

A MINDFULNESS ENHANCEMENT PROGRAM FOR 8 TO 11 YEAR-OLD THAI CHILDREN: EFFECTS ON MINDFULNESS AND DEPRESSION

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ABSTRACT: This study investigated effects of a Mindfulness Enhancement Program on mindfulness skills (i.e., awareness and acceptance skills) and depression. Depression is a negative outcome from school activities. Most of negative outcomes in psychological and physiological functions in children and adolescents are caused by depression. Exploring the effective approach for dealing with depression is very important since it can improve mental and physical health. To date, mindfulness has become applied into the treatment for depression. A mindfulness-based practice may be a useful way for improving children's well-being. This study aims to evaluate the effectiveness of the Mindfulness Enhancement Program (MEP), designed and developed particularly for use in school with Thai school-aged children. The study was conducted with 82, eight to eleven year-old children. They were divided into the experiment and control groups with a matching method by their mindfulness score. The experiment group participated in the six-session MEP. Each session was 45 to 60 minutes in-class session at school and daily homework. The program's purpose is to improve the students' mindfulness skill. Its effectiveness was evaluated by the Mindfulness Inventory for Children: children-reported and a short-version of the Children Depressive Inventory, developed for Thai children. A two-way mixed ANOVA was applied for repeated measure with conditioned groups as between-group variables. Results revealed the significant interaction between times of measurement and the conditioned groups on both mindfulness and depression scores. To conclude, the MEP could cultivate mindfulness skill and decrease depression level for 8 to 11 year-old Thai children.

Keywords: Mindfulness, Depression, School-aged children, Mindfulness-based intervention, School-setting

INTRODUCTION

Depression is a result of past-oriented thinking, moving attention away from the present moment. It is one of the negative outcomes from school activities that seem to be demanding and stressful for some children and adolescents [1]. Children who had elevated depressive symptoms frequently reported low levels in emotional control, emotional self-awareness, and situational responsiveness [2]. Designing an effective

approach to dealing with such negative outcomes as depression and lack of self-control for children is very important [3]. Especially, research has shown that reduction in depression can improve mental and physical health among school-aged children and adolescents [4]. Various evidence-supported psychotherapies, including cognitive behavioral therapy (CBT), interpersonal therapy, and short-term psychoanalytic therapy, have been developed for treating depression, and recently, mindfulness has been increasingly applied as an important component of the treatment programs [5]. For example, as the third-wave cognitive

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behavioral therapy model, mindfulness-based therapies have accumulated the evidence supporting their effectiveness and been widely used by mental health practitioners [6]. A core element of the mindfulness-based therapies is mindfulness practice [7, 8], which come in many forms such as sitting and walking meditation, body scan, and yoga [9].

Although mindfulness has been defined differently by many scholars in the field [10], its two components that have been commonly found in most of the existing literatures are awareness and acceptance [8]. Some have argued that mindfulness is plainly a state of broadened awareness, irrespective of whether one accepts what he or she is aware of [11], while others have combined awareness and acceptance as two components of mindfulness [4, 6, 12, 13]. Mindfulness has been defined in the present study as being aware of and accepting one's internal and external states of present experiences. That is, a mindful person should be aware of and accept what is happening as it is.

However, virtually all of the mindfulness-based research studies were done with adults. Studies that apply the concept of mindfulness in children and adolescents are still at an early state [12]. There have been two setting areas in which researchers investigate the usefulness of mindfulness practice in children and adolescents; clinical-setting and school-setting. Largely for curative purposes, clinical-setting research is conducted with children who are diagnosed with psychological problems or stress-related physiological problems. In school-setting, on the other hand, mindfulness-based interventions have been studied as a preventive approach [13]. Many past research studies have revealed that a mindfulness-based program is acceptable for use in school in term of effectiveness and interestedness [14]. However, mindfulness-based research in school-setting has just started to scientifically study its outcomes, by the intra-individual or inter-individual [12].

The learned mindfulness skills from the program can help adults lessen the effects of undesirable internal states (i.e., negative emotions or intrusive, automatic and maladaptive thoughts) on behaviors [15]. Additionally, these skills can develop sound adaptation, readiness to confront with difficulty, healthiness [7], empathy, and self-compassion [16]. One meta-analysis study has showed that mindfulness-based techniques can reduce distress from depression in a clinical sample [6].

