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Online Mindfulness-Based Cognitive Therapy: Interventions to Increase Resilience of the Covid-19 Patients Through Cyberpsychology Approach

Abstract: This study aims to test the effectiveness of online Mindfulness-Based Cognitive Therapy in increasing the resilience of Covid-19 patients. It has applied a website-based cyberpsychology approach to providing Mindfulness-Based Cognitive Therapy interventions. The online program was delivered over six sessions. These were carried out across four meetings, each of which lasted 30-120 minutes. The study is pre-experimental, using a single group pre-test to post-test experimental design. There were 5 patient participants with Covid-19, 1 male and 4 female. They were aged 20-27 years. All were either asymptomatic or presented only mild symptoms. The Connor Davidson Resilience Scale (CD-RISC) was used to measure pre- to post-intervention change in resilience, and a negative emotion scale was used to derive emotion ratings after each session. Results were analysed using a Wilcoxon signed-rank test. This showed a value of $Z = -2.023$ ($p < 0.05$), with a mean rank of 3.00, and a sum of ranks of 15.00. The analysis indicates that online Mindfulness-Based Cognitive Therapy can significantly increase resilience in Covid-19 patients.

Keywords: *online mindfulness-based cognitive therapy, resilience, Covid-19 patients, cyberpsychology*

INTRODUCTION

The WHO (World Health Organization, 2020) has identified that issues with psychological health are integral to dealing with Covid-19. This accords with the Research Center for the Indonesian House of Representatives Expertise Board which estimates that 80% of problems experienced from Covid-19 are psychological, with the rest being issues with ongoing physical health (Budiyanti, 2020).

The public health emergency status established by WHO included the imposition of social restrictions, self-isolation, and limitations on human travel. These factors will undoubtedly affect psychological health across the community.

A survey collected by PDSKJI (The Indonesian Mental Medicine Specialist Association, 2020), documented psychological problems during the Covid-19 pandemic. 68% of respondents experienced anxiety, 67% depression, 77% psychological trauma, and 15-20% thought it would be better for them to die almost in every day.

The rapid spread of Covid-19 around the globe has brought many impacts on society, specifically the Covid-19 patients. The impacts include the loss of life, economic decline, or educational and social activities constraints, while the most worrying one is the psychological impact

and people's behavioral changes. Additionally, coronavirus not only affects the patients' physical condition but also their mental health and quality of life. Stress, anxiety, and depression are also felt by Covid-19 patients, leading to complications in patients. The psychological conditions could cause insomnia which then slows down the drug absorption among the Covid-19 patients. Furthermore, stress can also increase the adrenaline hormone, causing changes in glycogen reserves in the liver; thus, it could trigger heart and lung problems among the Covid-19 patients (Harapan et al., 2020; Nurjanah, 2020).

In some instances, the isolation of Covid-19 patients may have contributed to suicidal behaviour. For example, a Saudi Arabian student committed suicide after becoming infected with SARS CoV-2 (Thakur & Jain, 2020). An Indonesian Covid-19 patient jumped from the 6th floor of a hospital. They had become depressed after repeated self-swabs had given seven positive results in July 2020. Studies have found that deaths resulting from Covid-19 and isolation have more general effects on community mental health (Utomo, 2020). It was found that high mortality rates and prolonged isolation in an area trigger elevated rates of depression, anxiety, excessive fear, and sleep disturbance, including worsening the mental and physical health of Covid-19 patients (Ilpaj & Nurwati, 2020).

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The pressure caused by the spread of Covid-19 and consequent containment and safety policies affecting all levels of society make it essential to adapt to changes currently happening. Individuals need adaptation or adjustment to get through the existing pressure so that they can reduce and prevent its negative psychological effects. According to Block, (in Praghopalati, 2020), capacity and flexibility to adapt when facing internal and external pressures is known as resilience. Good resilience is important for Covid-19 patients as it can strengthen and change bad and disappointing situations into a normal state, helping them to live their lives.

The current Covid-19 pandemic has prompted a more serious discussion about the massification of mental health services as one of the most critical issues in the world. One intervention technique that plays a role in overcoming depression, stress, and anxiety disorders is Mindfulness-Based Cognitive Therapy (MBCT).

