The Effects of an Internet-based Cognitive Behavioral Therapy Program on Depression in Thai High School Students: A Quasi-experimental Study

Pisit Rungrojwatanasiri, Angkana Jirarode, Wongchan Petpichetchian*

Abstract: Adolescents with depression often experience negative automatic thoughts, which contribute to the development of suicidal ideation. Internet-based cognitive behavioral therapy has now become a treatment to address negative automatic thoughts to prevent suicide. This quasi-experimental study aimed to assess the effects of an Internet-based Cognitive Behavioral Therapy Program on the depression of Thai adolescents. The participants consisted of 60 adolescent students with a deviation from their usual mood who were enrolled in public high schools in a province adjacent to Bangkok. The participants were conveniently selected, paired based on gender and grade point average, and randomly assigned into two groups. The experimental group received the program, while the control group received usual care (n = 30 each). Data collection instruments included a personal data form and the Health-related Self-report Scale. One-way repeated measures ANCOVA was used to compare the mean depression scores between the two groups while controlling for baseline depression scores.

The results indicate that the participants' depression scores decreased over time in both groups. However, a significant group effect suggests that being in the experimental group was associated with a greater decrease in depression scores both immediately after the intervention and at the two-week follow-up compared to the control group. These findings shed light on the potential benefits of implementing this Internet-based Cognitive Behavioral Therapy Program by school nurses, teachers, or primary care nurses to prevent extreme depression and suicidal ideation among adolescents. Further investigation with longer follow-up is recommended.

Keywords: Adolescents, Cognitive behavioral therapy, Depression, High school students, Internet, Quasi-experimental

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Introduction

Depression is a major factor in adolescent suicide, accounting for two-thirds of all suicides in this age group.[1] It was found that the risk of depression

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was approximately 5% in early adolescence and up to 20% in late adolescence.[2] In Thailand, the prevalence of depression rises from 1.5 to 2.5% during childhood to 15 to 20% in late adolescence and early adulthood.[3] Also, studies in some parts of Thailand indicated a relatively high prevalence of 30-50%.[4,5,6] This suggests that depression among adolescents is a prevalent phenomenon and is considered a significant mental health problem globally, including in Thailand. Depression in late adolescence is associated with the well-being of adolescents aged 17 to 19,[4] so this includes those in high school and those entering higher education. Late adolescence marks a transitional period from childhood to early adulthood, characterized by rapid changes across various dimensions,[5] occurring while their emotional and mental conditions may not be stable, or they do not feel sufficiently robust to cope with such changes. Consequently, they may experience self-confusion, mental conflicts, and an increased susceptibility to emotional problems.[6] This period poses a risk for behavioral and mental health problems, including substance abuse, aggressive and violent behavior, quarrels, stress, and depression.[7] Therefore, close attention is crucial to support individuals in this age group as they navigate this developmental stage, particularly those with deviation from normal mood or having mild to moderate depression, to prevent the progression to severe depression.

People with depression often experience the constant emergence of negative automatic thoughts in their minds stemming from painful and unpleasant past experiences. These thoughts contribute to distorted and irrational beliefs about themselves and society.[8,9] This condition aligns with Beck's cognitive theory, which posits that negative automatic thoughts play a role in inducing changes in emotions, behavior, and physical reactions.[10] Previous studies among teenagers have revealed robust predictive relationships between negative automatic thoughts,[11] adverse life events,[6,11] rumination, social problem-solving,[11] decreased self-esteem,[12] and the occurrence of depression. Moreover, the coexistence of negative automatic thoughts and depression increases the likelihood of suicidal ideation, particularly among adolescents with a history of suicide attempts and among girls.[13] Negative automatic thoughts emerged as a significant mediator in the relationship between depression and suicidal behavior.[14] In other words, depressed adolescents with high levels of negative automatic thoughts are more prone to suicidal tendencies. Therefore, modifying their cognition through cognitive interventions such as cognitive-behavioral therapy is likely to result in decreased depression and suicidal ideation.

Literature Review and Conceptual Framework

Cognitive therapy (CT) or cognitive behavioral therapy (CBT) is a method of treating depression rooted in Beck's cognitive theory.[10,15] According to Beck, cognition or thoughts, emotions, behaviors, and physical reactions (physiology) are interrelated; once a change is made to one element, it affects the others. Situations lead to automatic thoughts from a person's deeply rooted core beliefs. In contrast, intermediate beliefs may occur because of past experiences that cause a person to interpret situations using different rules, assumptions, or beliefs. People may interpret situations differently when similar situations arise, depending on each person's core beliefs.[10] Emotional expressions, behaviors, and physical reactions are also different, depending on each person's interpretation of situations into automatic thoughts. Strictly speaking, when a situation arises, people will immediately assess it and develop automatic thoughts based on their experience. If their automatic thoughts are negative, they will interpret the situation they face as negative and eventually develop depression.[16] Adolescents with depression may exhibit self-isolation behavior, irritability, and an inability to control themselves,[17,18] and therefore, helping adolescents recognize and adjust their irrational and negative

automatic thoughts into logical and undistorted ones, as well as providing them with effective emotional management and problem-solving methods, may contribute to the reduction of adolescent depression and behavioral improvement.[19]

Beck's cognitive therapy can be effectively applied to mitigate adolescent depression. A systematic review and meta-analysis study encompassing 35 studies revealed that group CBT demonstrates higher efficacy and acceptability than non-active control interventions. However, it is important to note that the researchers could not assess selection and publication bias in nearly two-thirds of the included studies.[16] Despite these challenges, this finding underscores the potential positive effects of CBT on depression.

