

# Online-Based MBSR Group Intervention to Reduce Anxiety and Perceived Stress in Scholars Who Work on Undergraduate Thesis

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## Abstract

Scholars who work on undergraduate thesis are prone to experience anxiety. In addition, the perceived stress of scholars to be able to complete the project is an influential factor in increasing anxiety symptoms in scholars who are working on their thesis. The present study aims to explore the effectiveness of a five-week online-based group intervention using Mindfulness-Based Stress Reduction in reducing anxiety and perceived stress of scholars who work on undergraduate thesis. The study was a pre- and post-test experimental design in which participants were tested for psychological parameters, both before and after the intervention. Participants were divided into 2 groups, treatment and control which consists of eight scholars (seven females and one male). Online intervention consisted of 5 sessions which lasted about 150-200 minutes on each session. Generalized Anxiety Disorder - 7 (GAD-7) and Perceived Stress Scale-10 (PSS-10) was used to measure anxiety and perceived stress, respectively. Statistical analysis indicated that online-based MBSR was not significantly effective in reducing anxiety and perceived stress. However, a trend of positive improvement was observed, indicating the potential benefits of MBSR for reducing anxiety symptoms in scholars who are working on their thesis. Limitations of this study are explained in the discussion section.

**Keywords:** *Anxiety, online interventions, mindfulness, perceived stress*

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## Introduction

Undergraduate thesis is a part of final assignment which would indicate scholars' competence in conducting research. Thus, scholars are expected to be able to sharpen their problem-solving, communication, and competence skills to work independently during the process of writing undergraduate thesis (Sulandari et al., 2020). Although writing a thesis provides an opportunity for scholars to apply the knowledge they have learned in the context of research, on the other hand, the process can also affect their psychological conditions. One of the problems that usually arise is proneness to experiencing symptoms of anxiety (Suryawati, Purwaningrum, & Susilo, 2020).

According to Varma, Junge, Meaklim & Jackson (2021) Undergraduate scholars, who are generally in the adolescence phase, are prone to experiencing increased symptoms of anxiety and depression (Santrock, 2019;). Strongman (1995) explains that uncertainty about what will be experienced by individuals is the main trigger for the emergence of anxiety. In addition, perceived stress about their ability to complete the degree has an influential factor in increasing anxiety symptoms in scholars working on the thesis (Sulandari et al., 2020; Gori & Kustanti, 2018). Perceived stress is a feeling or thought that a person has about how much stress they experience at a certain point in time or over a certain period of time (Cohen, Kamarck, & Mermelstein, 1983). Syarofi and Muniroh's research found that there was stress or feelings of pressure and burden felt by scholars in the process of working on their thesis (2019).

Individuals who experienced anxiety tend to dwell in the past and worry about the future at the same time (Craske et al., 2010). There are several impacts that potentially happen if anxiety cannot be managed properly by scholars who are working on their thesis. The first impact is that it can lead to demotivation, which could create a cycle of procrastination, guilt, whilst worsening the anxiety (Hariwijaya & Triton, 2005). According to the American Psychological Associations (APA) anxiety that arises can also trigger individuals to avoid situations that can lead to the feeling itself. It has the potential to worsen the symptoms they feel. These conditions will also get worse when it affects individual functioning in terms of work productivity, academic performance, and social functions (APA, 2013). On an extreme level, anxiety that is not managed properly can sometimes cause death in scholars (Dewi, 2020). This is because one of the most common comorbidities found in individuals with anxiety symptoms is depression. About 60% of those who experience anxiety will also have symptoms of depression, and *vice versa* (Salcedo, 2018). Previous studies have also shown that the process of writing undergraduate thesis can affect stress, depression, fear, anxiety, insomnia, burnout, and could affect daily functioning in scholars (Permatasari, Arifin, & Padilah in Suryawati, Purwaningrum, & Susilo, 2020).