MBCT has been proven able to help people manage their reactions to stress and improve their coping skills in challenging situations (Alsubaie et al., 2017). Research by Solati (2017) has demonstrated the effect of Mindfulness-Based Cognitive Therapy in increasing resilience and preventing disorders in the wives of men with schizophrenia.

Based on these earlier findings, MBCT should be of help in improving the mental health of Covid-19 patients. In most countries, mental health issues have not been prioritized as resources have been focussed on acute infection. In Indonesia, for instance, implementation of mental health policy and regulations is insufficient to meet needs and there are gaps in and inadequate access to mental health services (Ayuningtyas & Rayhani, 2018). Covid-19 patients often have limited access to mental health services, makes technological aids an attractive option in helping to providing such support. Cyberpsychology is one possible method of helping to meet this shortfall (Caponnetto & Milazzo, 2019).

This study used an on-line MBCT approach with Covid-19 patients. This is a novel effort in the delivery and evaluation of psychological intervention in Indonesia. MBCT has never been used directly with Covid-19 patients, to improve their resilience. Website-delivery is a novel aspect of this study. This may provide a solution to providing intervention during the social distancing policies and health protocols in our society.

The purpose of the current study is to determine the utility of Online MBCT and the cyberpsychology approach and to measure its effect on the resilience of patients infected by Covid-19. The study also aims to determine the effectiveness of using a website as a cyberpsychology approach in applying Online MBCT to improve the resilience of Covid-19 patients.

It can be used as a theoretical basis to increase scientific knowledge as well as to develop research on the efforts to overcome the psychological impact of Covid-19. It can also be used as a consideration for health workers/therapists/government in creating a new alternative to increase the resilience of patients infected by Covid-19,

especially through the application of the on-line MBCT intervention.

The Covid-19 pandemic has prompted more serious discussion about the massification of mental health services as a critical issues in today's world. This study examines an alternative method of delivering psychological interventions in to help improve the psychological condition of Covid-19 patients. It will help to demonstrate novel methods of delivering and evaluating the use of MBCT interventions.

The current research is a proof-of-concept study of Online Mindfulness-Based Cognitive Therapy delivered using a cyberpsychology approach. We developed a website capable of delivering MBCT with Covid-19 patients.

The study addressed whether this delivery method was helpful in overcoming psychological problems experienced by Covid-19 patients, and whether this approach can aid recovery from stress-related difficulties. This piece of work contributes to our developing knowledge about the potential of on-line delivery interventions, and their application to improving and developing emotional responses and resilience of patients recovering from SARS CoV-2 infection.

METHOD

The current study includes on-line mindfulness-based cognitive therapy as the independent variable and resilience as the dependent variable. Five Covid-19 patients took part in the study, selected on the following criteria: Either asymptomatic or presented mild symptoms, male or female age 20-27 years, low to medium levels of baseline resilience on the CD-RISC, able to read and write, and willing to participate in online mindfulness-based cognitive therapy.

Informed consent was obtained in all cases. All subjects completed online mindfulness-based cognitive therapy program modules, assignments, emotional checklists, participants' non-formal daily journals, resilience scales, and interviews.

The research design was One Group Pre-Test to Post-Test. Measurements were taken before the intervention (Pre-Test) and immediately after program completion (Post-Test), with the same measurements repeated again two days later (Follow-Up).

The intervention provided was an online mindfulness-based cognitive therapy program conducted over four meetings each of 30-120 minutes. The data generated from this study were analyzed using the Wilcoxon signed-rank difference test.

RESEARCH SCALE

The resilience scale used in the study is the Connor Davidson Resilience Scale (CD-RISC) developed by Connor & Davidson, (2003). The Connor Davidson Resilience Scale (CD-RISC) reliability has an alpha value of 0.89 with a total item correlation range of 0.30-0.70. The CD-RISC consists of 25 items scored by: 1 strongly

disagree, 2 disagree, 3 less disagree, 4 agree, and 5 strongly agree. Categorization on the CD-RISC scale is that the total score of 1-25 is classified as very low resilience, 26-50 is classified as low resilience, 51-75 is classified as moderate resilience, and 76-100 is classified as high resilience (Connor & Davidson, 2003).

