Inner Kids program uses games, activities and instructions to help children develop awareness and understanding of their emotions and the environment in order to reduce the level of stress they feel. In a recent study, this program was tested in a randomized trial, in which 64 school children participated (35 girls and 29 boys; Flook et al., 2010). Each intervention session lasted 30 minutes, twice a week, for a period of 8 weeks. Parents and teachers completed questionnaires evaluating the executive functions of children immediately before and after the eight week period. The results indicate that, compared to the control group, the participants who started out with poor executive functioning and

went through the mindfulness training, showed significant improvements in behavioral regulation, metacognition and global executive control, compared with the control group (Flook et al., 2010). These results are in agreement with other studies showing that the mindfulness based training programs have the potential to assist the children in reducing the negative effects of environmental stressors by focusing attention on the present moment and can therefore allocate more attention on learning and social activities (Napoli et al., 2005; Jha et al., 2007; Zylowska et al., 2008).

The objective of this study is to test the implementation of the InnerKids Mindfulness program on a non-clinical sample of Romanian children (age between 8-9 years). The aim is to identify the effects of this type of intervention on the levels of internalizing, externalizing and attentional problems of the children (mindfulness-based program; MBP group), in comparison to the effects on the same variables of a standard procedure, i.e. the reading of Rational Stories for children (control group; CG). Both programs were offered at group level.

The following hypotheses were derived: (1) In the post-test phase, the children from the MBP group will show a lower level of internalizing symptoms (anxiety, depression, somatization) than the children from the control group (CG); (2) In the post-test phase, the MBP children will have a lower level of externalizing symptoms than the CG; (3) In the post-test phase, the MBP children will have a lower level of attention-related problems than the children from the control group.

METHOD

Design

A quasi-experimental design was used for this investigation. The independent variable was the type of the program, with two modalities: (1) the mindfulness-based program (MBP) and (2) the Rational Story program (RSP), or the control condition. The dependent variables were: (1) the level of internalizing problems; (2) the level of externalizing problems, and (3) the level of attention-related problems.

Participants

The group of participants was initially composed of 41 children (17 girls and 24 boys, average age of 8.5 years, SD = 0.4), from a Primary School in Cluj-Napoca, Romania. The first stage of the recruitment of the participants consisted of sending a consent form to their parents, informing them about the research objectives and about the privacy of the data collected in the study. Three children were excluded from analysis because of missing more than half of the

sessions, and in one case, the parent refused to fill in the post-test questionnaires. The participants were distributed in two groups, i.e. 20 participants in the MBR group (11 boys and 9 girls), and 18 participants in the control group (11 boys and 7 girls).

Instruments

Child Behavior Checklist – Parent report form (CBCL; Achenbach, 1991). The CBCL scale consists of 113 items, measuring the following eight constructs: withdrawn, somatic complaints, anxiety/depression, social problems, thought problems, attention problems, delinquent behavior, and aggressive behavior. The instrument provides sub-scores for eight specific problem scales, three competence scales, a total problem scale, an internalizing problems scale, and an externalizing problems scale. The Internalizing Problems Scale is composed of three separate subscales: withdrawn, anxious/depressed and somatic complaints. The Externalizing Problems Scale is composed of two separate subscales: delinquent behavior and aggressive behavior. For the dichotomous classification of the children (i.e. normal and clinical ranges), total scores are used, i.e. values under 65 delimit the normal range, and values above 65 delimit the clinical range. CBCL is an inventory for parents, which was standardized for the Romanian population (Romanian Psychological Testing Services). The instrument was administered to one of the parents of each child (i.e. the mother of each child) in the pre-test phase (3 days before the beginning of the intervention) and in the posttest phase (3 days after the last session).