During adolescence's developmental stage, individuals tend to experience anxiety about their future due to instability in their life domains (Santrock, 2019). This means anxiety is part of undergraduate scholars' common nature. In fact, a certain level of anxiety could lead to something positive had the

individuals been able to deal with it, as the ability to manage anxiety has the potential to make individuals learn to self-regulate (Bowlby, 1973). The skill itself could be learned with the help of psychotherapies. Research has shown, there are some psychological interventions which aim at helping anxiety management (Barlow, 2002; Arch, et.al., 2012; Abramowitz, Jonathan & Blakey, 2020). However, most of it has some drawbacks. It often focuses on stress management and coping strategies, preventing anxiety, or preventing the negative impacts in someone who has experienced anxiety (Saman, Farida & Bakhtiar, 2017; Kalin, 2020). There is a need for study related to other approaches that target the root of the anxiety, the symptoms of anxiety itself, and the impact caused by the anxiety felt by scholars.

To answer the needs of research mentioned above, this study will use the Mindfulness-Based Stress Reduction (MBSR) as an intervention approach (Kabat-Zinn, 2003). MBSR therapy was found to be an effective modality in reducing anxiety symptoms (Kabat-Zinn, 1990). This is due to increased activation in the left hemisphere of the brain associated with positive affect and decreased anxiety when practicing mindfulness exercises. This can be explained by the mechanism of MBSR therapy which has an impact on reducing the root of anxiety through the transfer of awareness to the present (Hazlett-Stevens, 2012). It is discussed earlier that anticipating potential future dangers, and ruminating through the past is a major feature of anxiety (Craske et al., 2010). Thus, by shifting awareness to the present, an individual can prevent further increases of anxiety. In MBSR Therapy, individuals are guided to adopt a mindful and non-judgmental attitude toward thoughts and feelings experienced in the present, even if they are negative and unpleasant (Teasdale, Segal & Williams 1995). Mindfulness practice teaches a person a way to perceive thoughts and feelings associated with anxiety as an internal experience that is temporary and not a permanent part of himself. The individual will be able to face his internal experiences with a positive and adaptive attitude, namely by allowing every thought and feeling to come and go as it is (Kabat-Zinn, 1990). Thus, MBSR psychotherapy is believed to be effective in helping an individual regulate his feelings of anxiety adaptively.

MBSR intervention also has positive impacts in improving individual abilities, psychological well-being, and reducing various psychopathological symptoms, such as perceived stress, mood disorders, negative affect, and repetitive negative thinking while enhancing psychological well being at the same

time (Gu, Strauss, Bond, & Cavanagh, 2015; Nyklíček & Kuijpers, 2008). Apart from that, it improves overall mental health (Brown, Ryan, & Creswell, 2007). A mindfulness-based approach has been shown to emphasize intrinsically meaningful therapeutic goals identified by the patient and experiential-based exercises to practice skills related to relevant psychological complaints (Abramowitz, Jonathan & Blakey, 2020). In a meta-analysis, MBSR therapy was found to have superior efficacy for treating anxiety symptoms in adolescence population (Zhou et al., 2020). This therapeutic modality was also found to be effective in reducing anxiety levels in college students. (Juil et al., 2021; McVeigh et al., 2021). Then in a longitudinal study by Dundas, Thorsheim, Hjeltnes, and Binder (2016), MBSR therapy was also found to be effective in overcoming students' anxiety about academic evaluation in lectures.

Recent studies have shown the effectiveness of mindfulness-based approaches in clinical settings. Additionally, MBSR is also shown to be effective when conducted in group settings (Newsome, Waldo, & Gruszka, 2012; Zhang et al., 2021). Therapy in a group format can bring up factors that can support the emergence of self-expectation, self-acceptance, the need to also help others, and feelings of togetherness in the group. In addition, with the presence of other people as group members, individuals can also gain insight from other group members through the modeling process and interaction with other group members (Brabender, Smolar, & Fallon, 2004).

Despite the positive outcomes regarding MBSR, implementation is limited by variable geographic provision, ability to travel, and the need for remote service delivery during the coronavirus disease 2019 (COVID-19) crisis. Integration with Internet-enabled technologies like videoconferencing could potentially enhance access to the future of mental health interventions. A systematic review conducted by Moulton-Perkins et al, (2022) found that Mindfulness-Based Cognitive Therapy (MBCT) and Mindfulness-Based Stress Reduction (MBSR) via online video conference are feasible and acceptable in non clinical settings. However there are still some limitations as they are in lack of data in clinical populations.