While CBT is recommended for reducing depressive symptomatology, there is limited access to this therapy.[20] This issue is particularly pronounced in the context of high-school students in Thailand. The problem is not only due to the high prevalence of depression but also the lack of accessibility to psychological treatment. High school students were the focus of our study because they not only face transitioning from adolescence to adulthood but are also at an age where they must prepare for college entrance examinations, contributing to their confusion in choosing a profession. The stress and worry associated with these challenges may lead them into a state of outright depression.[21]

Traditionally, CBT was administered through face-to-face sessions, either individually or in a group. This method comes with both advantages and disadvantages. On the positive side, it ensures data security and facilitates effective verbal communication with immediate explanations of questions.[22] Conversely, face-to-face CBT has limitations in terms of access to treatment after a session. Thus, efforts have been made to develop approaches that help increase access to CBT, including internet-based interventions.

Internet-based cognitive behavioral therapy (iCBT) programs have been developed and tested in different fields of interest to reduce depression. However, intervention models are diverse, such as chats, web-based, and trials in samples with anxiety and pain as the most targeted disorders.[23] Several reviews have highlighted the enormous potential of technology to improve the effectiveness, efficiency, cost, reach, personalization, and appeal of mental health interventions.[22] Online mental health interventions have the potential to be cost-effective and convenient and to reach a more diverse population than traditional, face-to-face interventions. However, previous reports[20, 24] documented high attrition rates and non-adherence to iCBT programs, particularly among adults with depression. Compared to adults, adolescents may be more responsive to computer or internet-based interventions since computers and the internet are integral parts of teenagers' lives today, and Thai adolescents are no exception.

Study Aim

This study aimed to develop and test an iCBT program to reduce depression in Thai high-school students. CBT delivered online offers a convenient and economical method for engaging adolescents and monitoring their progress.[25] Additionally, participants incur no travel expenses and can access the program at their convenience at any time.[26] We hypothesized that the mean depression scores of high school students who received the iCBT program would be significantly lower than those of the control group measured immediately and two weeks after completion of the program.

Methods

Design: This study used a quasi-experimental, two-group repeated measures design. This report followed TREND guidelines to ensure its accuracy and transparency.

Setting and Sample: The participants in this study were school-age children of public secondary

schools within the Secondary Education Area Office in a province adjacent to Bangkok, which is under the Thai Ministry of Education. The inclusion criteria for the participants were as follows: 1) aged 15 to 18 years, 2) capable of following instructions, 3) ability to read the Thai language, and 4) having a minimum score of 21 on the Health-Related Self-Report (HRSR) scale, which indicates a deviation from normal mood. The exclusion criterion was being diagnosed with a major depressive disorder or any other extreme mental illness.

The sample size was determined using the G*Power program, version 3.1.9.2. The power of the test was set at 80% for repeated measures ANOVA within and between the interactions of the two groups over three periods, with a significance level of 0.05 and a low to medium effect size of 0.18. The required total sample size was 52. Ten percent (10%) was added to overcome potential attrition, requiring a minimum sample size of 58.

Sampling and Group Assignment: This involved a two-stage sampling approach. Initially, three public high schools were randomly selected. Subsequently, the research assistant screened potential participants for eligibility. Of the 181 adolescents assessed, 103 did not meet the inclusion criteria. Thus, 78 were conveniently invited to the study, but 18 declined participation. Ultimately, 60 participants willingly joined the study. Before random assignment into two groups (n = 30 each), the participants were matched in pairs by gender and grade point average (GPA), with a range of ± 0.50. Unfortunately, blinding was not possible. None dropped out during the study period. (**Figure 1**).