On the other hand, the emotion scale used in the study is a self-report scale designed by the researchers to measure the negative emotions of the Covid-19 patients; the emotion scale consists of 20 items with measurements of 1-4 (1 = never, 2 = rarely, 3 = often experienced 4 = always experienced), and then categorized with 1-20 classified as very low, 21-40 as low, 41-60 as moderate, and 61-80 classified as high. The aspects on the emotional scale include observing, describing, doing with awareness, and receiving without judging.

MODULE VALIDATION

The online mindfulness-based cognitive therapy module consists of a guide on the steps of the intervention process. It is equipped with videos of materials and practices given to the participants. The online mindfulness-based cognitive therapy module was compiled based on the Mindfulness-Based cognitive therapy for depression book by Segal et al. (2018). The module made by the researchers then went through a module validation stage by three psychologists as a module of professional judgment and it

RESULTS

Table 1 shows the description of the research participants. Most of the research participants were female and only one participant was male; most of the participants were students and only one participant was a teacher. The participants' age ranges from 20 to 27 years old. As shown in Table 1, the participants were positively exposed to the coronavirus with different symptoms, the positive time they were exposed to the coronavirus and the feelings they felt were also different, and all participants were self-isolated patients.

Based on the CD-RISC scale measurement results in Figure 1, there is a change in the average resilience score. Before being given the online mindfulness-based cognitive therapy intervention, the resilience score average (pre-test) was 50.2. After being given online mindfulness-based cognitive therapy (post-test), the resilience score average increased by 45.2 points to 95.5.

Next, based on the results of the emotional scale measurement in Figure 2, there was a change in the emotional score average of the participants in each session. In session 1, after being treated with the online mindfulness-based cognitive therapy, the participants' emotional score average was 50.2; then in session 2, after the online mindfulness-based cognitive therapy, the participants' emotional score average was 37.6; next in session 3, after being given the online mindfulness-based cognitive

Table 1. Participants' Identity

Initials	Sex	Profession	Age	Length exposed to the virus	Participants' feelings lately	Symptoms of Covid-19	Treatment Place
MNF	F	College Student	20	7 days	Sad	cough, diarrhea, muscle pain, and flu	Self Isolation
EH	F	College Student	24	13 days	Worried	asphyxia and muscle pain	Self Isolation
YY	M	College Student	20	8 days	Fine	cough, anosmia, and muscle pain	Self Isolation
SBR	F	Teacher	27	5 days	Fine	cough and anosmia	Self Isolation
RR	F	College Student	20	7 days	Anxious and Nervous	cough, anosmia, and muscle pain	Self Isolation

was analyzed in two stages, namely Aiken V and interclass correlation (ICC). The results of Aiken V's calculation show a score of 0.89, which can be interpreted that the online mindfulness-based cognitive therapy module meets the content validity satisfactorily. In addition, the ICC was conducted to determine the consistency among raters concerning the assessment given. In the end, the ICC results show a score of 0.837. Thus, the results indicate that the agreement among the raters is quite satisfactory. The next stage is conducting a module trial on 5 Covid-19 patients, which was held from August 1 to 6, 2021. The results of the trial process evaluation are taken into consideration for the implementation of the intervention.

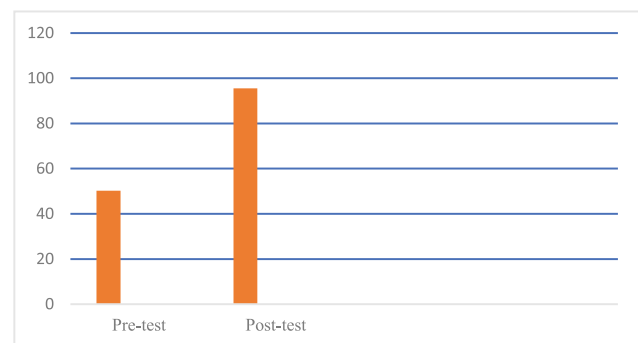


Figure 1. Differences in resilience score of participants before and after intervention