Based on the description of the background stated earlier, this study aims to determine the effectiveness of online MBSR group therapy to reduce anxiety symptoms in scholars who are

working on their thesis. In addition to anxiety symptoms, this group intervention also aims to determine the effectiveness of MBSR therapy on perceived stress. MBSR therapy will be carried out in a group format through online video conferences to see the feasibility of the therapy in order to enhance access to the future of mental health interventions, especially after the current pandemic condition. Thus, could benefit as an additional insight for researchers and clinicians who had a common interest in online MBSR group psychotherapy.

## **Method**

### *Design*

This study uses an experimental research approach, using randomized within-between group design with follow-up. The groups were randomized and divided into two (experimental and control). Experimental group received online MBSR intervention, while the control group did not get any intervention at all. Repeated measurements were carried out to see changes which occurred in each group (intervention group and control group). The measurements taken were: before the intervention (pre-test), after the intervention (post-test), and 4 weeks after the intervention (follow-up).

### *Participants*

The designed study was followed by undergraduate scholars who are experiencing symptoms of anxiety while working on their thesis, with the following characteristics: Minimum age 18 - 25 years (adolescence), Has a moderate to high level of anxiety, Has no full time job, and Has not yet married. The number of research participants recruited are 16 people. Participants were divided into 2 groups (experiment and control) which consisted of 8 scholars (seven females and one male). The following table contains participants' information:

Table 1  
*Participants Information*

Group	Gender	N	Age	N	Domicile	N	Faculty	N	Semester	N
Experiment										
	Male	1	21	5	Java	6	Science and Technology	1	6	1
	Female	7	22	2	Sumatera	2	Social and Humanities	7	8	6
			23	1					10	1
Control										
	Male	1	21	3	Java	7	Science and Technology	1	6	2
	Female	7	22	5	Sumatera	1	Social and Humanities	7	8	6

All participants were each given a written informed consent, which guarantees privacy and confidentiality for all data obtained throughout the intervention process. The informed consent also ensures that participants are allowed to retract their agreement to participate, and retreat from the intervention had they feel uncomfortable, with notice to the therapist.

#### *Procedure*

Before conducting the research, participants were recruited via online posters spread through social media platforms such as: *instagram*, *whatsapp*, *twitter*, and *facebook*. Researchers will recruit participants based on their willingness to participate in the intervention for 5 sessions, and the follow-up measurement one month after the last session completed. Interested participants are motivated to access a link directing to an online-based form. The link provides a demographic screening form, as well as the GAD-7 instrument. Eligible participants with a score of GAD-7  $\geq 10$  (moderate cut-off) then randomized and divided into 2 groups (treatment and control). Both groups are equally distributed. They were contacted to ask their willingness to become research participants and fill

out informed consent.

As mentioned earlier, the participants in the intervention group received 5 sessions of online group MBSR therapy which were held once a week. Each session will last approximately 150-200 minutes. In addition to the 5 sessions, there will be a pre-session meeting one week before the first session and a follow-up session the next month after the last intervention session. All of the sessions will be conducted online through the *Zoom Meeting* application. Both groups will have to fill out online-based forms consisting of pretest, posttest, and follow up screening. The pre-test screening was taken during the pre-session, post-test taken during the fifth session, as well as, follow-up during the follow-up session. Participants in the control group did not get any treatment, instead they were rewarded with the access of a digital MBSR module after filling the follow-up test. The procedures of the experiment were explained in Figure 1 as follows:

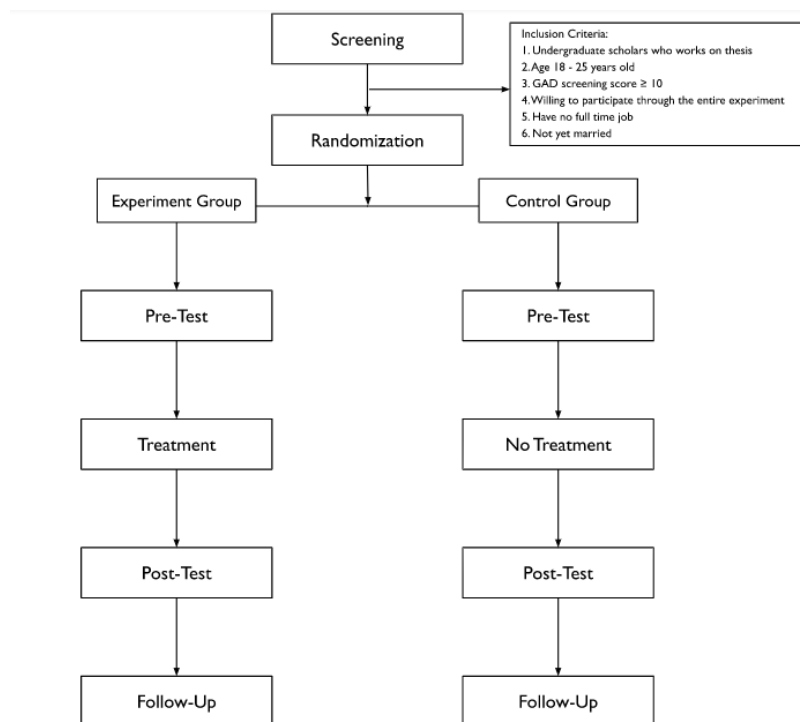


Figure 1. The experiment procedures

### *Measurement*

Anxiety was measured using the Generalized Anxiety Disorder - 7 (GAD-7) developed by Spitzer et al. (2006). It aimed to measure the symptoms of generalized anxiety disorder in the last 2 weeks. Participants filled in the measuring instrument items by choosing one answer option from a four-point Likert scale, namely “Not at all”, “A few days”, “More than half the time referred to”, and “Almost every day”. An example of a statement from one of the items is “It is difficult to relax”. The total score is obtained from adding up all the answer choices. The score range is 0-21.

In addition to anxiety, we measured perceived stress as a secondary outcome using Perceived Stress Scale-10 (PSS-10). The Perceived Stress Scale (PSS) is a stress assessment instrument that helps understand how different situations affect feelings and perceived stress. This instrument was developed by Cohen, Kamarck, and Mermelstein (1983). The specified time period is the last two weeks in this study. Participants will be asked to indicate how often they feel or think in a certain way by choosing one answer option from a five-point Likert scale, namely “Never”, “Almost Never”, “Sometimes”, “Quite often”, and “Very often”. The score range is 0-40. The PSS-10 instrument has been adapted into Indonesian language by Yuniaty (2019). This instrument has gone through professional judgment and has a validity coefficient of 0.460 - 0.780 (adequate-satisfactory) so that it has good content validity and internal validity. This instrument also has a good reliability coefficient with Cronbach's Alpha coefficient value of 0.830.

Qualitative assessment was obtained through manipulation checks and one-on-one interviews during the follow-up session. Manipulation check was conducted to find out whether the research participants followed and understood the instructions in the given intervention. This is so that the researcher can ensure that the instructions and interventions are well received by the participants so that if there is a change that occurs in the measured variable, the change is attributed as the impact of the intervention that has been given. Manipulation checks were carried out at the end of each session using an online-based form.



Some examples of questions used as manipulation checks in this study include:

1. "What instructions did the facilitator give you?"
2. "What is it that you are asked to do during today's session?"
3. "Can you name at least 3 things that you gain after going through this session?"
4. True/false choice questions based on the material discussed in the session

### *Data Analysis*

Data analysis used within-between repeated measures ANOVA technique. This method was used to see changes in scores on the same variable in different periods, namely pre-test, post-test, and follow-up to see the effectiveness of MBSR in reducing anxiety. Statistical analysis of the numerical data obtained in this study will be carried out using JASP 0.14.0.0.

### **Result**

Within-between repeated measures ANOVA were taken to compare the intervention results further. Table 2. shows that there are no significant interactions within and between groups. This indicates online MBSR group therapy was not significantly effective in reducing the participant's anxiety and stress levels.

Even though it seems not significantly effective, according to Table 3, the statistical analysis shows that there are positive trends on lowering anxiety and stress levels in the experiment group using online MBSR psychotherapy. The result shows no significant interaction due to the same result which goes to the control group. This indicates the control group members are also able to maintain their anxiety and stress level without any intervention.

