Application of Internet-based Cognitive Behavior Therapy Approaches for Female Adolescent with Major Depressive Disorder

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Abstract

The purpose of this study was to measure the decrease in depression symptoms experienced by the participant before and after following the intervention by applying the Internet-based Cognitive Behavior Therapy (iCBT) approach. The participant was HN, a 14-year-old female adolescent who refused school due to major depressive disorder. The design of this study was a single-subject design with pre-post measurement. The intervention program was held eight sessions with a pre-session one day before, and a follow-up session was given two weeks after. The instruments used for this research are Beck Depression Inventory-II (BDI-II) to measure depression symptoms and Mood-o-meter, which serves as a mood rating to measure HN's mood fluctuation. This study showed depression symptoms decreased and positive mindset change and behavior towards the social environment at the end of the intervention program.

Keywords: *adolescent; depression; internet-based cognitive behavior therapy*

Introduction

Depression are the leading cause of death rates caused by disability in children and adolescents, especially females (Gore et al., 2011). About 3% of the world's school-age population suffers from depression, and there is a possibility that this number will increase, especially for adolescent girls (Bor et al., 2014; Polanczyk et al., 2015). Individuals who experience depression will also experience disturbance in their daily functioning. This includes decreased school attendance, especially absenteeism and truancy for no reason, in children and adolescents with depression (Finning et al., 2019).

Psychological examinations administered on HN showed that HN had fulfilled major depressive disorder diagnostic criteria of DSM 5 (APA, 2013). At the beginning of the examination, her parents complained that HN refused to go to school for three weeks in a row, starting in the first week which she complained about various physical ailments and skipping school twice. After undergoing a series of psychological examinations, it was found that HN's refusal to go to school resulted from the major depressive disorder she was experiencing.

Based on the examination results, it was found that HN had a false belief that she was not loved. HN often reveals that she felt different from other teenagers, so she cannot be accepted and liked by other people around her. HN's false belief arises from the accumulation of negative experiences she has experienced. Based on these negative experiences and formed beliefs, HN has the assumption that she should leave before being shunned or that she should endure her problem in silence. These two assumptions are rooted in her belief that no one can help her problem. This leads to HN developing a pattern of avoiding problems by withdrawing from her social environment as her coping

strategy. Figure 1 explains HN's cognition and its' antecedents in detail. Therapy that focuses on changing unhelpful ways of thinking, such as Cognitive Behavior Therapy (CBT; Beck & Beck, 2011), is considered to help HN reduce her symptoms of depression.

CBT was developed as an effective therapy for depression (Beck & Beck, 2011). However, other intervention techniques were also available to treat depression in adolescents, such as Interpersonal Psychotherapy (IPT). The IPT technique focuses on teaching communication skills and building interpersonal relationships so that the client can build and maintain positive social relationships and manage interpersonal stressors associated with their depression (Mufson et al., 2004). Based on the results of the Inventory of Peer and Parent Attachment (IPPA) filled in by HN, it is revealed that HN tends to have negative interpersonal relationships with those around her. It was rooted in the isolation that HN feels when she is with them, not due to the lack of trust or poor communication skills. HN also tends to think negatively of herself and others. Therefore, CBT is more suitable to help HN with her problems, as CBT was designed to correct unhelpful thinking patterns and change her behavior (Selph & McDonagh, 2019).

CBT has a high success rate compared to other techniques, even for improving social functioning and self-esteem, especially for treating depression in adolescents (Kemp, O'Connor, Kritikos, Curren, & Tompson, 2017). This technique is suitable for HN's needs, as HN's examination results showed a pattern of social avoidance and very low self-esteem. CBT techniques for treating depressive disorders in adolescents have higher effectiveness when using behavioral activation and challenging thoughts (Oud et al., 2019). However, the current state of the COVID-19 pandemic does not allow examiners to meet face-to-face with HN. Therefore, the CBT was administered as an Internet-based Cognitive Behavior Therapy (iCBT).

iCBT intervention techniques for depressive disorders are generally developed based on CBT intervention techniques for depressive disorders, which have similarities based on providing interventions, behavioral activation, cognitive restructuring, and prevention of relapse of depressive disorders (Andersson, Wagner, & Cuijpers, 2016). The difference between CBT intervention techniques and iCBT lies in three things that must be met in implementing iCBT interventions: a safe electronic platform, appropriate program delivery methods, and guidance from therapists (Kumar et al., 2017). The iCBT intervention technique is given through online media using applications or websites that teenagers can access using cellphones or PCs by ensuring the data is encrypted so that its security is guaranteed. The program provided to clients in the iCBT intervention is tailored to the needs and abilities of the client, such as the use of text, audio, and audio-visual in providing worksheets that are easily accessible and understood by clients. In addition, in carrying out the iCBT intervention technique, the therapist also has the responsibility to guide the client in undergoing the intervention by providing a clear structure, support throughout the program's implementation, and a precise time limit for completion of tasks and interventions.