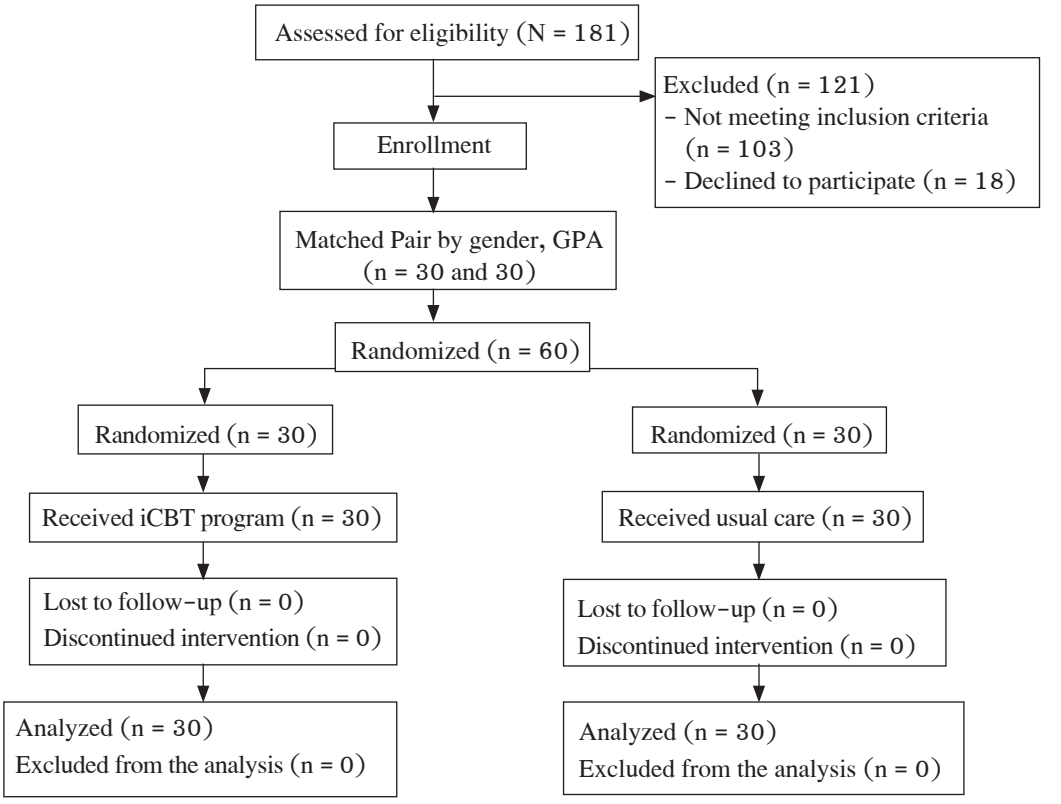

Figure 1. The recruiting process and the progress during the study

Ethical Considerations: This research was approved by the Human Research Ethics Committee of Thammasat University (Science) (HREC-TUSc_ Code 127/2561) to ensure that participants understood their rights. The researcher clarified that participation would not affect their school study time. For participants between the ages of 15 and 17, the researchers provided them with autonomy to make their own decisions, but they needed to seek permission from their parents. The researcher then informed parents about the research project details via phone. Both students and their parents were asked to verify the accuracy of the information and sign the consent form. In cases where parents could not meet the researchers in person, the researchers would contact them via phone and send a consent form by mail. Participants aged 18 and above, who legally have the right to decide to participate, were asked to sign a consent form without parental approval. After enrollment, they could discontinue their involvement in the project at any time. In cases of severe depression, the researchers collaborated with parents to arrange additional treatment.

Instruments

The research instruments consisted of two, which were used for data collection and the Internet-based Cognitive Behavioral Therapy Intervention. Data collection was done using:

A *Personal Data Form* that included age, education, family relationships, family status, physical and mental health history, and family history of depression; and

The Health-Related Self-report (HRSR) Scale: This instrument is used to assess depression, the primary outcome of this study, which was operationally defined as a symptom characterized by common depression symptoms. These include vegetative, motivational, cognitive, and psychological or mood symptoms. The HRSR captures these symptoms; it was initially developed as a diagnostic screening test for depression in the Thai population.[27] This scale is suitable for self-evaluation and the format was adjusted for online use in this current study, with permission from the developer. It can also be used to assess states of depression in teenage youth. The HRSR comprises 20 items assessing the frequency of depressive symptoms (somatic, psychomotor, cognitive, and emotional) that occurred one month previously. All items are measured on a 4-point Likert scale, ranging from 0 (never) to 3 (frequent, every day, or almost every day), except for the last item ('have attempted suicide'), which has a yes (3) or no (0) response. The total possible scores range from 0 to 60. A score greater than 21 suggests that participants may have a deviation in mood, such as anxiety.[27] A cut-off score greater than 25 (25-29) suggests that an individual is likely to have depression or another mental illness. In contrast, a score of 30 or higher indicates major depression. The HRSR demonstrates good reliability, with a Cronbach's alpha coefficient of 0.91, and exhibits a clear factorial structure and clinical validity.[27] The scale includes positive items (e.g., 'life is pleasant and meaningful') and negative items (e.g., 'people said I look worried or sad'). Scores for positive items are reversed before computing the composite scores. For the current study, the HRSR was pilot-tested with 30 participants with the same characteristics as the sample to assess its internal consistency, resulting in a Cronbach's alpha coefficient of 0.82.

Internet-Based Cognitive Behavioral Therapy and Its Implementation

The iCBT program is a six-week intervention program conducted on an internet platform and comprises eight components. Each of these is covered in one or more than one of the eight consecutive sessions, with each session lasting approximately three days (See Appendix, Table A for details).

1. Psychoeducation: This involves providing health education and knowledge about depression, allowing participants to understand mental illness quickly and clearly. The video clip (12 minutes) was

developed to cover content on depression and its impact on life and guidance in constructing lifetime goal settings.