therapy, the participants' emotional score average was 33.6; in session 4, after online mindfulness-based cognitive therapy, the participants' emotional score average was 30.2; in session 5, after being given the online mindfulness-based cognitive therapy, the participants' emotional score average was 28.6; and finally in session 6, after the online mindfulness-based cognitive therapy, the participants' emotional score average was 26.8. From the data, it can be concluded that there was a decrease in the level of the participants' negative emotions in each online mindfulness-based cognitive therapy session.

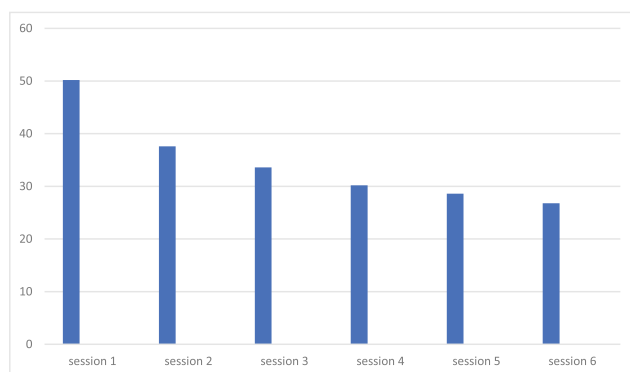


Figure 2. The decreasing of participants' negative emotion score in every session

HYPOTHESIS

The statistical analysis used the Wilcoxon signed-rank to test the research hypothesis "*Online Mindfulness-Based Cognitive Therapy Through a CyberPsychology Approach can increase the resilience of the Covid-19 patients*". The test was carried out by comparing the CD-RISC scores of the groups at the pretest and posttest. The result is p -value = 0.043 ($p < 0.05$). It means that there is a significant difference in the level of participants' resilience between the pretest (before the intervention) and the posttest (after the intervention). Finally, statistical testing was carried out using the same method on the participants' pretest and posttest resilience scores. The result shows that $Z = -2.023$ ($p < 0.05$); positive ranks with a mean rank of 3.00 and sum of ranks of 15.00. It means there is a significant increase in the level of participants' resilience.

Further, the researchers also conducted the same statistical test on the participants' emotional scale scores as a manipulation check. The first test was conducted by comparing the score of the emotional scale at the pretest and posttest. The results obtained p -value = 0.043 ($p < 0.05$). It means that there is a significant difference in the level of negative emotions among the participants between the pretest (before the intervention) and the posttest (after the intervention). In the end, statistical testing was carried out with the same method on the participants' pretest and posttest emotional scores. The result shows that $z = -2.023$. Negative rank with a mean rank of 3.00 and sum of ranks of 15.00. It means there is a significant decrease in the level of participants' negative emotions.

DISCUSSION

As stated in the initial discussion, the research aims to increase the resilience of the Covid-19 patients through an online mindfulness-based cognitive therapy program using the cyberpsychology approach. The data analysis results showed a significant difference in resilience scores between the pretest and posttest. The score difference is in the form of an increase in the level of participants' resilience after being given an online mindfulness-based cognitive therapy intervention.

The measurement of the participants' resilience level was carried out three times, during the initial screening, when the initial pretest was carried out two weeks after the screening, and before giving therapy to the experimental group to see the current condition of the participants. The measurement of the participants' resilience level was carried out again after the online mindfulness-based cognitive therapy was given. Based on the results of the quantitative analysis using the Wilcoxon signed-rank nonparametric test, it was found that there was a significant difference between the pretest and posttest of the experimental group. The difference in the level of resilience in the experimental group can also be seen from the individual graphs and the participants' qualitative data results after receiving therapy. Based on the explanation above, it can be concluded that online mindfulness-based cognitive therapy has an influence on increasing the resilience of the Covid-19 patients.