Procedure

Before the start of the study, the parents were asked to sign an informed consent form, stating that their child is allowed to participate in one of the two programs. The mindfulness-based program, as well as the rational stories program, consisted of 9 sessions of 20 minutes each, three times a week. Three days before the start of the programs, all the children were assessed for the dependent variables stated above, in order to establish the baseline levels. The same variables were measured in the post-test phase (i.e., three days after the end of the programs). All the sessions took place in the classroom where classes were held.

The mindfulness-based program (9 sessions of 20 minutes each; see Annex 1)

Each session was divided into three sections, as it follows: (1) the beginning section included a greeting game; (2) the middle section included games and activities focusing on a weekly theme (e.g., breathing awareness,

sensory awareness, attention control, awareness of thoughts etc.), and (3) the final section included a period of *sitting* practice. Simple sensory exercises were used to introduce the concept of mindfulness and to facilitate the understanding of the potential benefits of mindfulness in everyday life (Flook et al., 2010; Hooker & Fodor, 2008). The detailed structure of the program (adapted after the InnerKids Mindfulness program; Flook et al., 2010) is presented in the Annex 1.

The Rational Stories Program (9 sessions of 20 minutes each)

The protocol of this program consists in the reading of Rational Stories adapted for children (Waters, 1980; translated by David, Opre, & Petra, 2003). At the end of each story, children along with the experimenter, are stimulated to understand rational concepts while discussing and analysisng the theme of the story, and to make inferences about real-life situations. At the end of the session, children are asked to say what they have learned from each story, and what advice would they give to a friend who is in a similar situation to the one presented in the story.

RESULTS

Data were analyzed using SPSS version 17.0. Table 1 shows the descriptive statistics, i.e. demographics data of the participants.

Table 1. Demographic data of the participants, where MBP represents the experimental group (Mindfulness-based Program), and RSP represents the control group (Rational Story Program)

Group	N (gender)	Age (years; Mean)	Standard deviation
MBP	20 (11 boys, 9 girls)	8.41	.43
RSP	18 (11 boys, 7 girls)	8.65	.39

Preliminary data analysis was performed using t test for independent samples to check whether the baseline measurements for all the dependent variables in the experimental group (MBP) are significantly different from that of control group (CG). The dependent variables were: (1) the level of internalizing problems; (2) the level of externalizing problems, and (3) the level of attention-related problems. No significant difference were found between groups for the baseline measurements.

The results indicate a significant decrease of the CBCL total scores for the participants in the mindfulness group (MBG), t (19) = 6.32, p < .05, from pre-test (M = 27.9, SD = 15.04) to post-test (M = 13,8, SD = 6,87). Also, o decrease of the CBCL total scores was recorded for the children the control group, t (17) = 4.39, p < .05, from pre-test (M = 19.88, SD = 8.00) to post-test (M = 15.61, SD = 7.26).

Regarding the score on the *Internalizing Problems* Scale, a significant decrease for the children in experimental group, t (19) = 7.9, p < .05, from pre-test (M = 6.9, SD = 4.16) to post-test (M = 2.7, SD = 1.97) was observed (Table 2). A decrease in the level of internalizing problems was also observed for the children in the control group, t (17) = 3.01, p < .05, from pre-test (M = 5.50, SD = 2.87) to post-test (M = 4.77, SD = 2.51).

Regarding the scores on the *Externalizing problems* scale*,* there was a statistically significant decrease of the level of externalizing symptoms for the children in the MBP group, t (19) = 5.48, p < .05, from pre-test (M = 9.5, SD = 7.17) to post-test (M = 5.5, SD = 4.63). In the control group, the decrease was not statistically significant, t (17) = 1.80, p = 0.9 from pre-test (M = 5.61, SD = 2.42) to post-test (M = 4.44, SD = 2.59).

For the dependent variable *Attention-related problems,* there was a significant improvement for the children in the MBP group, t (19) = 5.89, p < .05, from pre-test (M = 3.25, SD = 2.75) to post-test (M = 1.1, SD = 1.48). In the control group, the decrease was not statistically significant, t (17) = 0.48, p = .48, from pre-test (M = 2.5, SD = 1.68) to post-test (M = 2.27, SD = 1.87).