2. Examining automatic thoughts: This involves guiding participants to observe their thoughts, emotions, and behaviors (actions). This activity encourages observing automatic thoughts that arise immediately before a rational thought process. Utilizing various stimuli such as short video clips, pictures, personal daily life events, and reflective worksheets, participants are prompted to identify and express their thoughts, whether positive or negative, in short words, phrases, sentences, or instantaneous responses to events.

3. Thought modification: This involves the assessment of thoughts that may be distorted in terms of factual accuracy and usefulness. The process guides modifying negative or unhelpful thoughts, even if they are accurate or based on facts. Activities for thought modification include questioning, self-reflection, and journaling.

4. Enhancing one's value: This involves focusing on both the positive and negative aspects from one's viewpoint and the perspectives of others. This aims to improve self-worth and contribute to the self-worth of others. By encouraging individuals to identify experiences that evoke feelings of pride, personal accomplishments, and both positive and negative aspects, this process helps document these instances for further reflection.

5. Controlling emotions and behaviors through relaxation techniques involves observing emotional and physical responses during stress and finding ways to alleviate them. The initial 6-minute video explores the connection between emotions and physiological changes, while the subsequent 11-minute video guides participants through exercises such as abdominal breathing, progressive muscle contraction, and imaginative techniques. Individuals are encouraged to select a suitable baseline method for managing their emotions.

6. Improving interpersonal communication skills: This involves communicating with others and grasping the fundamentals of effective communication. This activity includes a 12-minute video that provides information on communication elements and another 13-minute video focusing on positive and negative communication. Participants then practice their communication skills, considering the context, their emotional state, any negative automatic thoughts, and a sample of the communication they put into practice.

7. Developing appropriate assertive skills: This involves recognizing one's assertive behaviors that may be inappropriate. It includes providing explanations and making clear distinctions regarding the feelings, thoughts, and actions of individuals who confidently assert their rights, those who offer no rebuttal, and those who may display more aggressive tendencies. Participants actively document their communication experiences, capturing key elements such as the event, mood patterns, negative automatic thoughts, and assertive characteristics in a manner that aligns with appropriateness.

8. Enhancing skills in confronting and devising a suitable solution to one's problems: This involves understanding the crucial aspects of effectively tackling challenges encountered in everyday life, enhancing problem-solving expertise by engaging with a provided scenario and then applying these problem-solving principles to identify a suitable solution for a given situation. Activities introduce a sample scenario by having participants watch a video clip and engage in practical, situation-based problem-solving exercises.

Usual Care: This care protocol consisted of a set of standard care procedures provided by the researchers. The participants in the control group received the usual care, composed of healthcare knowledge and emergency contacts. Additionally, they received advice from the medical staff, which included information about depression symptoms, causes, types of depression, and self-care strategies such as exercise, maintaining a healthy support system, and stress management techniques. Upon completing the study, they were granted access to an iCBT program similar to that of the experimental group, functioning as a waiting-list control group.

Data Collection: The data were collected from October 2021 to December 2021 after obtaining approval from the Human Research Ethics Committee of Thammasat University (Science), Thailand. After obtaining approval from the school's directors, the researchers contacted class teachers to seek their help and to facilitate access to high school students. The rights of the participants were protected throughout the research process. Once informed consents were obtained, participants were randomly assigned to the experimental or control groups. The primary investigator (PI) created a group chat for each group using the LINE application, a popular messaging platform. This platform facilitated communication between the researcher and participants, serving as an access channel for the baseline, post-intervention, and follow-up questionnaires. Additionally, it was utilized by the PI to motivate participants in the experimental group to engage with the iCBT program.

Data Analysis: The data were analyzed using SPSS program version 22. Descriptive statistics were used to describe personal data and depression scores, including frequency, percentage, mean, and standard deviation. Preliminary analysis assessed the statistical assumptions necessary for one-way repeated measures ANOVA. This encompassed tests for normality (Shapiro-Wilk and normal Q-Q plots), homogeneity of variance (Levene's test), and sphericity (Mauchly's test). Additionally, personal data and baseline depression scores between the experimental and control groups were compared. The findings revealed that normality and homogeneity of variance were met, but the baseline depression scores were significantly different ($p < .05$). Therefore, a one-way repeated measures ANCOVA was employed to compare the mean depression scores of the experimental and control groups post-intervention (T2—immediately after completion of iCBT program and T3—two-week follow-up), with Time 1—baseline scores serving as the covariate. The assumption of sphericity was violated. Thus, the findings from Greenhouse-Geisser statistics were reported for the test of within-subjects effects. A post-hoc analysis using the Bonferroni test compared the group effects at T2 and T3 while controlling for the baseline scores (T1).

Results

Participants' Profile

High school students in this study had comparable average ages between the experimental and control groups (mean ± SD = 16.4 ± 0.77 and 15.9 ± 0.89, respectively). The majority had close and warm family relationships (80% and 83.3%), parents were living together (76.7% and 80%), no history of personal illness (93.3% and 88.7%), and of their family illness (100% and 93.3%). No significant differences were found between the two groups, except for age, when comparing the personal data. The experimental group was significantly older than the control group, with a mean difference of less than one year.