The use of technological means in communicating in the iCBT intervention technique is preferred by adolescents, especially adolescent girls, to conduct discussions and share personal problems compared to face-to-face meetings (Topooco et al., 2018). Based on the use of text message-based helplines for adolescents, it is known that adolescents feel more comfortable doing written communication and do not feel pressured in seeking help because they do not need to

deal directly with therapists (Sindahl, 2013). The application of iCBT can also increase adolescents' autonomy in expressing their feelings and thoughts because adolescents are in a familiar environment (such as at home) and reduce the stigma they may receive should they see a therapist (Bradley, Robinson, & Brannen, 2012). This shows that the iCBT intervention technique effectively reduces depressive symptoms experienced by adolescents and can overcome barriers in adolescents to face-to-face therapy.

This study aimed to measure changes in depressive symptoms experienced by participants before and after following the intervention by applying the iCBT intervention technique approach. The researcher formulated a hypothesis to be tested in this study. Participants experienced a decrease in symptoms of depression and changes in mindset and behavior in dealing with the surrounding social environment after participating in the intervention using the iCBT technique approach. We hope that the results of this study can serve as a reference for the application of internet-based interventions and the use of technology to reduce symptoms of depression and change mindsets to become more positive in children with similar problems.
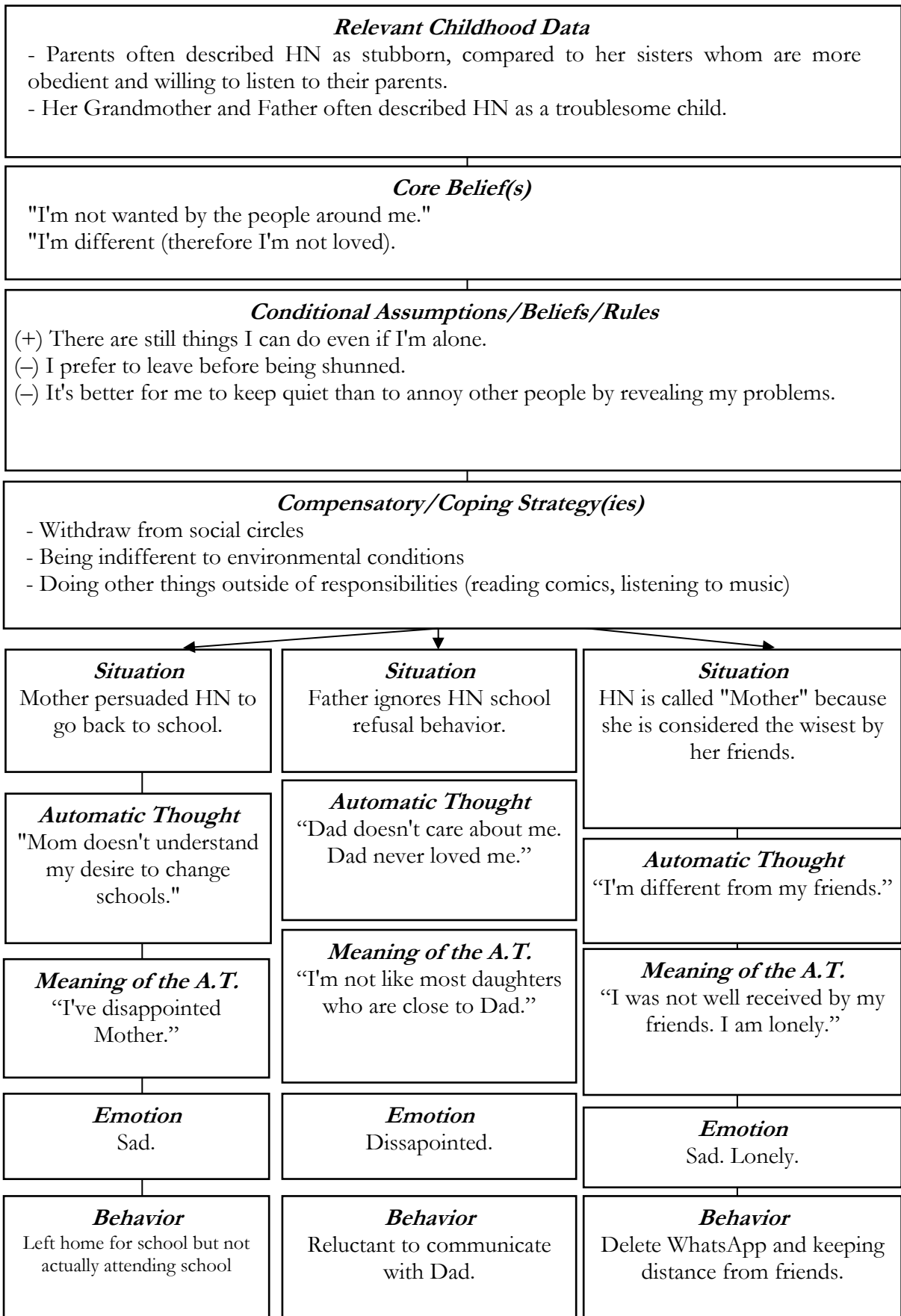
Relevant Childhood Data
- Parents often described HN as stubborn, compared to her sisters whom are more obedient and willing to listen to their parents.
- Her Grandmother and Father often described HN as a troublesome child.