Table 2

Results of Repeated Measures ANOVA for Pre- and Post-Test Scores

Variable	Cases	df	F	p	$\eta^2$	$\eta^2p$
<i>Between Subject</i>						
GAD	Groups	1	4.08	0.06	0.09	0.22
PSS	Groups	1	1.56	0.23	0.04	0.10
<i>Within Subject</i>						
GAD	GAD	1	15.48	0.00	0.30	0.52
	GAD*Groups	1	0.24	0.63	0.00	0.02
PSS	PSS	1	8.22	0.01	0.20	0.37
	PSS*Groups	1	0.66	0.43	0.02	0.04

Table 3

Comparison between Pre-test, Post-test Scores

Variable	Group	Pre-test		Post-test	
		M	SD	M	SD
GAD	Experiment	11.75	4.46	7.375	2.97
	Control	15.125	3.98	9.50	3.30
PSS	Experiment	25.875	7.75	18.5	4.78
	Control	26.875	5.92	22.75	4.13

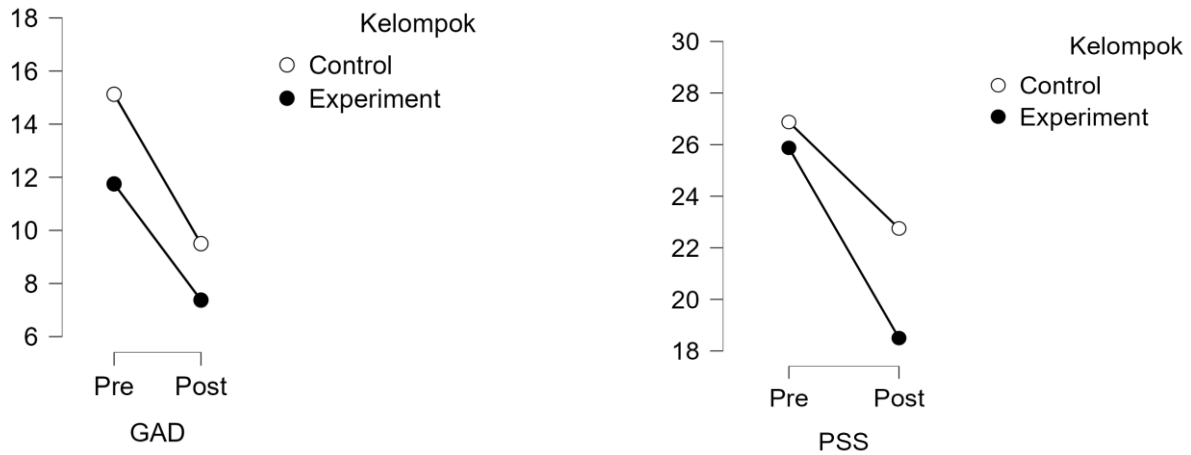


Figure 2. Plot Comparison between Pre-test and Post-test scores

Figure 2 describes the comparison between group control and experiment in terms of pre- and post-test scores further. The figures show that there is a slight difference between the experiment group and control group in terms of score improvement. However, the group that were given online MBSR therapy shows better improvement especially on PSS (Perceived stress) scores, which suggests that online MBSR group therapy is feasible and potentially beneficial to aid anxiety and perceived stress.

#### Follow-up Session

One month after the last intervention session ended, a follow-up session was conducted. The level of anxiety and perceived stress were measured again in both groups (control and experiment). The results obtained from the follow-up assessments were compared with the pre- and post-test results using statistical analysis. Results showed that there are no interactions between and within the experiment group and control group, which indicates MBSR online intervention might be efficient on reducing anxiety and stress in a short term period of time. Further details on the comparison explained on Table 4, Table 5 and Figure 3 below:

Table 4

Comparison between Pre-test, Post-test, and 1 months Follow-up Scores

Variable	Group	Pre-test		Post-test		Follow-up	
		M	SD	M	SD	M	SD
GAD	Experiment	11.75	4.46	7.37	2.97	8.00	3.74
	Control	15.125	3.98	9.50	3.30	9.88	4.12
PSS	Experiment	25.875	7.75	18.5	4.78	19.87	6.96
	Control	26.875	5.92	22.75	4.13	23.37	7.48

According to Table 4 and Figure 3, statistical analysis shows a slightly increasing level of anxiety and stress on both the experiment group and control group after 1 month follow up. The experiment and control group members are able to maintain their GAD scores to the point below moderate anxiety cutoff (<10) after post-test and follow-up periods. In spite of the experiment and control group slight differences, the group which was given online MBSR interventions showed better improvement in PSS scores.