Effects of iCBT Program on Depression

Participants enrolled in this study had a certain level of depressive mood. At baseline (T1), participants in the experimental group had significantly lower levels of depression (Min-Max = 21-41, M ± SD = 29.43 ± 5.30) than the control group (Min-Max = 23-49, M ± SD = 33.43 ± 8.69), with a mean difference of 4.000 (95%CI [0.263, 7.737], t = 2.152, p = .036). After participating in the study, both groups exhibited a decrease in their mean depression scores both immediately after (T2) and at the two-week follow-up (T3) (**Table 1, Figure 2**).

Table 1. Descriptive summary of depression (HRSR) Scores at baseline (T1), Immediately after the intervention (T2) and at two-week follow-up (T3)

Time	Experimental group (n = 30)		Control group (n = 30)	
	Min-Max	M ± SD	Min-Max	M ± SD
Baseline (T1)	21-41	29.43 ± 5.30	23-49	33.43 ± 8.69
Immediately after the intervention (T2)	5-39	21.03 ± 10.07	15-43	30.67 ± 8.38
two-week follow-up (T3)	2-37	19.40 ± 9.72	6-49	30.23 ± 9.06

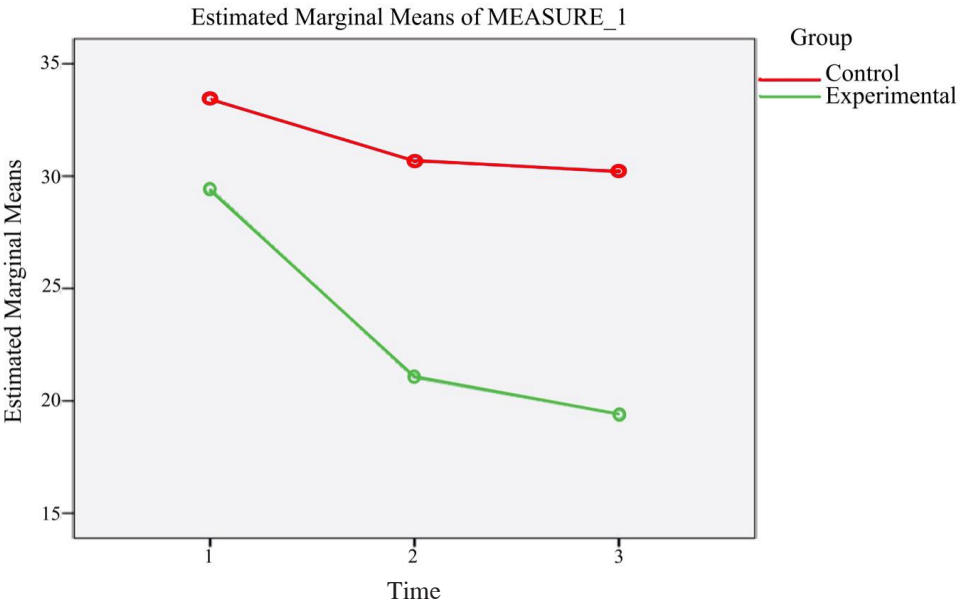

Figure 2. Depression in each participant group

The results of one-way repeated measures ANCOVA are presented in **Table 2.** No significant main effect of time was observed, indicating no significant difference in depression scores across T1, T2, and T3 (p = .370). Additionally, there were no interaction effects between time and baseline depression score (time*T1) as well as time and the main effect of the group (time*group) (p = .215 and .252, respectively). These findings suggested that the participants' depression scores decreased over time, irrespective of their respective groups. In contrast, a significant main effect of group ($F_{1,57}$ = 14.640, p < .001) indicates that belonging to different groups contributed to differences in their depression scores.

Table 2. Results of the one-way repeated measures ANCOVA, controlling for baseline depression score (T1)

Source	SS	df	MS	F	p-value	ηp²
Tests of within-subjects effects (Time effect)[a]						
Time	12.271	1	12.271	0.817	.370	.014
Time*T1	23.668	1	23.668	1.575	.215	.027
Time*Group	20.120	1	20.120	1.339	.252	.023
Error	856.499	57	15.026			
Tests of between-subjects effects (Group effect)						
Intercept	1,254.652	1	1,254.652	8.379	.005	.128
T1	684.834	1	684.834	4.573	.037	.074
Group	2,192.146	1	2,192.146	14.640	< .001	.204
Error	8,535.199	57	149.740			

Note: [a] Greenhouse-Geisser, SS = sum of squares, df = degree of freedom, MS = mean square, ηp² = partial eta squared

A post hoc analysis (pairwise comparison) was conducted to compare the mean depression scores of each group at different time points (T2 and T3) while controlling for baseline data. **Table 3** illustrates significant group differences at both T2 and T3, with the experimental group displaying lower mean depression scores than the control group (T2 mean difference = 8.032, p = .001 and T3 mean difference = 9.734, p = .000).

