



Effect of mindfulness-based cognitive therapy on academic grit among university student

Rofiq Muhammad Rusadi¹ · Gian Sugiana Sugara¹ · Feida Noorlaila Isti'adah¹

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Abstract

Mindfulness based Cognitive therapy (MBCT) is generally considered to be the most effective psychological treatment for depression. There is no research to demonstrate that Mindfulness based cognitive therapy in to the treatment of academic grit. The present pilot study aimed to examine efficacy MBCT to improve academic grit, with a focus on mindfulness and cognitive technique which focuses more on experiential techniques into a group format. This new intervention for academic grit is described session-by-session. Experimental design with the one-group pretest-posttest design. Thirteen student with low score of grit participated in a six session MBCT in a group format. Pretest and posttest scores of academic grit consisting passion and perseverance were compared. Results demonstrated a significant to improve academic grit and dimension of passion and perseverance. A large effect size was found for the improvement. This confirmed the first hypothesis, that there would be a improvement in the level of grit score from pre- to post-intervention. The current study suggests that group MBCT might be an effective treatment for academic grit. However, our sample size was small and this was an uncontrolled study. Therefore, it is necessary to test this intervention in a randomized controlled trial with follow-up assessments.

Keywords Academic grit · Mindfulness based cognitive therapy · Clinical trial

Introduction

Learn in university is a new part of life for many individuals and their families, this period can be stressful because of the transitional nature of college life (Aspelmeier et al., 2012). Sources of stress include academics, feelings of loneliness, job hunting, family, life goals, social pressure, and physiology. Stress, specifically academic stress, can deplete students' levels of subjective well-being and cause lowered grades and dropped courses (Warren & Hale, 2020; Watson & Watson, 2016). Given the detrimental impact of stress on college students' academic and psychological functioning, examining

predictive factors of stress is important. Students who cannot cope with academic problems because do not have the capacity to cope, they do not have psychological flexibility or lack the ability to adapt their thoughts and emotions (Broderick & Metz, 2009). This condition can lead to academic failures that will have an impact on cognitive and behavioral reactions such as feeling anxiety, low confidence, and depression (Zenner et al., 2014).

Duckworth (2016) explains that the factors that influence student success in learning achievement are the consistency of passion and perseverance to achieve academic goals. When students have goals and commitments in learning, they tend to be able to face challenges in achieving academic success (Durlak et al., 2011; Singh & Duggal, 2008). Other non-cognitive factors are attributes or characteristics tied to motivation and adjustment of college students (Sedlacek, 2017). Grit and resilience are two non-cognitive factors that influence college student success and wellness (Strayhorn, 2014; Wolters & Hussain, 2015). Both are the main assets in completing academic studies. There are two obstacles in completing the study, namely internal factors including a lack of motivation and low ability to academic problems solving (Marcotte et al., 2005). Under certain conditions, students need other people to overcome their problems and if not

✉ Gian Sugiana Sugara
gian.sugiana@umtas.ac.id

Rofiq Muhammad Rusadi
rofiqmrusadi55@gmail.com

Feida Noorlaila Isti'adah
feida@umtas.ac.id

¹ Department of Guidance and Counseling, Faculty of Teacher Training and Education, Universitas Muhammadiyah Tasikmalaya, Jalan Tamansari Gobras, Tasikmalaya City, West Java, Indonesia

resolved, it will lead to burnout syndrome (Schreiner, 2017; Sugara et al., 2020). In that condition, it's necessary the develop grit in students, so that they are able to face challenges and achieve academic success.

Grit is defined as the consistency of passion and persistence for long-term goals (Duckworth et al., 2007). Grit is a new concept which, among the factors that drive individuals to be a success in academic life (Duckworth & Gross, 2014). Meanwhile, grit in the context of behavior is defined as “character assertiveness; persistent spirit”. It can be interpreted that grit is an aspect of personality that is characterized by an attempt to achieve a goal despite an obstacle or failure to achieve that goal. The academic problems experienced by students related to low grit make them easily give up on achieving their goals, especially in procrastination to completing final studies (Karaman et al., 2019). Students who have an attitude of giving up easily and have low persistence will lead to persistent beliefs and regard failure as a permanent thing that can hinder their success (Salles et al., 2014; Li et al., 2018). In contrast, individuals have a growth mindset that has a perspective that can help them to continue to develop despite facing various difficulties (Park et al., 2020). Growth mindset help student have a positive self-concept, an unyielding and optimistic attitude (Jin & Kim, 2017; Pryiomka, 2018; Waring et al., 2019).