A mindfulness-based program is very useful for children to ameliorate the detrimental effects of their daily stressors [3]. The program is deemed acceptable and practicable for use with children [14]. It has been widely and successfully applied to lessen stress and increase well-being youth [4]. They derive positive outcomes and an opportunity to develop mindfulness skills from the mindfulness-based program [3]. Past experiments found that the program can reduce test anxiety and negative emotions from daily stressors in children and decrease depression in adolescents [4]. Furthermore, the program can be successfully applied with children who were diagnosed with depression and anxiety, resulting in significant decreases in depressive symptoms [17]. As the mindfulness-based programs have been found to prevent some negative effects from daily stressors in children from some western countries, designing a proper program and examining its effectiveness for use with Thai children in school settings is important and very beneficial. Hence, the present study aims to explore an effectiveness of the Mindfulness Enhancement Program (MEP), a mindfulness-based training designed and developed particular for use with Thai school-aged children.

METHODS

Participants

A power analysis was conducted to determine the sample size of the present study. A meta-analysis of mindfulness-based studies with adults showed a mean effect size of $d = .59$ [18]. Hence, the sample size for detecting statistically significant group differences at $\alpha = .05$ and a power of $.80$ was approximately 44 participants per group. With permission from the school headmaster, school board committees, their class teachers, and their parents, 82 students voluntarily participated in the study, with their ages ranging from 8 to 11 years. Matched by their mindfulness scores within their cohorts, they were randomized into the control group ($n = 39$) and the experimental group ($n = 43$). Because there were odd numbers of students in each age cohort and participant attrition in the experimental group was expected, four remainder students were automatically placed into the experimental group.

The mindfulness enhancement program

The Mindfulness Enhancement Program (MEP) consists of six in-class sessions and daily homework. Every session is conducted at school, once per week, on the same day and at the same time every week. One session is between 45 and 60

minutes long. The program was delivered by the investigator of this study. The purpose of the MEP is to improve the students' mindfulness skills.

Basically, an in-class session comprises, in a sequential order, a three-minute sitting meditation (in order to make children more prepared and to help them learn how to observe their surroundings), sensory-experience games, and group discussion. One session emphasizes only one sensation (e.g., touching, seeing, and smelling). As children's abstract thinking and causal thinking are yet incompletely developed, most activities are action-oriented games. Moreover, in each session short activities are repeated several times because children's memory capacity and attention span are limited [19].

In the first session, before mindfulness-based activities are introduced relationship is built between an investigator and the children. Group discussion is operated to encourage children to share their experiences from all the activities (i.e., meditation, games, and story-telling). Finally, daily homework is explained to the children.

A three-minute meditation starts with asking children to gently close their eyes and pay attention on their breathing, for a while. Then, they are instructed to shift their attention to what is happening with their target sensation. For example, on the week that focused on tactile sensation from body movement, they are asked to shift their attention to any changes when they slowly move their body parts. While they are more aware of their sensory experience, they are encouraged to just observe its occurrence and gently turn their attention back to their breath.

The sensory-experience games have been designed to stimulate children's experiences in the five senses: touching (or moving), hearing, smelling, seeing, and tasting. These games have extensively been applied into mindfulness-based practices for children, as well as in the MEP, since children to a great extent enjoy using their body to perform in the activity [15]. In addition to various sensory-experience games described above, activities using gross-motor movement are included in the MEP. The more active the mindfulness-based activities are, the better the children can learn mindfulness skills [20]. By the definition of mindfulness operated in the current study, activities with emphasis on internal states (i.e., thoughts and emotions) were also added to the MEP. All the activities in one session focuses solely on one particular sense (e.g., hearing) or one mental object (e.g., thoughts), with a sequential order from more concrete to more abstract levels.

To encourage children to apply their learned skills into their daily lives, children were asked to do their daily homework, besides in-class activities. Homework was assigned for six days per week, taking 10 to 15 minutes each day. Similar to in-class activities, homework in each week was specific to only one sense or one mental object. Moreover, children were prompted to record their experiences, including their reflective thoughts and emotions, from doing homework every day.