Table3. Post hoc (pairwise) comparison of the mean depression scores between the experimental and control groups at T2 and T3

Time	Group	M	MD	SE	p-value	95% CI
T2	Experimental	21.834	8.032	2.384	.001	3.259, 12.805
	Control	29.866				
T3	Experimental	19.950	9.734	2.486	< .001	4.756, 14.712
	Control	29.684				

Note: MD = Mean difference, SE = Standard error, CI = Confidence interval

Discussion

This study examined the depressive symptoms of students in both the experimental and control groups after the conclusion of the activities and during the second week following the program's end. While both groups exhibited a decline in depression scores over time, our findings emphasize the favorable impact of the iCBT program on depression compared to usual care. These results strengthen the empirical adequacy of Beck's cognitive theory[10] and are consistent with the findings of a previous study[25] and systematic review and meta-analysis studies.[28,29] Throughout the eight-session iCBT program, the participants could identify their life goals, recognize automatic thoughts and modify them, enhance self-value, gain control when confronting stressful life events, improve interpersonal and assertive skills, and develop better problem-solving abilities.

In addition to the primary functions of cognitive behavioral therapy provided in each session, our CBT sessions were conducted using an internet platform accessible on mobile phones, tablets, or computers. This choice aligns well with the preferences of Thai adolescents, as revealed in the Thai Health Report 2020.[30] The report indicates that between 2008 and 2018, internet use among Thai adolescents more than doubled, rising from under 45% to 91.4%, surpassing any other age group in the population. Our iCBT program provided them with the autonomy to make independent choices, which may motivate them to engage and willingly adhere to the intervention activities. This approach is consistent with a study among Australian adolescents, where 71% expressed a willingness to utilize online therapy in the event of a mental health issue. In comparison, 31.9% preferred online therapy over traditional face-to-face support.[31]

The potential benefits of the iCBT program found in this study highlight its convenient, flexible, and private accessibility[20] in promoting normal moods and preventing outright depression among Thai adolescents. Several activities can be employed through internet platforms. Our approach used a guided delivery format, incorporating video clips, interactive questions and answers, worksheets, and homework assignments. The participants were motivated to engage in iCBT activities through reminders using the LINE Application platform, which was ranked as the most common use of the internet to communicate or follow others among Thai adolescents.[30]

Although the group effect was significant after controlling for baseline depression score, indicating the positive effect of the iCBT program over the usual care, we found that the depression scores decreased over time in both experimental and control groups. Several potential explanations for a reduction in the control

group are as follows: (1) some individuals may naturally experience a reduction in depression symptoms over time, even without receiving the iCBT program, as a result of various factors, such as changes in life circumstances during the study period, improved coping skills, or social support; (2) the likelihood of experiencing regression to the mean,[32] a statistical phenomenon, is plausible as their score at baseline (T1) were high and higher than the experimental group; therefore, lower values on remeasurements (T2 and T3) were likely; and (3) being part of a research study focused on depression could raise participants' awareness of their symptoms; this increased self-awareness might prompt adolescents to take proactive steps or seek additional support, contributing to a decrease in depression scores.

Limitations

While the findings of this study are plausible, it is important to note some limitations. First, our focus on secondary school-aged adolescents (15-18 years old) may limit the external validity of the results to a broader range of adolescents. Second, the study was conducted in one geographic location in Thailand, thereby reducing the generalizability of the findings to adolescents from other locations with distinct local contexts that could potentially moderate the causal relationship between iCBT and depression. Third, the long-term effect of the iCBT program may be questionable, as we only conducted a follow-up for two weeks. Therefore, a longer follow-up would be necessary to confirm its sustainable effect. Fourth, there is potential measurement or detection bias as blinding participants was impossible. Additionally, the use of the HSRS scale to measure depression frequency may not accurately reflect depression severity. We chose this scale because it was primarily developed as a diagnostic screening test for depression among Thais. Future studies should explore alternative scales or use a combination of tools such as self-report scales and clinician-rated assessments.

Conclusions and Implications for Nursing Practice

The findings of our study shed light on the potential benefits of implementing an iCBT program to prevent the progression of depression among secondary school-aged adolescents. Offering an iCBT program, delivered by school nurses or trained teachers, may prevent extreme depression and suicidal ideation among those at risk. On a larger scale, primary care nurses or community health nurses could also incorporate our program to screen non-schooled adolescents and young adults in the community for the risk of depression and offer them an iCBT program.

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Human and Animal Rights

No animals were used in this research. All human research procedures followed were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

Consent for Publication

Informed consent was obtained.

Availability of Data and Materials

The data that support the findings of this study are available on request from the corresponding author.

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Conflict of Interest

The authors declare no conflicts of interest, financial or otherwise.