Numerous studies have studied the relationships between healthy thinking and social-emotional constructs (Filippello et al., 2014; Jibeen, 2013; Nielsen & Kaszniak, 2006). According to Kabat-Zinn (2003), healthy thought is a prerequisite for demonstrating tolerance for frustration, commitment, self-direction, acceptance, and social interest, among other helpful and desirable values or goals of mindfulness. Segal, Williams, and Teasdale (2002) have suggested that mindfulness reduces depression and facilitates positive traits or attributes such as grit and resilience. Therefore, students who demonstrate grit in college may operate from positive self-talk and healthy emotion (Fresco et al., 2011; Pantaleno & Sisti, 2018).

Mindfulness is originally rooted in Eastern culture and can be defined as non-judgmental attention in a certain way; namely, paying attention to purpose, and live in the present moment (Kabat-Zinn, 1990). Mindfulness-based cognitive therapy (MBCT) initially was developed to prevent relapse in people diagnosed with recurrent major depression (Ma & Teasdale, 2004; Segal et al., 2002). It is a manualized group skills training program consisting of 8 weekly sessions of approximately 2.5 h duration. MBCT integrates elements of cognitive-behavioral therapy (CBT) for depression (Beck et al., 1979) into the mindfulness-based stress reduction training program developed by Kabat-Zinn (1990). MBCT is a new approach in counseling that can help understand and learn to recognize thought patterns and feelings to create new and more effective patterns. Meta-analyses demonstrate

the efficacy of Mindfulness-Based Cognitive Therapy (MBCT) across a broad range of outcomes in counseling, including reducing stress, reducing depressive symptoms, and reducing the risk of relapse in recurrent depression (Chiesa & Serretti, 2009; Hofmann et al., 2010; Piet & Hougaard, 2011). There is also emerging literature supporting the efficacy of MBCT in the treatment of positive behavior, such as academic achievement (Maynard et al., 2017), enhancing resilience (Esmailian et al., 2018; Semple et al., 2010), psychological health and well-being (Collard et al., 2008; Keng, Smoski, & Robins, 2011; Querstret et al., 2020).

There is no research to demonstrate that Mindfulness-based cognitive therapy into the treatment of academic grit. The mindfulness approach views academic grit characterized as achieve equanimity or openness instead of impulsive emotional avoidance and impulsive behavioral reactions; nonjudgmental awareness, which is flexible thinking; intentional singular attention and a here-and-now orientation (Kabat-Zinn, 2003; Pantaleno & Sisti, 2018). In this study, we used a conceptual framework of Mindfulness-Based Cognitive Therapy for academic grit. The main aim of the study to describe the intervention and examine the efficacy of MBCT on academic grit consisting of passion and perseverance. Previous studies have shown that effect mindfulness has a positive impact on goal attainment and resilience (Crane et al., 2012, Crane et al., 2012). Our study focus on increased academic grit includes consistency of passion and perseverance to achieve the goal in academic completion. We conducted a study to seek evidence whether MBCT is effective to increase academic grit among students at university. It was hypothesized that participants in the MBCT group would show statistically significant improvement in academic grit levels.

Methods

Ethical Approval

Ethical approval was given by the University of Muhammadiyah Tasikmalaya. Informed written consent from prospective participants after explaining the research objectives to them and conforming to ethical standards for researching with human participants as determined by the American Psychological Association (2013).

Participants

The participants in the study were 13 students in their last year at the Faculty of Educational Sciences Universitas Muhammadiyah Tasikmalaya. They were all asked to complete a Student Grit Inventory. The eligibility criteria for selection in the active part of the research study itself required participants based on criteria, namely indicated in the category

of low grit levels after being measured and have experience failure in academic. Then, those participants were individually interviewed to ascertain their seriousness in participating in the counseling program. Among the 30 students who met the stated final criteria, 13 volunteered to participate in research and signed informed consents. Assignment to the experimental group was made randomly from the list of volunteering participants, their age-range was 19–21 years, with a mean age of 19.4 years.