Measures

The Mindfulness Inventory for Children scale: Children-reported (MICC) aims to assess 8 to 11 year-old children's mindfulness skills (i.e., awareness and acceptance skills). The scale is a 20-item self-report instrument. Its content is divided into four classes of situations (i.e., situations involving parents, situations involving teachers, situation involving friends, and perceived self-related behaviors) with five items for each class. Each item consists of two sub-items (one for awareness and another for acceptance) rated from 0 (be never aware of / never accept at all) to 2 (be aware of / accept every time). A score of each item is combination of its responding "awareness" and "acceptance". Higher scores reflect greater mindfulness skills. Cronbach's alpha for all 20 items was .88. Construct validity was supported by evidence of scale correlations with depression, psychological inflexibility, openness to new experience, attending to others' emotions, and analyses of emotions.

The Thai Children Depressive Inventory (Thai-CDI) [21] is a 10-item self-report scale assessing depression levels for 7 to 17 year-old Thai children. Children have to pick one statement that they consider most congruent with their lives for the last two weeks. Each item has three possible points. Higher scores represent a greater amount of depressive symptoms experienced. Cronbach's alpha was .61, demonstrating a fair level of internal consistency reliability [21].

Procedure

All participants were informed that their participation was voluntary, their responses were anonymous and confidential, and they could withdraw from the study at any time without penalty.

The study was nine weeks long with the program started at the second week and ended at the seventh week. On the ninth week, a follow-up evaluation was conducted to observe whether the learned mindfulness skills had been carried over to at least two weeks after the end of the program.