Based on the screening and pretest results, it appears that the participants in the study are categorized into low to moderate resilience. It is evidenced by the resilience scale and participants' stories while joining therapy and from their diaries. The feelings, thoughts, and behaviors that emerge from the participants are that they often feel sad, anxious, nervous, easily tired, pessimistic about their recovery, losing interest and pleasure, blaming the situation, experiencing asphyxia, sleep disturbances, and so forth. The behaviors are among the symptoms of people who have low levels of resilience.

Resilience is a personal quality that develops when facing difficulties in life. The basic concepts of resilience in individuals are acceptance and the ability to face and transform the difficulties in the past, future, and current life. Resilience is also related to various multidimensional processes among the interactions of various factors such as biological, cognitive, interpersonal, and contextual (Surzykiewicz et al., 2019). The Covid-19 patients experiencing low resilience will look sad, unhappy, complain a lot, get irritated and angry easily. The Covid-19 patients with low resilience often feel that no one cares and loves them. The patients sometimes feel empty, numb, and complain of pain that actually does not exist (Nurjanah, 2020).

The online mindfulness-based cognitive therapy consists of six sessions with four online meetings, in which each meeting provides participants with specific knowledge and skills. The *first* session in the online mindfulness-based cognitive therapy program is a mindful eating session, in which participants are taught to raise

awareness when touching and enjoying food. In the *second* session, there is a mindful breathing practice, in which participants are taught to be aware and observe every breath that goes in and out by understanding and realizing reactions from thoughts that arise from pleasant or unpleasant experiences as well as giving more attention to the body. In session *three*, there is a mindful walking practice and 3-minutes breathing; in this session, participants are taught to have awareness in connecting themselves to the moment they are currently experiencing. In session *four*, there is a mindful breathing practice, in which participants are taught to be aware of and observe every breath that goes in and out by understanding and realizing the reactions of thoughts that arise from pleasant or unpleasant experiences and giving more attention to the body. In session *five*, there is a sitting practice (hearing and seeing), in which participants are taught to build skills to overcome problems patterns that arise through the MBCT technique. In the last session, which is session six, there is a body scan practice, in which participants are taught to strengthen their skills and knowledge of MBCT.

Through the online provision of MBCT as a psychological intervention, participants are taught to raise awareness of various body sensations, thoughts, and emotions and respond more adaptively to the emergence of negative emotional symptoms that trigger resilience levels in participants. Online MBCT also helps to reduce negative automatic thoughts and various dysfunctional behaviors (Kaviani et al., 2011). The five fundamental aspects of mindfulness, namely acting with awareness of the ability to observe, the ability to describe, non-reactive attitude and attitude without judgment that is taught and applied in MBCT, help the Covid-19 patients who have many cognitive distortions to be able to have more apparent awareness, so they can think non-reactive and non-judgmental on the overall experiences they have. Changes in a more adaptive mindset will affect emotional changes that become more positive, followed by more appropriate or adaptive behavioral responses.

The researchers' findings in the current study are that the online mindfulness-based cognitive therapy can also reduce the level of negative emotions of the participants, as can be seen from the significant pretest and posttest results. Furthermore, the online mindfulness-based cognitive therapy also seems to increase the participants' positive thoughts. It is based on the results of interviews with participants and diaries, which show that the subjects are more grateful, enjoy every activity they are doing, are not in a hurry, and feel inner peace when facing problems.

CONCLUSION

The study's result indicates a significant increase in resilience scores after being given the intervention. It means that the hypothesis proposed in the research "*Online Mindfulness-based cognitive therapy through a cyberpsychology approach can increase resilience in COVID-19*" is accepted. Additionally, a significant increase in mind-

fulness conditions significantly affects resilience scores and decreasing negative emotional scores in the Covid-19 patients.

SUGGESTION

Participants of the current study are expected to continue practicing the online MBCT exercises independently and consistently. In addition, participants' families and closest relatives are expected to help and psychologically assist the Covid-19 patients by providing a special room for the Covid-19 patients to practice the online MBCT. Lastly, further researchers are advised to include more sharing sessions, choosing facilitators who are experienced in the field of mindfulness-based cognitive therapy, have good micro-skills, and can arrange pre-sessions before starting the intervention program or process.

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