Procedure

Initially, the researchers conducted initial measurements for all 192 students ($N = 192$) to obtain an overview of the level of grit experienced by students before choosing subjects to be given intervention. After getting an overview of the results of the initial measurement scores that were made regarding the level of student grit, 13 participants ($N = 13$) who experienced low grit levels were willing to participate in the counseling session. Furthermore, the selected subjects were scheduled individually to follow the measurements in the pretest. After getting pretest data, the selected subjects were given MBCT intervention.

The intervention stage was carried out for 6 sessions with 1 meeting each week. The procedure used in the implementation of the intervention session is based on the protocol contained in mindfulness-based cognitive therapy. Implementation of face-to-face counseling interventions ranges from 60 to 90 min. In each session, there is an evaluation to review what has been done from the previous sessions to be more aware and generalize the interventions that are carried out in everyday life. Mindfulness-based cognitive therapy was carried out for 6 sessions based on Schwarze and Gerler Jr (2015) MBCT intervention which states that mindfulness-based cognitive therapy is carried out for one hour per session to allow more focused attention and training participants can be consolidated. MBCT intervention develops base on academic grit consisting of passion dimension namely focus and commitment on goals; perseverance dimension namely never giving up in achieving goals and hard work.

The posttest stage is carried out after completing the counseling intervention. Measurements were taken 3 weeks after the counseling intervention was carried out, this is done to measure the condition of the subject after attending a counseling session using mindfulness-based cognitive therapy. The measurement results after the intervention will be compared with the measurement results before being given intervention treatment so that can be seen the changes and effectiveness of the mindfulness-based cognitive therapy intervention in increasing grit.

Mindfulness-Based Cognitive Therapy Intervention

The procedures used in the implementation of mindfulness-based cognitive therapy are based on the concept of grit,

which is based on passion and perseverance (Duckworth, 2016). The intervention focuses on making thoughts, feelings, and body sensations more unidirectional, by organizing cognitive and seeking new cognitive patterns to improve grit (Kabat-Zinn, 1990; 2003; Kaviani et al., 2011; Segal et al., 2002; Pantaleno & Sisti, 2018; Fresco et al., 2011). There are 6 sessions of mindfulness-based cognitive therapy intervention for academic grit. The intervention was made to accommodate the research objectives.

Session 1 using mindfulness to get out of automatic thoughts that focus on attention orientation and techniques to develop high awareness at this time, meaning that in this session participants are asked to observe an object then observe automatic thoughts that always approached them and then refocused on what they were doing at that time. This means that participants can observe themselves and focus more on something they have started in any context. Session 2 focuses on the body to improve or identify the clarity of the mind, at this stage participants identify themselves and analyze what is happening to themselves and what they feel. It is hoped that after the participants do this they can focus their mind on what the body feels so that the bias is inline between thoughts and feelings. Session 3 introduces body scanning and breathing mediation exercises. At this stage, participants are expected to be able to manage themselves and minimize tension in themselves by managing the breath by not releasing the focus of the mind on what the body feels.

Session 4 acceptance of events, cognition, and emotions that are not self-judgmental, meaning that participants are able to accept the experiences they have, whether failures, difficulties, or sadness, by accepting them and focusing on the present and future. Hopefully, participants can continue in achieving the goals he wants. Session 5 “thoughts are not facts” is an educational session about cognitive-behavioral philosophy and its impact on emotions, at this stage participants are trained to manage the mind that everything that is said in the mind is not always true and not always wrong, what is needed is refocusing what they started and keep on living it. In this exercise, it is expected that participants can identify things they need to believe in their minds that will lead to action. Session 6 bringing all the exercises together then provides a summary of mindfulness-based cognitive therapy ideas and techniques, with suggestions on how to integrate the concept into daily activities. This means that the conclusion of the exercises that have been carried out at each meeting, and taking lessons and applying them to every activity carried out every day such as managing breath in response to tension, focusing on body, mind, and feelings, managing thoughts that are not always right or wrong, and at this final stage called “self-management for the future”.