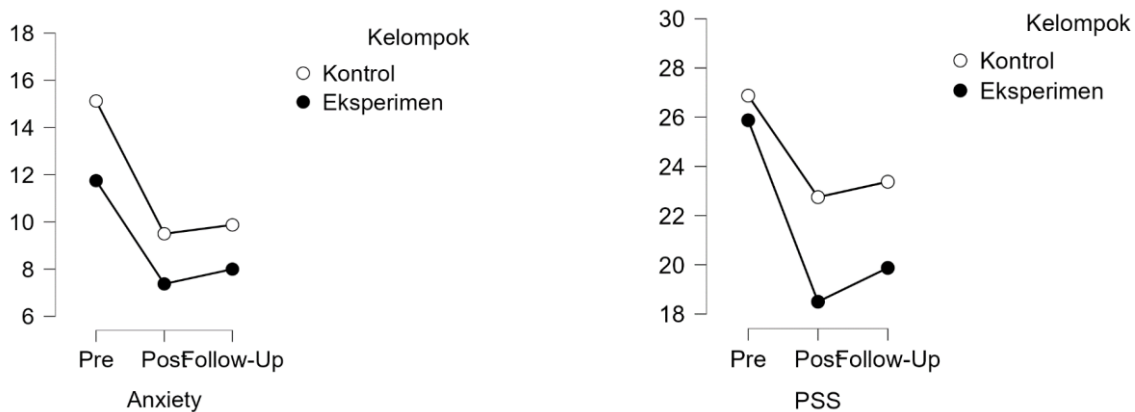


Figure 3. Plot Comparison between Pre-test, Post-test, and Follow-up scores

Figure 3 shows how both groups were in almost similar PSS score range during pre-test but ended up differently during post-test and follow up test which indicates more promising effectiveness on giving the online MBSR interventions to participants compared to the ones which did not get any intervention.

Table 5

Results of Repeated Measures ANOVA for Pre-test, Post-test, and Follow-up Scores

Variable	Cases	df	F	p	$\eta^2$	$\eta^2p$
<i>Between Subject</i>						
GAD	Groups	1	3.60	0.08	0.08	0.20
PSS	Groups	1	1.56	0.23	0.04	0.10
<i>Within Subject</i>						
GAD	GAD	2	10.50	<0.00	0.26	0.43
	GAD*Groups	2	0.22	0.80	0.01	0.02
PSS	PSS	2	4.33	0.02	0.14	0.24
	PSS*Groups	2	0.33	0.72	0.01	0.02

Table 5 shows that there is a significant difference on GAD scores within the subject, but there are no significant interactions between group and within PSS scores. This is due to the same positive result on the control group. The parallel comparison makes no interaction between groups. It was mentioned earlier that the online interventions also resulted in positive trends in lowering participant's anxiety and stress levels. Thus, the result suggests that online MBSR group therapy is feasible and potentially beneficial to aid anxiety and perceived stress in adolescents who are working on their undergraduate thesis.

## Discussion

This study shows that online group intervention using Mindfulness-Based Stress Reduction can reduce the level of anxiety symptoms in scholars who are working on their undergraduate thesis. However, through statistical analysis, it was found that this decrease was not significant when compared to the control group as the control group also showed a trend of positive improvement despite no intervention given earlier. One of the reasons might be because the experiment was held nearly at the end of Indonesia's university academic term which usually occurs around July-August and January-February (Nurfuadah, 2015). It is assumed that during the time of taking post-test and follow up measurements, some of the control group members might have finished their thesis writing, thus the source of their anxiety has been decreased due to the completion of the study. It was also confirmed through follow up interviews with the control group participants. Four out of 8 control participants had managed to submit their undergraduate thesis several weeks before the post-test period took place. Meanwhile none of the experiment group members submit their undergraduate thesis on the current academic year. Anxiety is a basic human emotion consisting of fear and uncertainty that typically appears when an individual perceives an event as being a threat to the ego or self esteem (Harris & Coy, 2003). For current research participants, the event perceived to be stressful is related to their completion of study, namely writing a thesis paper. Evaluation is a common area of stress for scholars which is inevitable. Presenting their thesis in a proper manner may provide academic recognition and prospective career opportunities, but may also represent a threatening situation (Dundas, Thorsheim, Hjeltnes, & Binder, 2016). The perceived stressful event then resulted in increased levels of anxiety. When they are able to finish the thesis writing, the individual's anxiety levels will subside as the event which is perceived uncertain now has become certain for them. Aside from the parallel result from both groups (experiment and control), type of statistical analysis might as well contribute to insignificant results in the current study. According to Huck & McLean (1975) Repeated measures ANOVA was shown to provide potentially confusing results when applied to pre-test-post-test designs involving two or more groups of subjects as it can easily be misinterpreted. This has also become a limitation to this study. Future researchers are advised to use covariance analysis in this type of study.