Table 2. Pretest and posttest scores on the levels of externalizing problems, externalizing problems and attention-related problems for the children in the experimental group (N = 20) and control group (N=18)

	Mindfulness intervention Mean (Standard deviation)		**Control group** Mean (Standard deviation)	
Measure	Pre-test	Post-test	Pre-test	Post-test
CBCL total score	27.90 (15.04)	13.8 (6.87)	19.88 (8.00)	15.61 (7.26)
Internalizing	6.90 (4.16)	2.70 (1.97)	5.50 (2.87)	4.77 (2.51)
Externalizing	9.50 (7.17)	5.50 (4.63)	5.61 (2.42)	4.44 (2.59)
Attention	3.25 (2.75)	1.10 (1.48)	2.50 (1.68)	2.27 (1.87)

The magnitude of the intervention effect (i.e. Mindfulness-Based program and Rational Stories prowas was calculated using Cohen's *d* coefficient. The effect sizes are presented in Table 3. The Mindfulness-based Program had large effect sizes for all the variables (d > .66), whereas the biggest effect size of the Rational Stories Program was recorded only for the variable Externalizing Problems (d = .48; Table 3).

Table 3. Effect sizes of the Mindfulness-based program (experimental group) and Rational Stories Program (control group) on the levels of externalizing problems, internalizing problems and attention-related problems

	Mindfulness-based Program		**Control group**	
Measure Scale	d	r	d	r
CBCL				
Internalizing	1.29	0.54	0.27	0.13
Externalizing	0.66	0.31	0.48	0.23
Attention	0.97	0.43	0.12	0.06

DISCUSSIONS AND CONCLUSIONS

Mindfulness-based interventions are used to treat a large area of physical and psychological problems, including mood disorders (Kumar et al., 2008), anxiety disorders (Roemar & Orsillo, 2005; Follette & Vijay, 2009), personality disorders, chronic pain and anger (Borders et al., 2010). While the literature on mindfulness abunds on studies on adult and elderly populations, only recently, researchers have started to investigate the effectiveness of mindfulness-based programs on children. In the present investigation we tested the effects of a mindfulness-based intervention program based on InnerKids Program (Kaiser-Greenland, 2010; Flook et al., 2010) on the levels of internalization, externalization and attentional-related problems of children (average age of 8.5 years, SD = 0.4), from a Primary School in Cluj-Napoca, Romania. The program took place over three weeks, three times a week (9 sessions) and had the general objective to increase the capacity of emotional, behavioral and attentional control, as compared to the effects of a standard procedure, i.e., Rational Stories program for children.

The results of this study revealed that the Mindfulness-based program was useful in terms of decreasing the levels of internalizing and externalizing problems, as well as the level of attention-related problems. The differences

between the pre- and post-test conditions, as well as the effect sizes (Cohen's) indicate that the Mindfulness-based program had significant effects on increasing the capacity of attentional control, emotional adjustment (internalizing problems), and behavioral control (externalizing problems), while the Rational Stories program had low to medium size effects on decreasing the levels of externalizing and internalizing problems. It appears that in this sample of Romanian children, compared to the standard procedure (i.e., Rational Stories program), the Mindfulnes-based program was effective in reducing mainly the problems related to attention. This results has important potential implications for designing therapeutic programs for children, because problems related to attention are present in various disorders, including anxiety disorders. In is generally known that the attentional bias toward negative stimuli can promote reactive emotional behaviors that might interfere with the development of skills that are crucial for the optimal development of the children, such as learning and social skills.

Besides these promising results on the effects of the Mindfulness-based program on children, there were also indications of a good acceptability of this type of intervention. Most of the children preferred the game *Hello / greeting* which, they said, helped them to get closer to the other children from the group. The second favorite activity was listed the *Sitting and Breathing activity*, which was perceived as a pleasant and quiet activity.