The following is a schedule and sequence of contents for a mindfulness-based cognitive counseling session conducted for 6 weeks, which is presented in the following (Table 1):

Table 1 Schedule and sequence of session contents

Session	Theme	Goals	Activity
1	Using mindfulness to break out of automatic pilot	The client is able to identify and become aware of the automatic thoughts that cause loss of focus	<ul style="list-style-type: none"> • Orientation to mindfulness and MBCT • Counselors Explore problems related to low grit • Analyze and diagnose related wandering thoughts, resulting in behavioral beliefs raised by clients • Exercise body scan introduction and practice, • Assign homework: use body scan tape six times before next session, be mindful during a routine activity.
2	Focus on the body enhances clarity of the mind	The client is able to identify the body scan associated with thoughts and feelings	<ul style="list-style-type: none"> • Evaluating the previous session • Practicing breathing patterns then focusing on the body that feels tense as a result of being burdened with problems. • Provide an understanding of breathing patterns in minimizing tension. • House assignment (hand out)
3	Mindfulness of the breath	The client is able to focus on experiences with breathing techniques	<ul style="list-style-type: none"> • Evaluating the previous session • Using more mindfulness breathing techniques that are associated with imagining client experiences • Teach and provide an understanding to the client that not entirely problems, failures, disappointments are seen as bad things • Help the client identify what needs to be done in order to get past the barriers • The counselor asks the client to think about what he needs to do to be able to successfully achieve goals • Counselors ask clients to always focus on breathing techniques to focus on something • House assignment (hand out)
4	Acceptance	Clients are able to focus on hearing and self-acceptance by being involved in the moment	<ul style="list-style-type: none"> • Evaluating the changes that appear after passing the previous session • Using breathing techniques to focus on the moment without experiencing it • The counselor asks to refocus on sound as it occurs and move from one moment to the next. • Connecting with the grit theory in order to clearly understand the goals expected by clients • Provide home assignments (hand outs)
5	Thoughts are not facts	Client is able to know that “thoughts are not facts”	<ul style="list-style-type: none"> • Evaluating the changes that appear after passing the previous session • The counselor asks the client to discuss breathing space when unpleasant things come or wandering automatic thoughts come • Pay particular attention to the observation and recognition of thoughts as thoughts, to bring awareness to the client as separate mental events • The counselor uses the phrase “thoughts are not facts” to suggest that the client does not have to believe everything the client thinks or regard it as absolute truth. • The counselor provides reasons and discusses why the client should not rely on his thinking • Give home assignments
6	Putting it all together	Clients are able to look after themselves, and can develop a way of life with a focus mindfulness	<ul style="list-style-type: none"> • Evaluating the previous session • The counselor starts with confirmation on a body scan • The counselor takes time to look at self-management action plans • Counselors are actively involved with clients to discuss the counseling process that has been carried out. • The counselor asks the client about the experiences he had during the counseling session • Counselors explore related experiences gained during the counseling session • The counselor provides motivation and asks the client to remain committed to himself in order to pursue his goals without giving up

Measures

Measurement to determine the level of grit in research using the Student Grit Inventory (SGI) based on a theory that has been developed by Duckworth and Quinn (2009). This questionnaire is the main instrument used for data collection in this study. The Student Grit Inventory consisting of 24 statement items to assess the level of student grit and reveal the dimension of passion and perseverance. The Student Grit Inventory uses a Likert like with 5 type points for positive statement items, namely: (Very Like Me = 1, Not Like Me = 2, Somewhat Like Me = 3, Most Like Me = 4, Strongly Like Me = 5). As for the negative statement items, namely (Very Unlike Me = 5, Unlike Me = 4, Somewhat Like I = 3, Most Like Me = 2, Very Like Me = 1). Example item statement on SGI is “I am able to overcome obstacles in achieving goals”, “I gave up when faced with a task I wasn’t mastering”. SGI has shown good instrument internal consistency, $r = 0.737$ and retest reliability, $r = 0.851$ for 3 weeks. This shows that the level of reliability of the Student Grit Inventory (SGI) is at a high criterion, which means that this instrument is able to produce a consistent score and is suitable for use in research.

Statistical Analysis

This study was an uncontrolled within-subject pilot study. The Statistical Package for Social Sciences Version 25 program (SPSS 25) was used to analyze the data. The normality of continuous dependent variables was determined by the Kolmogorov-Smirnov test; SGI scores were normally distributed. Homogeneity of variance was determined using Levene’s test. Statistical significance was set at $p < 0.05$. A paired sample t-test was used to examine changes in grit scores from pre- to post-intervention. Effect sizes were calculated using Cohen’s d , where values of 0.2, 0.5, and 0.8 were considered as small, medium, and large, respectively (Cohen, 1992). To estimate the rates of clinically significant improvement, we computed the reliable change and clinically significant change. Reliable change (RC) was calculated as the difference between post and pretest divided by the standard error of change. An RC rate greater than 1.96, is considered as an improvement (Jacobson & Truax, 1991).