Statistical analysis shows a slightly increasing level of anxiety and stress on both the experiment group and control group after 1 month follow-up. This finding infer MBSR online intervention might be efficient on reducing anxiety and stress in a short term period of time. This possibly due to external factors which influenced participants' psychological condition. During individual interviews after the follow-up assessment, some of the experiment group members shared that there are other factors which influenced their psychological states for the past week, which includes conflicts with family members, the pandemic and its effect on the family member's health conditions as well as financial states, and many others. One participant had a history of abusive romantic relationship with one of her classmates which she recently met and triggered traumatic anxiety responses in her. Despite the circumstances, all of the experiment group members had started to use mindfulness techniques to cope with their stressor at most times. The technique introduced during sessions gives a very meaningful impression in most of the participants. Undergraduate scholars are prone to experience anxiety due to perceived stress. Based on theoretical reviews, many factors contribute to stress in individuals, such as: financial conditions, health, love life, relationships with friends, and relationships with family members (Karyotaki et al., 2020). In Santrock (2019) it is stated that, facing responsibilities prior completion of studies can be a source of stress for undergraduate scholars as they will experience an increased focus on academic achievements and assessments that can trigger the development of psychological issues. In a survey conducted on 483 university students, 72.9% showed symptoms of psychological distress, 86.3% showed symptoms of anxiety, and 79.3% showed symptoms of depression (Saleh, Camart, & Romo, 2017).

The current study also examined the application of online group MBSR therapy in reducing the participants' perceived stress. Results showed that there are decreased scores in general across participants in the pre-test and post-test measurements. This however was not statistically significant due to the same conditions compared to the control group. Even so, the result shows how both groups were in almost similar PSS score range during pre-test but ended up differently during post-test and follow-up test which indicates more promising effectiveness on giving the online MBSR interventions to participants compared to the ones which did not get any intervention. According to Whittaker (2015) individuals may experience

similar negative life events but rate their impact or severity to different degrees as a result of various factors such as personality, coping strategies, and support. Thus, mindfulness as a coping strategy might help scholars perceive their current hardship in a more positive manner.

The finding indicated that both group members are able to maintain their GAD scores to the point below moderate anxiety cut off (<10) after post-test and follow-up periods. In spite of the experiment and control group slight differences, the group which was given online MBSR interventions showed better improvement in PSS scores. It shows a great potential of online MBSR intervention towards helping people who are dealing with anxiety and stress. Using MBSR, participants are invited to eradicate anxiety from its root, namely perceived stress using mindfulness techniques as an adaptive effort. This in line with the fact that undergraduate scholars often use maladaptive coping strategies and lifestyle habits that may serve to exacerbate the effects of stress, and that there is a need for interventions that promote more adaptive forms of coping with stress among them (Bland, Melton, Welle, and Bigam, 2012).

MBSR group psychotherapy has been found to be effective in helping an individual regulate his feelings of anxiety in an adaptive manner (Goldin & Gross, 2010). Using MBSR psychotherapy, individuals are guided to adopt a mindful and non-judgmental attitude toward thoughts and feelings experienced in the present, even if they are negative and unpleasant (Teasdale, Segal & Williams 1995). Mindfulness practice teaches a person a way to perceive thoughts and feelings associated with anxiety as an internal experience that is temporary and not a permanent part of himself. In a meta-analysis study by Zhou et al. (2020), MBSR therapy was found to have superior efficacy for treating anxiety symptoms in the adolescent population.