Even though the sample of this investigation is a small one, this study, to our knowledge, implements for the first time in Romania a Mindfulness-based program for children based on the model of InnerKids Program (Kaiser-Greenland, 2010; Flook et al., 2010). In order to increase the efficiency of this type of programs, as well to increase the level of the generalization and the consolidation of the effects of the program on the attention-related problems, we consider that, in the future programs, parents should be also included in the program. Thus, future studies could explore whether the inclusion of parents (and other family and social group members) and educators in the intervention program could help the families to better cope with environmental stress factors and to create an interactional environment wich is optimal for the social and emotional development of the children.

ACKNOWLEDGEMENT

The authors would like to thank to Associate Professor Ioana Velica, PhD, for the German translation of the abstract.

REFERENCES

Bishop, S.R., Lau, M., Shapiro, S., Carlson L., Anderson, N.D., Carmody, J., Segal, Z.V., Abbey, S., Velting, D. & Devins, G. (2004). Mindfulness: A Proposed Operational Definition. *Journal of Clinical Psychology: Science and Practice,* 11:230-241.

Burke, C.A. (2010). Mindfulness-based approaches with children and adolescents: A preliminary review of current research in an emergent field. *Journal of Child and Family Studies,* 19:133-144.

Chiesa, A., Calati, R. & Serreti, A. (2010). Does mindfulness training improve cognitive abilities? A systematic review of neuropsychological findings. *Journal of Clinical Psychology,* 31:449-463.

David, D., Opre, A. & Petra, L. (2003). *Povești rațională pentru copii* (Rational Stories for Children). Editura ASCR: Cluj-Napoca, Traducere din Waters, V. (1980): New-York.

Flook, L., Smalley, S. L., Kitil, M. J., Galla, B. M., Kaiser-Greenland, Locke, J., Ishijima, E. & Connie, K. (2010). Effects of Mindful Awareness Practices on Executive Functions in Elementary School Children. *Journal of Applied School Psychology,* 26:70-95.

Follette, V.M. & Vijay, A. (2009). *Mindfulness for trauma and posttraumatic stress disorder*. In F. Didonna (Ed.), Clinical handbook of mindfulness. New York: Springer.

Gilbert, D. & Waltz, J. (2010). Mindfulness and Health Behaviors. *Annals of Behavioral Medicine*, 39, s18.

Goodman, T. & Greenland S.K. (2009). *Mindfulness with Children: Working with Difficult Emotions. Clinical Handbook of Mindfulness*. New York: Springer.

Gunaratana, H. (1993). *Mindfulness in plain English*. Boston: Wisdom Publications.

Hannan, S.E. & Tolin, D.F. (2005). *Mindfulness and Acceptance Based Behavior Therapy for obsessive-compulsive disorder*. In S. M. Orsillo & L. Roemer (Eds.), Acceptance and mindfulness-based approaches to anxiety. Conceptualization and treatment. New York: Springer Science.

Hayes, A.M. & Feldman. G. (2004). Clarifying the construct of mindfulness in the context of emotion regulation and the process of change in therapy. *Clinical Psychology: Science and Practice,* 11:255-262.

Hayes, S.C., Strosahl, K. & Wilson, K.G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: Guilford.

Hofmann S.G., Sawyer, A.T., Witt, A.A. & Oh, D. (2010). The Effect of Mindfulness-Based Therapy on Anxiety and Depression: A Meta-Analytic Review, *Journal of Consulting and Clinical Psychology,* 78:169-183.

Hooker, K.E. & Fodor, I.E. (2008). Teaching Mindfulness to Children. *Gestalt Review,* 12:75-91.

Jha, A.P., Krompinger, J. & Baime, M.J. (2007).Mindfulness training modifies subsystems of attention. *Journal of Cognitive Affective Behavioral Neuroscience,* 7:109-119.