Core Belief(s)
"I'm not wanted by the people around me."
"I'm different (therefore I'm not loved).

Conditional Assumptions/Beliefs/Rules
(+) There are still things I can do even if I'm alone.
(–) I prefer to leave before being shunned.
(–) It's better for me to keep quiet than to annoy other people by revealing my problems.

Compensatory/Coping Strategy(ies)
- Withdraw from social circles
- Being indifferent to environmental conditions
- Doing other things outside of responsibilities (reading comics, listening to music)

Situation	**Situation**	**Situation**
Mother persuaded HN to go back to school.	Father ignores HN school refusal behavior.	HN is called "Mother" because she is considered the wisest by her friends.
Automatic Thought	**Automatic Thought**	**Automatic Thought**
"Mom doesn't understand my desire to change schools."	"Dad doesn't care about me. Dad never loved me."	"I'm different from my friends."
Meaning of the A.T.	**Meaning of the A.T.**	**Meaning of the A.T.**
"I've disappointed Mother."	"I'm not like most daughters who are close to Dad."	"I was not well received by my friends. I am lonely."
Emotion	**Emotion**	**Emotion**
Sad.	Dissapointed.	Sad. Lonely.
Behavior	**Behavior**	**Behavior**
Left home for school but not actually attending school	Reluctant to communicate with Dad.	Delete WhatsApp and keeping distance from friends.

Figure 1. Conceptualization of HN's Problem

Methods

Participants

The participant in this study was a 14-year-old girl with the initials HN. At the time of the examination conducted at the Sukmajaya Health Center, HN was a student who was in the 8th grade of Junior High School (SMP) in Depok, West Java. Her mother brought HN to do a psychological examination because of complaints of refusing to go to school for no reason, which had been going on for three weeks. A psychological examination is carried out to formulate HN problems through interviews, observations, intelligence tests, and personality tests. Interviews were conducted on various sources: HN herself, HN's mother, and HN's teacher, who recommends HN to receive a psychological examination to find out the root cause of her school refusal. Observations were made using the Early Adolescent HOME (EA-HOME) instrument when the researcher visited HN's house and interviewed HN's mother. The intelligence tests given to HN are Raven's Standard Progressive Matrices (SPM) Test and the Wechsler Intelligence Scale for Children - Revised (WISC-R) Test. HN also underwent a personality test using projection tests in the form of Forer Sentence Completion Test (FSCT), Draw a Person (DAP), Tree test (BAUM), and House-Tree-Person (HTP). In addition, HN filled out several inventory tests in the form of Self-esteem Inventory (SEI), Inventory of Peer and Parent Attachment (IPPA), School Refusal Assessment Scale-Revised (SRAC-R), and Beck Depression Inventory-II (BDI-II).

The results of the psychological examination of HN showed that HN met the criteria for major depressive disorder. HN appears to display persistent negative emotion almost daily for more than two weeks (mood, sad, crying, irritable, blank stare) that results in changes in daily life (withdrawing from family and friends) and disturbing daily functioning (refusing to go to school). HN also loses interest or pleasure in almost anything (not wanting to chat with friends, no longer writing stories, not wanting to go to school), having loss of appetite, trouble sleeping at night (difficulty sleeping, frequently waking early in the morning, staying tired even after sleeping), tiredness or loss of energy (sleeping all day, bathing less often, getting sick more quickly), excessive feelings of helplessness and guilt (feeling troublesome and upsetting to parents), and indecisiveness nearly every day (difficult to make logical decisions despite knowing the positives and negatives). The depressive symptoms shown by HN make it difficult to function optimally as a teenager who generally enjoys social interaction with friends and is involved in various academic and non-academic activities. HN's refusal to go to school was resulted from the symptoms of depression she experienced. This can be seen from HN first showing an irritable attitude, daydreaming a lot, losing her appetite, and often complaining of physical pain (diarrhoea, back pain, frequent dizziness) and truancy twice before showing refusing to go to school.

Research Design

The research design used was a single subject design with pre-post test measurements to examine the effect of applying the iCBT approach in reducing depressive symptoms experienced by HN. The intervention program with the iCBT approach given to HN was designed based on the iCBT program design tested by Topooco et al. (2018) on adolescents with depressive disorders. The researcher intervened with the iCBT approach for two months and consisted of nine sessions with one pre-session and eight intervention sessions. The intervention was given through WhatsApp chat with a duration of 60 minutes for each session. Pre-session and first session were

conducted sequentially in the same week, followed by seven further sessions conducted once a week for eight weeks. During the eight-week session, HN receives psychoeducation on depression, behavioural analysis, behavioural activation, cognitive restructuring, anxiety psychoeducation, emotion recognition, and relapse prevention treatment. Afterwards, follow-up sessions were carried out for two weeks after the intervention session was finished to assess HN's condition in maintaining the intervention results. The decrease in depressive symptoms experienced by HN will be seen from the pre-intervention and post-intervention results of the BDI-II Scale, which HN filled in during the pre-session and the final session of the intervention. Researchers also provide a mood rating to HN before and after each intervention session to see changes in HN's mood before and after each session, as well as the average mood felt by HN for the entire session. This research has passed the ethical review process approved by the Faculty of Psychology, University of Indonesia through letter number 951/FPsi.Komite Etik/PDP.04.00/2020.