Although so far there has been no research that has revealed the effect of MBSR therapy on anxiety in the population of adolescence scholars who works on undergraduate theses, there are several studies that have found that MBSR group therapy is effective in reducing anxiety levels in scholars majoring in nursing and teacher education (Juul et al., 2021; McVeigh et al., 2021). In a longitudinal study by Dundas, Thorsheim, Hjeltnes and Binder (2016), MBSR therapy was also found to be effective in overcoming scholar's anxiety about academic evaluation. Aside from its effectiveness on reducing anxiety level, MBSR group psychotherapy



also shows promising results on reducing perceived stress. This in line with Newsome, Waldo, and Gruszka (2012) as well as, Kabat-Zinn et al. (1992) that mindfulness in group therapy can directly influence group members' perceptions of their stress through mindful interactions among group members.

Research has consistently indicated that structured applications of mindfulness practice have been associated with the advancement of overall health and well-being (Gotink et al., 2015). Mindfulness not only involves being consciously attentive to present experience but the objective acceptance of external forces and internal reactions (Kabat-Zinn, 2012). Mindfulness could promote resilience which helps individuals cope better with stressful life events (Jha, Morrison, Parker, & Stanley, 2017). It's also one of the key factors to survive transitional developmental tasks during adolescence. Hence, mindfulness would be a powerful tool to help undergraduate scholars survive during their transitional phase when applied consistently.

Given these positive trends and findings, it shows a promising result of online application of MBSR psychotherapy in reducing anxiety and stress level. This will enhance the opportunity of mental health scopes and application, especially in areas that have little or no adequate mental health facilities nearby. This then would potentially benefit countries which still lack equitable distribution of facilities and infrastructure, such as in Indonesia, or those with minimal access to mental health facilities especially during pandemic. The positive effects of this study's online-MBSR program are consistent with numerous studies conducted before and after pandemic in many different developing countries (Moulton-Perkins et al., 2020; Behan, 2020; Hg, 2020; Polizzi et al., 2020; Vatansever et al., 2021; Castellano, & Tarasenko, 2022). Crises such as the COVID-19 pandemic have shown that change is the only constant and online mindfulness practice can offer a helpful way to strive according to Behan (2020). Thus, the need for online psychological intervention to mitigate current global crises has created this new approach and opens a new door for the modern psychological intervention applications.

There are several limitations in this study that warrant further consideration. First, as mentioned earlier, the study conducted nearly by the end of academic term in most of the

universities in Indonesia. However, a slightly higher trend of positive improvement was observed in this study, as shown by overall decreased mean of anxiety in the experiment group. This trend may be further improved if the MBSR intervention were conducted during mid term of university's academic year, as well as in other clinical contexts and settings. Second, the participants of this study were mostly female, therefore there is a possibility of gender bias making it unable to compare the gender or generalize the result based on one male participant in this study. Third limitation is regarding the drawbacks of holding the group therapy online. As there are some participants who live in certain rural areas in Indonesia, which has a poor internet signal. There might be some times where they can't fully put their attention and focus throughout the session due to loss of connectivity or disconnected access to the internet in their areas. The last limitation is also regarding the online intervention in Indonesia, as Indonesia is the biggest archipelago country, which consists of diverse cultural backgrounds as well as native languages. Even though they still have a good understanding of the Indonesian language, Some of the participants felt reluctant to actively share their experiences due to feeling embarrassed to speak in Indonesian language as they were not used to using the language in their daily conversations. For future research, It may be beneficial to obtain participants from other clinical population groups, to establish the efficacy of online group MBSR therapy for reducing anxiety.

## **Conclusion**

The study aims to determine the effectiveness of online MBSR group therapy to reduce anxiety symptoms in scholars who are working on their undergraduate thesis. The result concluded that online MBSR group therapy was not significantly effective in reducing the participant's anxiety levels. However, there was a trend of positive improvement observed in most of the scores. The result suggests that online MBSR group therapy is feasible and potentially beneficial to aid anxiety and perceived stress in adolescents who are working on their undergraduate thesis.

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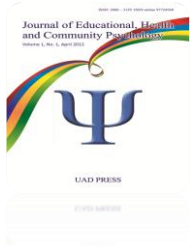
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