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Appendix

Table A. Contents, objectives and activities of the Internet-based Cognitive Behavioral Therapy

Session	Objectives	Activities
Session 1 Goal setting and psychoeducation (20 minutes)	1. Ability to determine one's short-term and long-term goals in life 2. Ability to explain symptoms of depression 3. Awareness of the impact from a state of depression	- Having participants view a clip on setting goals for life, together with an information sheet on lifetime goal setting and a worksheet for giving direction to one's life, as well as declaring one's own goals for life, both in the short term and in the long term - Having participants view a video clip on depression and an information sheet on what constitutes depression - The impact upon someone suffering from depression from having viewed the video clip - Homework: "Can you do it? Can you, or can't you?" Set a goal of becoming capable of doing some of the activities within one week, and then evaluate the results
Session 2 Examining automatic thoughts (18 minutes)	1. Explain the relationship among emotions, thoughts and actions 2. Analyze the emotions, thoughts and actions, including an explanation of how one's own emotions, thoughts and actions are connected together, in at least one particular situation 3. Explain the meaning of negative automatic thinking 4. Awareness of the impact of automatic negative thinking on oneself and on others, as well 5. Ability to search out and examine one's own negative automatic thoughts	- View a picture describing the emotions in its various aspects. After seeing this picture, answer the following questions: how did you feel and what were your thoughts? By selecting an image and identifying a thought, type your answer in the space beneath the image - Having participants view the clip and information sheet on the relationship among thoughts, emotions and behaviors - Asking: "Are you familiar with the term "automatic thoughts?" What is your understanding of them? In the worksheets: the relationship of the emotions, thoughts, behaviors and bodily reactions - Having participants view the picture (with certain sections of the entire image) and then ask: What are you thinking? How are you feeling? Ask within the context of having numerous negative automatic thoughts, with conceptual images in the worksheet - If you come across a sample event that follows these already predefined situations, what thoughts automatically come to mind? When you find yourself having such thoughts, how do you feel about them? How do you act upon them? Are there any changes in your bodily reactions? In the worksheet: let your knowledge keep pace with your thoughts!

Table A. Contents, objectives and activities of the Internet-based Cognitive Behavioral Therapy (Cont.)

Session	Objectives	Activities
		- Homework for participants to record events that take place in their daily lives, together with trapping negative automatic thoughts each day and entering them into a tabular record containing their own automatic thoughts: a worksheet consisting of a record table of negative automatic thoughts
Session 3 Thought modification (17 minutes)	1. Finding methods that are suitable to each individual for countering negative automatic thoughts 2. Transforming negative automatic thoughts to thoughts that are valid, being based on reality, and are beneficial	- Providing an example of that in the form of a question so that the participants would see it from an angle different from the way they had previously thought about it, and thus evaluate the validity and usefulness of their thought processes - Having participants view a clip and information sheet on the subject and methods of transforming negative automatic thoughts - Examining the validity and usefulness of a person's own thoughts arising from a given situation and transform the negative thinking from this same situation into a pattern of opinion-based positive thinking - For their homework, having participants record the events that are taking place in their everyday lives, while also trapping any negative automatic thoughts they may be having each day and recording them in a record table dedicated to their own personal automatic thoughts - in a record-table worksheet of automatic thinking
Session 4 Enhancing one's personal value (16 minutes)	1. Focus on one's good side and one's bad side, both from one's own viewpoint and from the viewpoints of others 2. Explain how one will enhance one's own self-worth and the self-worth of others	- Read the information sheet on the enhancement of self-worth and then type the experiences that made you feel proud or your own accomplishments. As the case may be, cite three items and three personal faults - Type the good and bad points of those things that you would like to correct and improve. Worksheet: let's explore ourselves! - Type a description of how you're going to enhance your own self-worth and the self-worth of others - Practice goal-setting: What activities can I accomplish in one week? From there, evaluate your results in the table indicated in the worksheet, asking "Can I do it? Can I or can't I?" (Do it as homework.)

Table A. Contents, objectives and activities of the Internet-based Cognitive Behavioral Therapy (Cont.)

Session	Objectives	Activities
Session 5 Controlling emotions and behaviors through relaxation techniques (26 minutes)	1. Explain the relationship between emotions and changes in the body 2. Examine the physiological changes in the body following exposure to stress 3. Develop the stress-easing skills of diaphragmatic breathing and progressive muscle contraction 4. Choose the method of controlling one's emotions that is best suited	- Have the participant view a clip on the relationship of the emotions to changes in the body - Ask: Have you ever used, or have you ever known, a way to control and relax yourself by any method whatever? - Have the participant view a clip and then practice these four relaxation methods: diaphragmatic breathing, progressive muscle contraction and practicing therapeutic laughter; and then typing a response to the question "Which method was best suited to you and how can you apply it to your everyday life?" "As homework, record the events that take place in your everyday life, your emotional responses, how your thinking is affected and your methods of relaxation. Record your responses in the table provided for you."
Session 6 Improving interpersonal communication skills (28 minutes)	1 Explain the importance of being able to communicate with other people 2. Understand the principle of efficient communication skills with others 3. Have the ability to practice communication with others according to the situation at hand	- Have the participant view a clip providing information on the components of communication - Have them view a video clip pertaining to positive and negative communication - Observe the communication features in the video clip and type your answers to the questions - Homework: make a record of your own communication, combined with the event, your mood pattern, any automatic negative thoughts that occurred to you and a sample of the communication you implemented
Session 7 Developing appropriate assertive skills (23 minutes)	1. Be aware of one's own assertive behaviors that are inappropriate 2. Provide explanations and make certain distinctions in terms of feelings, thoughts and actions of anyone who boldly asserts his or her own rights, as well as someone who offers no rebuttal and someone who can be quite aggressive	- Have the participant view an information clip on assertive skills and how to become someone who dares to assert his or her own rights - Place a mark in front of the statement that best describes your behaviors during the past month - Make a record of your own communication, together with the event, mood pattern, any automatic negative thoughts that may have occurred to you and your assertive features, in an appropriate manner
Session 8 Enhancing skills in confronting and devising a suitable solution to one's problems (24 minutes)	1. Explain the important principles in efficiently solving problems that arise in everyday life 2. Acquire problem-solving skills from a given situation 3. Ability to apply problem-solving principles in finding an appropriate solution to a problem in a given situation	- State how previously-used problem-solving methods were applied to the solution of your daily-life problems, as well as describe what kind of results you received - Set up a sample situation by having them view a sample video clip and then practice situation-based problem solving. In this way, they can acquire step-by-step problem-solving skills through an inquiry into the problem that occurred - Homework: record the everyday-life events that you feel are problematic and describe in writing how you would solve those problems on your own