Instruments

1. *Beck Depression Inventory-II* (BDI-II)

The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) scale is a self-report questionnaire containing 21 items on a 4-point scale from 0 (no symptoms) to 3 (severe symptoms) on each item. BDI-II was scored by adding the highest rating on all 21 items with a minimum score of 0 and a maximum score of 63. The higher the score indicates the severity of depression symptoms felt by the individual. In individuals diagnosed with depression, a total score of 0-13 indicates minimal depression, a total score of 14-19 is mild depression, 20-28 is moderate depression, and 29-63 is severe depression (Jackson-Koku, 2016).

The results of the validity test showed that BDI-II was significantly correlated with the Minnesota Multiphasic Personality Inventory-D (MMPI-D) and Hamilton Depression Rating Scale (HDRS), and the reliability results of Cronbach Alpha showed that the BDI-II was proven to be reliable $\alpha = 0.92$ in the clinical population and $\alpha = 0.93$ in the non-clinical population.

2. *Mood-o-meter*

Mood-o-meter or mood rating is a measurement of mood in the form of a self-report using a 10-point Likert scale, from a scale of 1 (sad) to 10 (happy). The higher the value given, the happier the mood. Mood rating is given to quantitatively track the mood changes felt by HN before and after participating in the intervention and the average mood felt by HN during the intervention process. Mood measurements were given to HN as mood serves as one of the main symptoms of major depressive disorder.
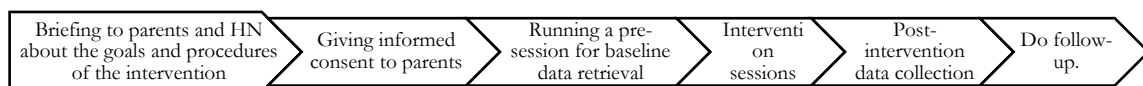
Briefing to parents and HN about the goals and procedures of the intervention ▷ Giving informed consent to parents ▷ Running a pre-session for baseline data retrieval ▷ Intervention sessions ▷ Post-intervention data collection ▷ Do follow-up.

Figure 2. Research Procedure

Procedure

In Figure 2, the flow of the research procedures carried out has been described. There are three significant parts carried out in the intervention, namely before the intervention, the implementation of the intervention, and after the intervention. Before the intervention, HN and her parents were briefed on the objectives and procedures for the intervention. Parental informed consent was also obtained during this process. Pre-session with HN was conducted to provide detailed information of the process and acquire baseline data using BDI-II.

During the intervention, the researcher provided a module book containing session material and worksheets that HN needed to complete during the session and as homework assignments. The module book compiled by the researcher refers to the worksheet designed by Stallard (2019) by adjusting the program objectives and participant needs. The researcher designed the activities and the number of intervention sessions for HN by replicating Topooco et al. (2018) iCBT intervention design.

The process of designing and implementing the intervention to HN was supervised by a senior psychologist who was the co-author of this study. At the end of the intervention, HN was asked to fill in the BDI-II Scale as post-test. Table 1 describes in detail the activities and objectives of each session. The last part is a post-intervention activity that includes debriefing regarding the intervention results and improvement that HN needs to maintain. The follow-up session also includes activities after the intervention. During the post-intervention session, the researcher gave the BDI-II Scale to be filled again and allowed HN to ask questions and discuss her development and her condition after the intervention was completed.

Table 1.
Activity Overview and Success Indicator

Session	Activity Overview	Success Indicator
1	Introduction to the mood-o-meter, filling out the mood-o-meter before and after the session, discussing depression and writing about HN depression experiences, and giving homework	HN can assess the mood she feels, is able to tell experiences (feelings, thoughts, behavior) during depressive episodes, and can name some of the things that trigger her depression
2	Filling the mood-o-meter before and after the session, discussion of Session 1 homework, filling out worksheets, explaining material about schema dysfunction, and giving homework	HN can explain the homework for session one that she has done and can give examples of experiences/events about her dysfunctional scheme
3	Filling in the mood-o-meter before and after the session, discussion of Session 2 homework, giving material on behavioural activation, filling out worksheets on the CBT module, and giving homework	HN can classify the negative thoughts she has from the homework she has done and can provide a mood value for the activities she does