Kabat-Zinn, J. (1994). *Wherever you go, there you are: mindfulness meditation in everyday life*. New York: Hyperion.

Kabat-Zinn, J. (1990). *Full Catastrophe Living: Using the Wisdom of your Mind to face stress, pain and illness.* New York: Dell Publishing.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: past, present, and future. *Journal of Clinical Psychology,* 10:144-156.

Kaiser Greenland, S. (2006). www.innerkids.org.

Kumar, S. M., Feldman, G.C. & Hayes, A.M. (2008). Changes in mindfulness and emotion regulation in an exposure-based cognitive therapy for depression*. Journal of Cognitive Therapy and Research,* 32:734-744.

Lee, L., Semple, R.J., Rosa, D. & Miller, L. (2008). Mindfulness-based cognitive therapy for children: Result of a pilot study. *Journal of Cognitive Psychoterapy*, 22:15-28.

Liehr, P. & Diaz, N. (2010). A pilot study examining the effect of mindfulness on depression and Anxiety for minority children. *Archives of Psychiatric Nursing,* 24:69-71.

Napoli, M., Krech, P. R. & Holley, L. C. (2005). Mindfulness training for elementary school students: The attention academy. *Journal of Applied School Psychology*, 21:99-125.

Roemer, L. & Orsillo, S.M. (2005). *An acceptance-based behavior therapy for generalized anxiety disorder*. In S.M. Orsillo & L. Roemer (Eds.), Acceptance and mindfulness-based approaches to anxiety. Conceptualization and treatment. New York: Springer.

Shapiro, S., Carlson, L., Astin, J. & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology,* 62:373-386.

Semple, R.J., Reid, E.F.G., & Miller, L. (2005). Treating Anxiety with Mindfulness: An Open Trial of Mindfulness Training for Anxious Children. *Journal of Cognitive Psychotherapy: An International Quarterly,* 19:379-392.

Semple, R.J., Lee, J., Rosa, D. & Miller, L.F. (2010). A Randomized Trial of Mindfulness-Based Cognitive Therapy for Children: Promoting Mindful Attention to Enhance Social-Emotional Resiliency in Children. *Journal of Child and Families Study,* 19:218-229.

Zylowska L., Smalley S.L. & Schwartz J.M. (2008). *Mindful Awareness and ADHD*. In Didonna, F. (Ed.), Clinical Handbook of Mindfulness. New York: Springer.

ANNEX 1

The structure of the Mindfulness-based program, adapted after the InnerKids Mindfulness program (Flook et al., 2010)

Week one: the aim is to raise the awareness of the inner experiences and focus on the breathing.

Day 1:
Beginning section: Children were explained through a metaphorical statement how to deal with problems arising in their everyday lives: *Think of your mind as the surface of a lake or an ocean. There are always waves on the surface of the water, sometimes big, sometimes small. These waves are agitated by the wind, and are coming and going. So are the good or bad events in our lives; they produce waves in our lives and make us feel good or bad. We can not stop those waves, but we can learn to swim with them*.
Middle section: *Hello/Greeting* activity. Children and the therapist sat in a circle. To begin, the experimenter greets the child who is in his/her right side, makes eye contact and calls the pupil by his/her name. Then, the experimenter describes what color the eyes of the child appear to be. For example: *Good morning Alex, your eyes look blue to me today.* The child responds: *Good morning Mrs. Alexandra, your eyes seems to be green today.* The child then turns to the next person and repeats the exercise. The greeting moves around the circle, from person to person, until every one has had a turn. This activity aims to strengthen the objective to observe and not analyze. Once children are familiar with this exercise, the experimenter can move the focus from eye color to something else, e.g.: *Making eye contact, greet your neighbor and then tell the class something that you notice one of the five senses*. At the end of this activity, the children were asked to discuss their experiences.
Final section: *Sitting practice breathing awareness* activity – this section focuses on physical sensations of breathing in the present moment. Children sit in a circle with eyes focused on the object in the middle or with their eyes closed. They are guided to focus on breathing, being asked to feel the movement caused by the breathing on the whole body. If it helps, they can put their hand on the belly to focus on physical sensations of breathing (the up-down movements of the breath in their bellies). The experimenter tells children not to change their breath in any way just to see how it is and how it feels in the moment.