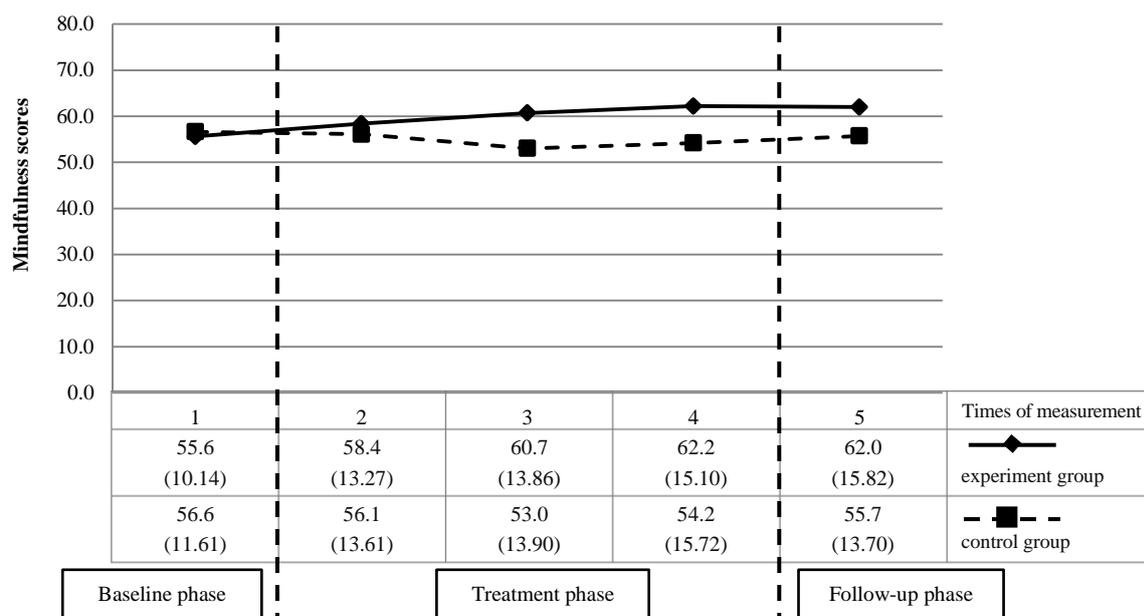


Figure 1 Means (SD) of the experimental and control groups' mindfulness scores

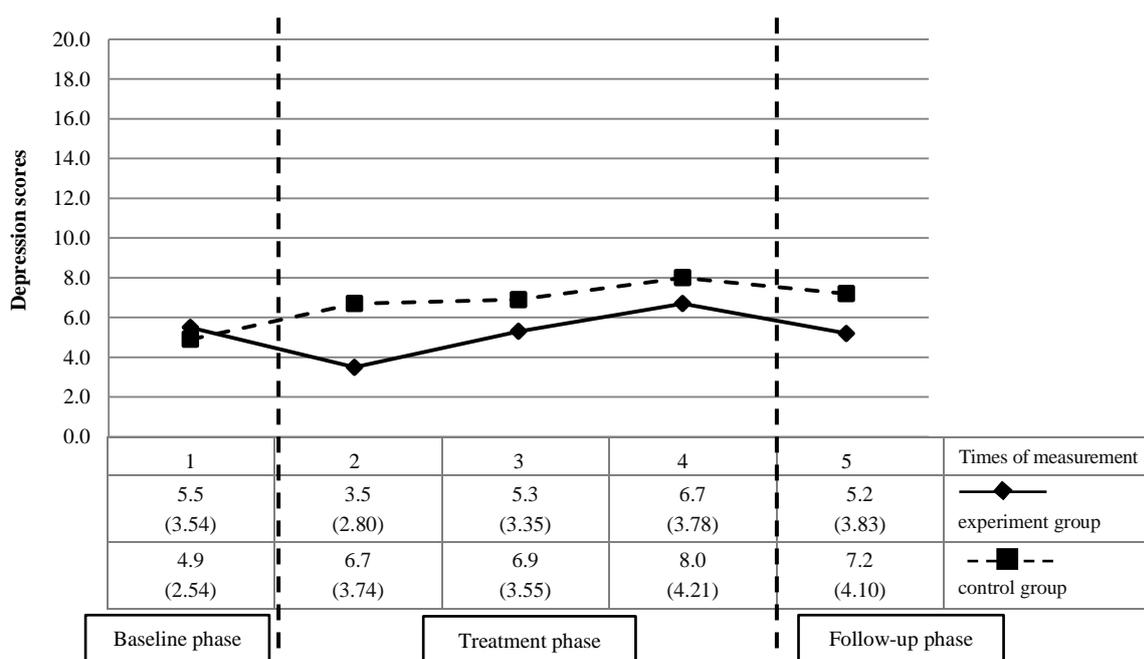


Figure 2 Means (SD) of the experimental and control groups' depression scores

To evaluate the program's effectiveness, both the experimental and control groups were asked to complete the MICC and the Thai- CDI [21] for five times. The first time (Time 1; or a baseline) was at the first week of the study. The second to the fourth times (Time 2-4) were at the third, the fifth, and the seventh weeks of the study, during which the MEP had been implemented. The last time (Time 5;

a follow-up) was at the ninth week of the study. Both groups were arranged to complete the scales approximately at the same time.

Statistical analyses

Data from 14 children in the experimental group were excluded from the analysis since these children did not participate in every session. Hence, total of 68 children (the experimental group = 29

and the control group = 39), 40 boys (58.8%) and 28 girls (41.2%), with ages ranged 8-to 11-years old ($M = 9.6$, $SD = 1.3$) were included.

Based on prior evidence that mindfulness and depression, as two dependent variables in the present study, demonstrated a small albeit significant correlation, analysis of variance (ANOVA) was used rather than multivariate analysis of variance (MANOVA). Two-way ANOVAs were conducted with times of measurement as a repeated, independent variable and conditioned group as a between-group, independent variable. To break down an interaction effect, Helmert contrast method [22] was used to compare each time of measurement with the average of the later time (e.g., Time 1 versus Time 2 & 3 & 4 & 5, Time 2 versus Time 3 & 4 & 5, and so on), across the experimental and control groups. A Bonferroni correction was also employed in order to prevent the inflation of false rejection rates; thus, only effects at $p < .025$ were considered statistically significant.

RESULT

For mindfulness scores, Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(9) = 22.7$, $p < .01$), hence the model's degree of freedom was corrected using Greenhouse-Geisser estimate of sphericity ($\epsilon = 0.85$). Results showed a significant two-way interaction, $F(3.4, 224.3) = 3.04$, $p < .025$, $\eta_p^2 = .04$ (descriptive statistic were shown in Figure 1). For depression scores, results also indicated a significant two-way interaction, $F(4, 264) = 5.67$, $p < .025$, $\eta_p^2 = .08$ (descriptive statistic were shown in Figure 2).