Session	Activity Overview	Success Indicator
4	Filling in the mood-o-meter before and after the session, discussion of Session 3 homework, filling out worksheets, planning activities for the next week, and giving homework	HN completes homework from Session three without missing, has a suggestion regarding the activities to be carried out for the next week, is able to give a mood rating for each activity she does and has a recommendation regarding the steps that can be taken to break down the challenging tasks
5	Filling in the mood-o-meter before and after the session, Session 4 homework discussions, filling out Google Forms about wrong ways of thinking, giving materials on wrong ways of thinking, filling out worksheets, and giving homework	HN can write down her positive and negative thoughts about himself, the future, and what she does and can provide examples of her experiences that match the type of wrong way of thinking she has.
6	Filling the mood-o-meter before and after the session, Session 5 homework discussion, giving psychoeducational materials on anxiety and relaxation techniques, filling out worksheets and giving homework	HN can tell her anxiety or recognize the symptoms of anxiety she feels and can name some ways she can be used to become calmer when anxious
7	Filling in the mood-o-meter before and after the session, Session 6 homework discussions, filling out worksheets and giving homework	HN can name several emotions, can determine the emotions she feels towards the person/situation mentioned, and can name the problem and have several solution ideas to deal with the problem
8	Filling in the mood-o-meter before and after the session, discussion for Session 7 homework, discussion of the book "Loving the Wounded Soul", conducting a review of the CBT interventions that have been undertaken, and filling out the BDI-II Scale using google form	HN can explain the signs of depression symptoms she is experiencing and be able to mention solutions to prevent relapse, can state the purpose of the CBT intervention and the impression she feels during the intervention, and fill out the BDI-II Scale

Findings

Overall, it can be said that the intervention with the iCBT approach given to HN succeeded in reducing the symptoms of depression she experienced and changing HN's behavior towards the social environment around her due to a change in her mindset to be more positive.

A more detailed explanation of the implementation of the session will be discussed further in the next section. The reduction in depressive symptoms was indicated by a decrease in BDI-II score and an increase in Mood-o-meter average score over the entire session. Changes in behavior and a more positive mindset towards the environment were shown by HN based on the discussion HN had with

the researcher that she had returned to attend meetings with her family and from the results of the worksheets completed by HN in the CBT module given to HN.

Intervention Result

In the first session, HN can measure her mood with a value of 1-10. HN can explain thoughts, feelings, and thoughts related to the symptoms of depression they are experiencing. HN said that the trigger for her depression was her family's negative reactions and comments, especially her grandmother, about her failure to attend the same boarding school as her cousin.

In the second session, HN could conclude that her failure to attend a boarding school formed her mind that she is a failure and always disappoints her family. These negative thoughts made her feel sad, angry, and disappointed with her own self, so that she began to limit her interactions with others for fear of being judged by others. HN has a schema dysfunction that she will always fail, especially at school.

In the third session, HN was able to tell some of the experiences that triggered the dysfunction of her schema. HN can recognize various things that affect her mood and assess the mood of various activities she often does. HN realized that she needed to make an effort to maintain her good mood to complete her various tasks well.

In the fourth session, HN can identify events that can lower her mood and try to do various activities to improve her mood. HN had difficulty figuring out the various stages she could go through to do a difficult task and always gave excuses that she could not do the task even though it had been broken down into stages. HN began to face her fears about going to school by being open about her thoughts and feelings.

In the fifth session, HN wrote positive things she could do and words of encouragement to face her fears. HN tries to do various fun activities that can improve her mood. HN said that writing down her positive and negative thoughts was difficult because there were various contradictions in her mind, but HN managed to group the thoughts together.

In the sixth session, HN was able to assess that her negative thoughts were part of the thinking errors she had when trying to find supporters and opponents of these thoughts. HN identified sources of support that she could feel comfortable with and learned some techniques to calm down when she felt anxious.

In the seventh session, HN recognized the body's reactions and assessed the intensity of the various emotions listed on the worksheet, namely happy, sad, angry, and anxious. HN can write down several solutions that she can do to solve the problems she is facing.

In the eighth session, HN can identify the main problems she has, write down possible solutions, and weigh the positive and negative consequences she may face to determine practical solutions that she can take.

Quantitative Results
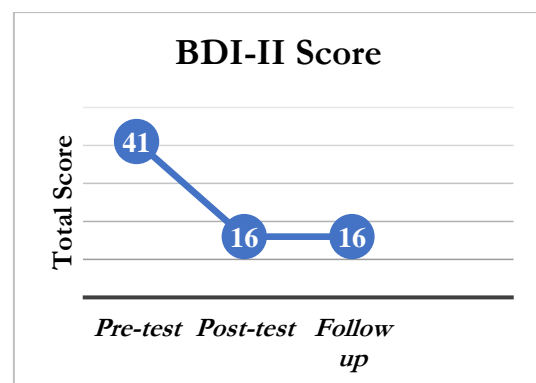
1. Beck Depression Inventory-II (BDI-II)