Results

Table 2 shows descriptive statistics regarding differences in the grit level of male and female students. The results showed the grit score for female ($M = 73.46$; $SD = 8.21$) is higher than a male ($M = 72.48$; $SD = 8.90$). Statistical analysis using the F Test shows that but there was no significant difference in grit score based on gender ($F = 0.59$, $p = 0.44$). The same finding was found that there was no significant difference in the

Table 2 Distribution academic grit based on gender

Parameter	Male		Female		f	P
	M	S.D.	M	S.D.		
Total Grit	72,48	8,89	73,46	8,21	0,59	0,44
Dimension Passion	35,51	4,48	36,44	4,29	2,02	0,16
Dimension Perseverance	36,97	5,11	37,02	4,98	0,005	0,94

M, mean; *SD*, standard deviation. *F* and *P*, Significance value from ANOVA test & significance value from t test

dimensions of passion ($F = 2.02$, $p = 0.16$) and perseverance ($F = 0.005$, $p = 0.94$).

A paired-samples t-test (Table 3) showed that there was a significant improvement ($M = 13.23$, $SD = 9.63$) in the scores of grit from pre-intervention ($M = 70.00$, $SD = 8.05$) to post-intervention ($M = 83.23$, $SD = 12.37$), $t(11) = 4.95$, $p < 0.001$. A large effect size ($d = 1.373$) was found for the improvement. This confirmed the first hypothesis, that there would be an improvement in the level of grit score from pre- to post-intervention.

As for passion dimension level (Table 3) showed that there was a significant improvement ($M = 6.30$, $SD = 5.20$) in the scores of grit from pre-intervention ($M = 35.23$, $SD = 4.22$) to post-intervention ($M = 41.53$, $SD = 6.00$), $t(11) = 4.37$, $p < 0.001$. A large effect size ($d = 1.212$) was found for the improvement. This confirmed that there would be an improvement in the level of passion dimension score from pre- to post-intervention. The same thing was found in the indicators of the passion dimension, which had an increase in the indicators of focus and commitment to goals.

The same finding was found for the dimension of perseverance (Table 3) showed that there was a significant improvement ($M = 6.93$, $SD = 5.07$) in the scores of grit from pre-intervention ($M = 34.76$, $SD = 4.24$) to post-intervention ($M = 41.69$, $SD = 6.60$), $t(11) = 4.97$, $p < 0.001$. A large effect size ($d = 1.378$) was found for the improvement. This confirmed that there would be an improvement in the level of perseverance dimension score from pre- to post-intervention. The same thing was found in the indicators of the perseverance dimension, which had an increase in the indicators of never give up and hard work. The data obtained can be a hope for future reference, because academic grit is the target of intervention to be more aware of changes in social skills and cognitive domains that appear to be related to social skills.

To estimate clinically significant rates, we calculated reliable changes, clinically significant changes, and limitations as suggested by Jacobson and Truax (1991) on the primary outcome measure. Reliable change (RC) was calculated as the difference between post and pretest divided by the standard error of change. The RC rate was greater than 1.96, as an improvement response (Jacobson & Truax, 1991). As can be

Table 3 Pretest and posttest comparison for the MBCT intervention

Scale	Pre-test		Post-test		t	Post Difference			d effect size
	M	SD	M	SD		Mean	95% CI	SD	
Total Grit	70.00	8.05	83.23	12.37	4.95	13.23	7.41 to 19.05	9.63	1.373
Passion	35.23	4.22	41.53	6.00	4.37	6.30	3.16 to 9.45	5.20	1.212
Focus on goals	16.3	2.13	19.3	2.92	4.35	3.00	1.49 to 4.50	2.48	1.208
Commitment	18.9	2.28	22.2	3.37	3.85	3.30	1.43 to 5.17	3.09	1.069
Preseverance	34.76	4.24	41.69	6.60	4.97	6.93	3.85 to 9.98	5.07	1.378
Never give up	15.90	2.81	19.2	3.05	3.34	3.30	1.15 to 5.46	3.56	0.927
Hard work	18.80	2.51	22.4	3.82	6.20	3.60	2.34 to 4.88	2.10	1.719

Observed Means (M) and Standard Deviations (SD) for the Pre and Post assessment points; results of t-test analyses (t, *p* value) and effect sizes Cohen's *d*. SGI = Student Grit Inventory

seen in Table 4, it was found that 10 out of 13 clients experienced changes in clinical significance after being given a mindfulness-based cognitive therapy intervention.