Day 2:
Beginning section: *Hello / Greeting* activity, as described above.
Middle section: *Breathing with a pinwheel* - the section focuses on physical sensations of breathing in the present moment by blowing a pinwheel and thus making connections between different types of breathing and related physical and emotional states. The child must take a long in-breath through his nose and blow on the

pinwheel, being encouraged to be alert to how his body feels when taking a big breath of air. Then the child takes a series of short in-breaths through their nose, blowing out with a series of short out-breaths through the mouth.
Final section: *One minute of stillness* activity - *For this type of exercise, begin by paying attention to your breathing. Must stand straight and relaxed, with your chin down and hands on the belly. Take a big breath of air, and then breathe*.

Day 3:
Beginning section: *Hello / Greeting* activity, as described above.
Middle section: *Breathing with a stuffed animal* activity - objective of this activity is to focus on the visceral sensations of the breath. Children are lying on their back with their arms and legs straight. Once they are comfortably seated, the therapist puts a stuffed animal on the belly of each child and encourages them to relax and pay attention to physical sensations of breathing: *Feel your head against the pillow. Your back against the floor. Your arms by your side. Feel the weight of the plush toy on your belly. Now imagine that you give your pet a gentle ride with your breath. As you inhale, your belly fills with air and the animal rocks up, as you let the air out of you, your belly empties and your pet goes down.*
Final section: *1 minute 15 seconds of stillness* – the same as in the second day, only that the time for the exercise increases to 1 minute and 15 seconds.

Week two aimed to raise awareness of the inner experiences (i.e., focusing on the senses). The objective of this week activities was to develop understanding of the changing nature of inner experience, seeing more clearly the inner experiences without biases and to promote compassion for others.

Day 4:
Beginning section: *Hello / Greeting* activity.
Middle section: *Mindfully eating* activity - children are asked to describe the food they have in their hand (in this case, fruits caramels) – the color, texture, the way it smells like, and what happens in their mouth while they look at it and smell it. Then, with their eyes closed, children are guided to take a bite and notice all the sensations they have, e.g., *Take a bite, notice what happens in your mouth, and sense the taste. Take your time*.
c) 1 minute 30 seconds of stillness – the same as in the second day, only that the time for meditation increases to 1 minute and 30 seconds

Day 5:
Beginning section: *Hello / Greeting* activity, as described above.
Middle section: *Friendly wishes* activity – aims to learn self-directed practices that evoke emotions to help calming and shoot the mind and to encourage compassion for self and others. When this exercise is used at the end of the session, the experimenter prepares the pupils for this exercise with a body scan or breathing awareness, while lying on the floor. Using conversational language, the experimenter guides the class to one or more friendly greetings. A child sends friendly wishes to himself the first time, imagining that he is happy and having fun, and/or that he/she is healthy and safe with

family and friends. Then he chooses someone he cares about, and imagines looking into the other person's eyes and says, *I want you to be happy, and I hope all your dreams come true, I want you to be strong and healthy. I want you to feel lots of love in your life, and I hope you feel peaceful and calm. I want you to be safe forever*. Then the experimenter tells the child to imagine that he sends friendly wishes to someone else, until finally he imagines sending friendly wishes to everyone and everything.
Final section: *2 minutes of stillness* – the same as in the second day, only that the time for the exercise increases to 2 minutes.