Figure 3. Total BDI-II Score on HN

The total BDI-II score obtained by HN indicates the severity of the

symptoms of depression she is experiencing. The overall results of the total BDI-II score on HN when pre-test, post-test, and follow-up can be seen in Figure 3. Based on the interpretation of the BDI-II total score from Beck (in Jackson-Koku, 2016), at the time of the pre-test, HN was experiencing symptoms of severe depression (total score of 41 on the BDI-II Scale). At the post-test, HN was said to have mild depressive symptoms (total score of 16 on the BDI-III Scale). After finishing all the sessions, a follow-up assessment with HN showed she had been able to sleep well, felt fresher, no longer felt sad and guilty all the time, did not cry often, no longer felt like a failure, no longer felt numb to the conditions that irritate her, no longer worry about her health condition, no longer have to force herself to do something, and have started to be able to enjoy the activities she previously unable to enjoy.

At the time of follow-up, HN still reported mild depressive symptoms with a total score of 16 on the BDI-II Scale, equal to that of the post-test. These results indicate that the intervention with the iCBT approach given to HN succeeded in reducing the depressive symptoms experienced by HN from severe to mild levels and still made the depressive symptoms felt by HN persist at the same level for two weeks after the intervention program was completed. HN still reported some symptoms of depression such as returning to trouble falling asleep by waking up one to two hours earlier than usual and having trouble getting back to sleep, feeling more failure than others, crying more and being tired than usual. However, in the last two weeks, HN feels that she can work better than usual, no longer feels terrible in appearance, feels easier to make decisions, and has more interest in other people.
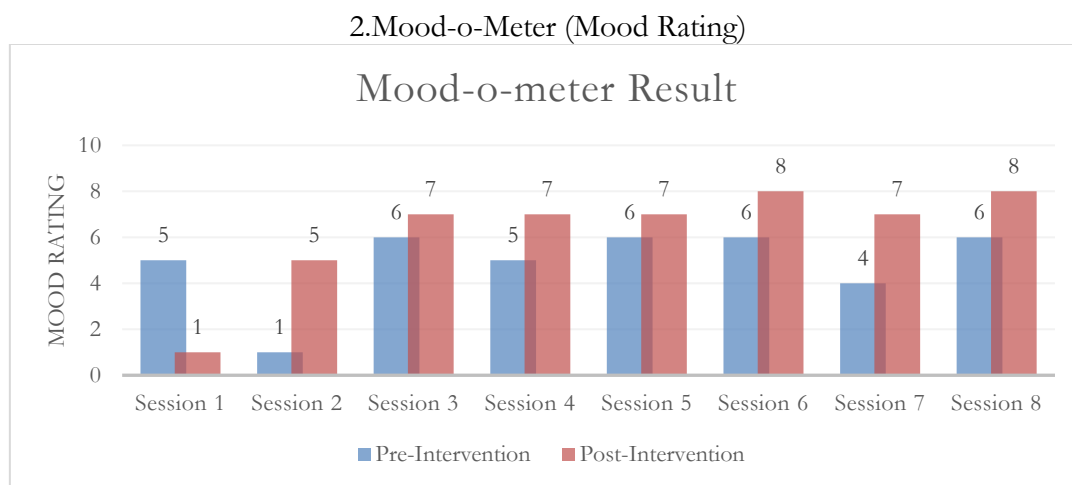
2.Mood-o-Meter (Mood Rating)

Figure 4. HN's Mood Rating Results

HN was asked to rate her mood at each intervention session before starting the intervention session and after finishing the intervention session. It aims to monitor fluctuations in HN feelings quantitatively, as one of the symptoms of depression is a continuous feeling of depression or numbness. In addition, the researcher also asked the specific reasons for HN's mood. In general, HN reported an increase in the mean mood score before and after the intervention session ($M_{before} = 4.9$; $M_{after} = 6.2$). Most of the reasons for HN's improved mood were that she could master the tasks given during the sessions and liked the intervention program.

The overall results of the mood-o-meter before and after the intervention can be seen in Figure 4. Initially, in session 1, HN had a normal mood (mood score = 5), but at the end of the session dropped 4 points to sad (mood score = 1). The drop was due to HN being reminded of the experience that was the cause of her current depression. In session 2, initially, HN felt sad (mood score = 1) because her parents forgot that HN followed the intervention program with a regular schedule every Thursday. It made HN think that her parents did not support her, and she felt she was struggling alone in the healing process from depression. However, at the end of the session, HN's mood score increased 4 points to normal (mood score = 5) after studying schema dysfunction and realizing that she had schema dysfunction based on some past experiences. In session 3, HN had a slightly happy mood score (mood score = 6) after buying some cute ballpoint pens, and at the end of the session, her mood score increased to happier (mood score = 7) because the session went smoothly without a hitch. In session 4, HN assessed that her mood was normal (mood score = 5) then increased by 2 points to be happier (mood score = 7). At the end of the session, HN felt optimistic that she could recover from depression. In session 5, HN's mood score before the session was slightly happy (mood score = 6). She had succeeded in buying the novel she had wanted since March and increased to be happier (mood score = 7) after the session was finished because she received support and positive words of encouragement from the researchers. In session 6, HN gave the score that the mood she was feeling was slightly happy (mood score = 6) because she had just woken up from a fairly deep sleep. At the end of the session, HN assessed her mood to be somewhat happier (mood score = 8) because she received encouragement from the researcher and had higher hopes for recovery after undergoing six intervention sessions. In session 7, HN stated that she was in a bad mood and considered herself a little sad (mood score = 4) because of what happened the night before when she disagreed with her two sisters, who said they hated her. However, after finishing session 7, HN assessed that her mood had improved by 3 points to be happier (mood score = 7) because she had completed the session. HN admitted that her mood always improved after participating in the intervention program. In the last session of session 8, HN stated that she had no problems and her mood was a little happy (mood score = 6), and HN felt more optimistic and felt a better mood (mood score = 8) because she got motivational words from the researcher.