Discussion

Based on the results of the intervention on students, it shows that mindfulness-based cognitive therapy can significantly increase grit intensity. MBCT intervention process trained participants to be aware of themselves to be more mindful of cognitive and experiential through the exercises given. It's help participant to make a new cognitive pattern to determine academic completeness. Thus, participants not only learn how to take steps to change a low grit state to a positive state for academic achievement but also apply it to daily life and focus on achieving other long-term goals despite the obstacles and

obstacles they face (Pantaleo & Sisti, 2018). In line with the opinion, Lee and Sohn (2017) revealed that grit is the key to increasing the college graduation rate. Gritty individuals view achievement as a long process (Duckworth et al., 2007). One way to develop grit in a person can be done by changing the way of thinking and way of acting (Feldman, 2017). By developing a mindset, a person will be able to learn to be more persistent and resilient, so that he will see failure, adversity as a process towards improvement. Datu et al. (2019) reveals that the relationship between grit and the meaning of life can mediate life satisfaction, because individuals with high grit will be persistent and consistent with their passion in long-term goals, thus making them aware of the perceived meaning of life, then increasing satisfaction their life.

Grit and resilience show contribute and become an important factor to help academic success in college (Warren & Hale, 2020). Grit involves an element of purpose and represents a long-term commitment (Stoffel & Cain, 2018). While resilience does not involve these elements and generally places more emphasis on a person's ability to bounce back from negative or temporary suppressive experiences (Sturman & Zappala-Piemme, 2017). Other studies show that there is a positive correlation between grit and subjective well-being on students, high grit correlates with an increase in subjective well-being (Diener, 2009; Coolican, 2014). Students who have well-being will feel healthy, comfortable, happy, valuable, and prosperous so that they will tend to have a positive assessment of learning, prefer it, so they can learn effectively, and make a positive contribution to all aspects (Konu & Rimpelä, 2002; Shifren, 2009). Another finding shows that a positive relationship between grit and a growth mindset. This means that students with a growth mindset think that their intelligence and abilities are something that can change so that they are more diligent and focus on long-term learning and respect the efforts made (Mangels et al., 2006). They will also be better able to cope with tasks and be more motivated when experiencing challenging conditions (Dweck et al., 2014; Renaud-Dubé et al., 2015; Jach et al., 2018). This means that

Table 4 Within-participant changes for the MBCT intervention

Participants	Pre	Post	Change	RCI	CS
HA	72	86	14	4761	Y
PSF	76	89	13	4421	Y
VCA	61	73	12	4081	Y
SA	66	100	34	11,564	Y
DF	62	80	18	6122	Y
BA	76	104	28	9523	Y
SSF	70	79	9	3061	Y
AA	67	65	-2	0,680	N
MI	63	68	5	1700	N
MAZ	83	90	7	2380	Y
AT	57	69	12	4081	Y
AN	78	95	17	5782	Y
TR	79	84	5	1700	N

Pre and Post assessment points; RCI, Reliable Change Indeks; CS, Clinical Significance; Y, yes; N, no

students with a growth mindset will tend to have grit. By having a growth mindset, it can predict a high degree of autonomy in student learning motivation so that it has a positive impact on academic achievement (Eskreis-Winkler, Duckworth, Shulman, & Beal, 2014; Zhao et al., 2018), while grit predicts well-being through fulfilling the basic needs of autonomy and competence (Jin & Kim, 2017; Sheldon, 2012).

Studies show a positive relationship between grit and well-being (Datu et al., 2016). According to the results of his study, grit is positively related to well-being. The higher the grit score has, the higher the level of well-being they have (Disabato et al., 2019). This agrees with the findings on late adolescents and young adults in Istanbul Turkey, South Korea, and Jaipur India found that grit contributes to well-being (Akbag & Ümmet, 2017; Arya & Lal, 2018; Jin & Kim, 2017). People who have grit will be more able to achieve their goals and fulfill their needs or satisfaction so that they have higher well-being (Jin & Kim, 2017; Singh & Jha, 2008). Therefore, grit can become a character in students who help them overcome difficulties and crises they are experiencing (Arya & Lal, 2018).