Day 6:
Beginning section: *Hello/ Greeting activity*, as described above.
Middle section: *Special Place* activity - Instructions given to children: *I want to share with you one of my favorite places. There is a place where you can't travel by car or train, or plane. It is a place within you that you can find closing your eyes. Let us find it now. Close your eyes and take a deep breath. See if you can feel a warm smile and happy inside your body. Do you feel it? This is your place. The best thing about this is that it is always within you. And you can visit anytime. It is helpful to visit this place especially when you are upset, angry or scared. When you are there and talk to your emotions, you can see that they aren't so big and strong as they seem*.
Final section: *2 min 30 s of stillness* – the same as in the second day, only that the time for the exercise increases to 2 minutes and 30 seconds.

Week three aims to raise awareness of the inner and outer experiences, focusing on thoughts and emotions. It develops an understanding of the changing nature of inner and outer experiences, awareness of thoughts and emotions and understanding that actions have consequences.

Day 7:
Beginning section: *Hello/Greeting activity*, as described above.
Middle section: An exercise to increase awareness that they are the producers of their own thoughts. The instructions are: *Close your eyes and say: I wonder what thought will be coming next. Then be very alert and wait for the next thought. Be like a cat lurking a mice hole. What thouthg will be coming from the mice hole?*
Final section: *3 min of stillness* – the same as in the second day, only that the time for the exercise increases to 3 min.

Day 8:
Beginning section: *Hello/Greeting activity*, as described above.
Middle section: *Meditation on the bubble***.** To further focus on awareness of the thinking process as well as on letting go and not engaging thoughts, the meditation of the bubble is a useful mindfulness technique (LeShan, 1974, cited in Hooker and Fodor, 2008). The purpose of this practice is to slow down, observe thoughts, and release them or let go without judgment**.** Begin the exercise by reading the following script slowly and in a calm voice. Then, allow the child to continue the meditation for a

few minutes in silence, setting his or her own pace. This exercise can also be adapted to feature thoughts on clouds drifting across the sky. *Begin by sitting in a comfortable position, with your back straight and shoulders relaxed. Softly close your eyes. Imagine bubbles slowly rising up in front of you. Each bubble contains a thought, feeling, or perception. See the first bubble rise up. What is inside? See the thought, observe it, and watch it slowly float away. Try not to judge, evaluate, or think about it more deeply. Once it has floated out of sight, watch the next bubble appear. What is inside? Observe it, and watch it slowly float away. If your mind goes blank, then watch the bubble rise up with blank inside and slowly float away*.
Final section: *3 min 30 sec of stillness* – the same as in the second day, only that the time for the exercise increases to 3 minutes 30 sec.

Day 9:
Beginning section: *Hello/Greeting activity*, as described above.
Middle section: *Vizualization - finding a safe haven* – it helps children to focus their attention after they have practiced awareness of the present moment by focusing on their breath, and then released their thoughts and feelings through the meditation on the bubble. This final exercise may be particularly helpful for children who are anxious, since it is related to visualization for relaxation: *Begin by sitting in a comfortable position, with your back straight and shoulders relaxed. Softly close your eyes. Allow the picture in your mind to become blank. You are going to imagine a place that feels comfortable, safe, and relaxing. Think of your place. It might be a beach, a lake, or even your own bed. Imagine it slowly appearing before you, becoming more clearer. Look to your left. What do you see? Look to your right. What is over there? Look closer. Breathe in. What do you smell? Walk around your place. Look closer at certain things. Stay focused on your place. How are you feeling? If you find your thoughts wandering, observe them, and then focus on bringing the image of your place back into focus in front of you (Allow some time). When you are ready, put your hand in front of your eyes. Open your eyes. Slowly spread your fingers to allow light in. When you are ready, slowly remove your hand*. Children may also choose to draw the scene they imagined. This drawing can be saved to remind them of their safe, relaxing place.
Final section: 4 min of stillness – the same as in the second day, only that the time for the exercise increases to 4 minutes.