ผลของโปรแกรมการปรับความคิดและพฤติกรรมบำบัดโดยใช้อินเทอร์เน็ตเป็นฐานต่อภาวะซึมเศร้าของนักเรียนไทยมัธยมศึกษาตอนปลาย: การศึกษากึ่งทดลอง

พิสิฐ รุ่งโรจน์วัฒนศิริ อังคณา จิรโรจน์ วงจันทร์ เพชรพิเชฐเชียร*

บทคัดย่อ: วัยรุ่นที่มีภาวะซึมเศร้ามักจะมีการสร้างความคิดอัตมโนทัศน์ด้านลบ จึงเกิดความคิดเกี่ยวกับการฆ่าตัวตาย ปัจจุบันจึงมีการใช้การปรับความคิดและพฤติกรรมบำบัดโดยใช้อินเทอร์เน็ตเป็นฐานเป็นหนึ่งในวิธีการในการจัดการกับความคิดอัตมโนทัศน์ด้านลบเพื่อป้องกันการฆ่าตัวตาย การศึกษาแบบกึ่งทดลองนี้มีวัตถุประสงค์เพื่อประเมินผลของโปรแกรมการปรับความคิดและพฤติกรรมบำบัดโดยใช้อินเทอร์เน็ตเป็นฐานต่อภาวะซึมเศร้าของวัยรุ่นไทย กลุ่มตัวอย่างประกอบด้วยนักเรียนวัยรุ่น 60 คนที่มีภาวะเบี่ยงเบนจากอารมณ์ปกติที่อยู่ในโรงเรียนมัธยมศึกษาตอนปลายภาครัฐ ในจังหวัดใกล้กับกรุงเทพฯ โดยการคัดเลือกเข้าร่วมโครงการวิจัยตามความสะดวก จับคู่ตามเพศและเกรดเฉลี่ย จากนั้นสุ่มแบ่งเป็นสองกลุ่ม คือ กลุ่มทดลองได้รับโปรแกรมการปรับความคิดและพฤติกรรมบำบัดโดยใช้อินเทอร์เน็ตเป็นฐาน และกลุ่มควบคุมได้รับการดูแลตามปกติ (กลุ่มละ 30 คน) เครื่องมือเก็บข้อมูลประกอบด้วยแบบฟอร์มเก็บข้อมูลทั่วไป และแบบประเมินภาวะซึมเศร้า: Health-Related Self-report Scale ใช้สถิติวิเคราะห์ข้อมูลความแปรปรวนร่วมแบบวัดซ้ำทางเดียวในการเปรียบเทียบคะแนนซึมเศร้าเฉลี่ยระหว่างกลุ่มตัวอย่างสองกลุ่ม โดยควบคุมอิทธิพลร่วมจากคะแนนซึมเศร้าที่ประเมินไว้เป็นข้อมูลพื้นฐาน

ผลการศึกษาพบว่า คะแนนซึมเศร้าของกลุ่มตัวอย่างลดลงตามเวลาทั้งสองกลุ่ม อย่างไรก็ตามพบความแตกต่างอย่างมีนัยสำคัญเมื่ออยู่ในกลุ่มที่ต่างกัน โดยกลุ่มทดลองมีการลดลงของคะแนนซึมเศร้ามากกว่ากลุ่มควบคุมทั้งสองช่วงเวลา คือ ทันทีหลังการทดลองและเมื่อติดตามสองสัปดาห์หลังสิ้นสุดการทดลอง ผลการศึกษานี้สะท้อนให้เห็นถึงประโยชน์ที่อาจเกิดขึ้นจากการนำโปรแกรมการปรับความคิดและพฤติกรรมบำบัดโดยใช้อินเทอร์เน็ตเป็นฐานมาใช้ โดยพยาบาลประจำโรงเรียน ครู หรือพยาบาลที่ดูแลด้านปฐมภูมิ สามารถนำมาใช้เพื่อป้องกันภาวะซึมเศร้าที่รุนแรงและความคิดเกี่ยวกับการฆ่าตัวตายในวัยรุ่นได้ ทั้งนี้ควรมีการศึกษาเพิ่มเติมที่มีระยะเวลาติดตามที่นานขึ้นด้วย

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