Mindfulness-based cognitive therapy giving a personal awareness and attention in the present moment, this means that the implementation of the intervention carried out therein involves self-awareness in every situation (Kabat-Zinn, 1990; Crane et al., 2012b). Reinforcement regarding the parts contained in mindfulness, among others namely intention, which is something related to the importance of setting goals from doing meditation; attention namely observation of current events, internal and external experiences; and attitude, a way of doing mindfulness, that is, without doing a lot of evaluations or assessments, full of acceptance, kindness, openness even though what happens is beyond one's wishes (Shapiro et al., 2006). In the implementation of the intervention, clients or volunteers who have low grit are taught about intention, attention, and attitude.

The effectiveness of mindfulness-based cognitive therapy was marked by an increase in the student's grit level score, both in each aspect and indicator. This is reinforced by research (Crane et al., 2012a) in terms of what is stipulated in mindfulness-based cognitive therapy to help the individual to achieve life goals. It is related to how to achieve passion and perseverance to realizing a goal (Duckworth, 2016). The existence of passion which means that something is related to the importance of goal setting, and when juxtaposed with the grit aspect, it is related to the determination of long-term goals is in line with the effectiveness of the counseling carried out on the aspects of goal setting. Mindfulness-based cognitive therapy has been shown to help people reduce negative emotions such as stress (Collard et al., 2008). Apart from the low level of passion and perseverance, other factors can affect grit in an individual. These factors consist of interest, practice, purpose, and hope (Duckworth et al., 2007).

Mindfulness-based cognitive therapy approach help to understand, learn to recognize thought patterns and feelings to create new, more effective patterns (Pantaleo & Sisti, 2018). This is comparable to the behavior shown by some of the participants who were able to attend a series of counseling sessions with commitment, high enthusiasm, and enthusiasm, as well as the increasingly skilled students in applying it to everyday life after being given training in each session and worksheets carried out in each session. MBCT intervention focuses on students who have a low level of grit, which is characterized by having low scores on passion and perseverance. Another criterion, students who experiencing obstacles that cause their interest to decrease in academic completion. From this tendency, mindfulness-based cognitive therapy was developed in reviewing this which was outlined in each counseling session conducted, and what participants needed to improve was related to intention, attention, and attitude. Thus the client can understand more related to mindfulness of experience, self-acceptance, goal setting, and so on so that they are more confident in living life as a student (Filippello et al., 2014).

Students who have low passion and perseverance, tend to have behaviors such as easily changing or changing interests, especially when experiencing failure in the lecture process, thinking of switching to another major because they feel they have not succeeded in getting the value according to their expectations, are less able to survive in doing assignments and also feel unable to concentrate to attend long lecture hours (Weisskirch, 2018). Thus, given reinforcement regarding intention, attention, and attitude, participants can improve aspects related to grit, can better determine goals, and prepare for their achievement (Duckworth, 2016; Lee & Sohn, 2017). Therefore, the results of this study make it clear that mindfulness-based cognitive therapy is effective in increasing grit levels in students. Mindfulness-based cognitive therapy is also able to foster consistent behavior, as well as enthusiasm for the goal, and more accepting yourself and the situation that the obstacles or obstacles it faces are just obstacles that need to be faced not to make it give up (Crane et al., 2012b; Segal et al., 2002; Semple et al., 2010).

Conclusion

Based on the aforementioned findings of the study, the researchers concluded that Mindfulness-based cognitive therapy is efficacious to improved academic grit among undergraduate students in public universities and suggests it can help academic success. The positive effects on academic grit suggest that MBCT might be valuable for college student to completion academic achievement. Future randomized controlled trials should be conducted to confirm the possible effectiveness

of MBCT and its long-term effects on academic grit and reducing academic procrastination in college students.

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Data Availability The data that support the findings of this study are available on request from the corresponding author. The datasets generated during and analysed during the current study are not publicly available due to the privacy of participants are available from the corresponding author on reasonable request.

Declarations

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee (the Code of Professional Ethics for the Counselor; Indonesian Counselor Association) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Conflict of Interest The authors declare that they have no conflict of interest and have no financial or personal relationship with a third party whose interests could be positively or negatively influenced by the article's content.

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