Discussion

The intervention using the Internet-based Cognitive Behavior Therapy (iCBT) approach by the Intervention Provider (IP) was given to HN once a week for eight weeks with an intervention duration of approximately sixty minutes. The intervention was given through WhatsApp Chat using the IP monitoring HN's mood conditions before and after the intervention, discussing HN's thoughts and feelings for one week during the IP and HN meeting breaks, IP guiding HN in completing the worksheets contained in the specially designed module, and HN writes a journal containing reflections and insights obtained from the intervention sessions that have been carried out. Programs and modules provided to HN refer to the research of Topooco et al. (2018), which focuses on a text/chat-based approach to adolescent clients who are depressed. Implementation of the intervention using the iCBT approach has also fulfilled three basic things that must exist, namely safe electronic media, appropriate treatment

programs, and guidance from clinicians (Lindefors & Andersson, 2016).

Based on the intervention results with the iCBT approach, it was found that depression symptoms experienced by HN were decreased before and after the intervention (pre-test = 41 (severe); post-test = 16 (mild)). A similar result with the post-test was also shown during the follow-up session (total score = 16), which indicated that HN could maintain mild depressive symptoms after intervention with the iCBT approach. These results supported Topooco et al. (2018) which showed a decrease in depressive symptoms experienced by adolescents who took part in the iCBT intervention, seen from a 30-50% decrease in the total BDI-II score from baseline to post-test. The decrease could be maintained until six months later when follow-up assessment with HN was conducted.

The symptoms of depression felt by HN improved after following the intervention with the iCBT approach. HN no longer feels depressed mood every day and begins to appear interested in the surrounding environment. This is shown from the items on the BDI-II Scale selected by HN at the post-test, which revealed that she no longer felt empty, no longer cried often, nor felt sad and guilty all the time. HN also feels that her physical condition is improving; she is starting to sleep well, not getting tired easily, no longer worrying about her health, and enjoying the activities she is doing. Although HN showed the same low level of depressive symptoms at the post-test and follow-up, the symptoms she complained of were different. At the follow-up, HN found it difficult to sleep, tired more easily, cried more often, and felt that she had experienced more failures than other people. However, HN also revealed that she could work better than usual, make decisions, and have more interest in interacting with other people. The iCBT intervention can reduce the depressive symptoms felt by participants (Hadjistavropoulos et al., 2016; Newby et al., 2017) and can last up to twelve weeks after the intervention (Noguchi et al., 2017), and can improve the ability to manage stress in general, cognitive function, and life satisfaction of participants (Casey et al., 2017).

The intervention with the iCBT approach was also stated by HN that it helped her understand herself and her depressive disorder so that she could slowly change her mindset and attitude in dealing with problems. This understanding allows HN to accept her condition and helps HN to be more aware of her interrelated thoughts, feelings, and behaviors. With this understanding, HN tries to control her thoughts, feelings, or behavior to improve her depression gradually. For example, HN started attending family events that she always avoided and realized that feeling ostracized by her family was part of her automatic thought. This is in line with Gottlieb et al. (2017) research that the iCBT intervention helps participants better understand their problem so that participants have a better knowledge of themselves and their surrounding conditions and improve their social functioning.

Withdrawal attitude, a coping strategy for HN and the primary concern of problematic behavior shown by HN also began to improve after the intervention with the iCBT approach. Based on HN's confession, it was known that the presence of IP through short messages regularly once a week to ask how things were and provide interventions made HN begin to learn to be more open and trust others around her. Communication through short messages is favored by adolescents, especially girls, in the implementation of iCBT because it reduces anxiety in dealing directly with the therapist so that participants can be more open during intervention sessions and

create positive collaboration between participants and their therapists (Topooco et al., 2018). IP's attitude of accepting HN's depression and always supporting HN with positive words also increases HN's feelings of worth to try better in completing all tasks assigned by IP, which helps reduce depression symptoms experienced by HN. When the therapist emphasizes positive beliefs in participants, shows empathy, and supports participants to complete their tasks, participants will show a cooperative attitude during the intervention session and result in a higher task completion rate from participants (Kumar et al., 2017).