The Helmert contrast method revealed a significant interaction when comparing the experimental and control groups at the transition from Time 1 to the later time points on mindfulness scores, $F(1, 66) = 6.27$, $p < .025$, $\eta_p^2 = .09$, and similarly on depression scores, $F(1, 66) = 17.93$, $p < .025$, $\eta_p^2 = .21$ (see graphs depicting mindfulness and depression scores in Figure 1 and 2, respectively).

DISCUSSION

This study aims to examine the effectiveness of the Mindfulness Enhancement Program (MEP) on in modulating mindfulness skills and depression. Basically, the MEP includes a three-minute meditation, a variety of sensory-experience games, group discussion, and daily homework. Children in the experimental group, who had engaged in all program sessions, showed more

promising outcomes than the control group. The former showed higher mindfulness scores and lower depression scores than the latter throughout attending the MEP and also the score differences had been stable for two weeks after closing the program. Engaging in the program seems to develop children's mindfulness skills and lessen their depression symptoms.

The results revealed significant interactions between times of measurement and the conditioned groups on both outcome variables. These interactions indicate that mindfulness and depression scores across five times of measurement were different between the experimental and control groups. From the contrast analysis and the graph in Figure 1 suggest that the mindfulness scores of the experimental group gradually increased after the children had engaged in the program for two weeks, which was at the second time of measurement, and steadily rose throughout the course of the program until the last session, which was at the fourth time of measurement. Moreover, their mindfulness scores did not return to the baseline level when measured two weeks after closing the program (the fifth time of measurement). This pattern may be implied that children can learn to improve their mindfulness skills in the early phases of the program and maintain their learned skills during the later phases of the program.

For depression scores, the contrast analysis and the graph in Figure 2 indicate that the experiment group's scores reduced after the children had participated in the program for two weeks, while the control group's scores gradually increased. One major cause of depression episode is ruminative thinking about past events, moving one's attention away from the present moment [1]. As the program can cultivate children's mindfulness skills by having them simply pay their attention to the present experience [19], it can then lower the likelihood that the children would develop depressive symptoms or even decrease depression levels. Hence, practicing mindfulness skills can boost mental health conditions. Although the experimental group's scores showed a slight increase during the course of the program, their scores were lower than those of the control group in all the measurement occasions subsequent to the baseline. The increases in depression scores in both experimental and control groups may be explained by the fact that the children were also approaching the final examination weeks at the time when they had taken part in the program. This pattern may support the notion that practicing mindfulness can

keep one's mind healthy even in face of stressful events.

Each activity (i.e., a three-minute meditation, sensory-experience activities, group discussion, and daily homework), either in isolation or in tandem, has significant functions in cultivating mindfulness skills (i.e., awareness and acceptance) and reducing depression levels. Meditation can increase awareness skill [23] through the practice of paying attention to the present situation [24]. It can also cultivate acceptance skill via when one is more aware of and more familiar with the ever-changing nature of mental processes. For example, by observing one's thought arising in and then disappearing from the consciousness, a person become less attached to his or her mental stimulus and, as a result, may be more accepting that his or her thought is a mere thought, nothing less and nothing more [25]. However, practicing mindfulness skills does not limit to only meditation [12]. Children can easily learn mindfulness skills through direct experiences with their physical sensation elicited by sensory-experience activities, which come in many forms such as games [15]. Especially for depression, group discussion can modify rigid, maladaptive thought patterns to be more flexible and more adaptive [26]. Moreover, children can apply their learned skills into their daily lives by doing their homework.

These results suggest that the MEP could enhance mindfulness skills (i.e., awareness and acceptance) and lessen depression levels in Thai 8 to 11 year-old children. Also, the findings show that the program could be applied in school-settings, where children spend most of their daytime learning and practicing academic, social, and other self-improvement skills [27]. However, some limitations should be concerned. This study did not include children's parents and teachers as sources of information for evaluating children's behaviors and participants of the program. Future studies need to include them since both parents and teachers are important facilitators (at home and at school) [15] and valuable information resources for children [28]. Moreover, besides mindfulness skills, this study focused only on depression as one additional mental health indicator in examining the effects of the MEP. Future studies should explore other effective, cognitive, and behavioral outcomes, such as self-efficacy and anxiety, to broaden the program's implication.

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