Based on the qualitative results of all the tasks completed by HN, it is known that HN also experienced a change in mindset to become more positive after following the intervention with the iCBT approach. In the intervention process, HN realized that she has core beliefs that she does not deserve to be loved because she always disappoints the people around her. HN also gains insight that most of her negative thoughts are not in line with the facts or what is often referred to as thinking errors. This change in mindset is reinforced through homework in session five about noting negative thoughts or feelings that arise and looking for supporting and opposing evidence that strengthens these thoughts or feelings. HN admitted that she tried the technique several times outside of the intervention task. This technique helps HN determine more appropriate behavioral responses even though she still has negative thoughts and feelings. In their research, James and Barton (2004) revealed that the technique of re-examining the beliefs held by intervention participants by comparing them objectively to facts and evidence regarding these beliefs could change participants' core beliefs.

The iCBT intervention effectively reduces depressive symptoms experienced by adolescents, especially if it has activity components in the form of behavioral activation and cognitive restructuring (Oud et al., 2019). HN, who carried out these two activities for several sessions outlined in the intervention tasks, also tried to practice them daily. It influenced the change in HN's attitude to become more positive towards her social environment. For example, HN has started trying to share her feelings and thoughts with Mother when facing problems, instead of just being silent like her usual behavior. HN also realized that Father showed his concern for HN with his attitude and defended her when she disagreed with her two sisters. HN also wants to try to contact her friends first to talk about light things such as recommendations for exciting stories on Webtoon and Wattpad, exchanging messages again, and making plans for a reunion with her elementary school friends.

After completing all intervention sessions, HN revealed that HN's optimism and desire to recover from depression were getting stronger. HN has also shown courage and a desire to return to school. During the intervention, the school theme was one of the main problems. HN revealed that failing to enter the Islamic boarding school of her dreams, not being at the boarding school recommended by her parents, and one year not wanting to continue her education were the main burdens that constantly made her feel worthless and disappointed her parents. However, the intervention and learning techniques for finding solutions to problems, breaking challenging tasks into small and doable steps, and understanding negative automatic thoughts and dysfunctional schemas made HN aware that she had to stay in school and she needed to be brave enough to face her fears. HN said that she would certainly experience the same anxiety and fear if she went back to school, she might also have the desire to give up

halfway through. However, some of the materials and techniques she received during the intervention made her more optimistic that she could choose to keep fighting and come back to school.

In addition to the various results that support the program's effectiveness, some factors can be an obstacle for HN to maintain a low current state of depressive symptoms. The factor is the concern of HN's sisters who are still low about the condition of HN. HN' sisters do not care about HN's depression and still consider it an attempt by HN to seek attention from her parents. In addition, HN's sisters also often feel that their parents pamper HN too much and treat HN too much when HN complains about her physical condition. In addition, HN still lacks the confidence to control her own thoughts and feelings. HN still needs support from the people around her to convince her that she is a worthy person and has the strength to face her fears. Based on the meta-analysis study that has been done by Oud et al. (2019), it is known that the involvement of people closest to participants in the intervention has an effect on reducing depressive symptoms experienced by participants.

There are several limitations in our study on the implementation of the intervention with the iCBT approach. During the presentation of the program material, IP used language that was less straightforward and took a long time to compose explanatory sentences. In the module book given to participants, there are still some unclear instructions and a lack of examples of variations in answers. In the research methodology section, no instrument measures self-esteem that appears as part of HN's depressive symptoms.

Conclusion

Based on the description of the intervention results above, it can be concluded that the intervention program with the iCBT approach effectively reduces depressive symptoms experienced by adolescent girls. The total score of the BDI-II Scale, originally 41 (severe) at the pre-test, can be reduced to 16 (mild) at the post-test. This also shows that providing interventions through online messaging app such as WhatsApp chat without any face-to-face meetings online or offline can also be effective and reduce symptoms of depression. Worksheets and homework assignments given to participants are essential keys for intervention with the iCBT approach.

The things that support the success of this program are the cooperative attitude of HN, practical techniques that can be done independently to control the thoughts, feelings, and behaviors of HN, HN' trust in the IP, and the optimistic feelings of HN to recover from depression. On the other hand, there are obstacles in implementing the intervention, namely the attitude of the two participating sisters who do not care about the condition of HN. Meanwhile, the limitation of this research is the implementation of intervention programs that are still focused on participants and have not involved the closest people, such as family.

Suggestion

Based on the limitations contained in this intervention, in the future, it is necessary to carry out interventions that can increase the awareness and involvement of people closest to participants, such as families. This is important to do because individuals who are depressed need support and help from the surrounding environment. In addition, further research or intervention needs to involve parents in supporting participant interventions, not just psychoeducation which still lacks impact on changing attitudes and parental support for

participants. In implementing future iCBT interventions, it is also necessary to design messages to be sent to modules with more concrete instructions and examples and other measurement instruments related to symptoms in participants.

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