



# Effects of Rational Emotive Behavior Therapy on Academic Grit

Suci Anggawati Sari<sup>1</sup> · Gian Sugiana Sugara<sup>1</sup> · Feida Noorlaila Isti'adah<sup>1</sup>

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## Abstract

Academic success has been studied about self-efficacy and cognitive abilities but one phenomenon that has received less attention is academic grit. Recent evidence suggests that reductions in irrational beliefs brought about by REBT can facilitate increased academic success. This paper reports the findings of a study that used an A–B–A single-case research design to investigate the effect of rational emotive behavior therapy on academic grit. Participants consisted of three students ( $N = 3$ ) in vocational high schools who experienced a low level of grit. Rational emotive behavior therapy intervention to increase academic grit was provided in 6 sessions. Treatment focused on developing consistency of passion and perseverance using disputing irrational beliefs, tape-recorded examination of beliefs, rational-emotive imagery, time projection, self-monitoring, and behavior reinforcement. Participants completed the Student Grit Inventory. Data were collected before, during, and after the REBT intervention. The results showed an increase in the level of grit during and after the intervention. Thus, rational emotive behavior therapy could be an intervention to increase academic grit.

**Keywords** Rational emotive behavior therapy · Grit · Academic success · Single case research design

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

Suci Anggawati Sari  
sucisari17@gmail.com

Feida Noorlaila Isti'adah  
feidanoor@gmail.com

<sup>1</sup> Department of Guidance and Counseling, Universitas Muhammadiyah Tasikmalaya, Jalan Tamansari Gobras, Tasikmalaya City, West Java, Indonesia

## Introduction

Failure in academics is something that students worry about and can cause anxiety when they fail to reach their goals, lack motivation in learning (Haghbin et al., 2012; Lee, 2017). Two factors can be the emergence of academic failure, namely the internal factors such as skipping school, cheating, not completing assignments. Whereas the external factors include the negative influence of peer delinquency, lack of family support, low family economic status, social environment in which they live, and lack of achievement expectations (Gullota & Adams, 2005). The failure experienced by students can also result from the various kinds of demands and pressures that are often got by students in achieving academic goals. So that when students face various demands and constraints in learning and obstructed achievement of expectations that are not accompanied by effective coping strategies, it can lead to cause student burnout and low quality of life (Hutami et al., 2020; Sugara et al., 2020a, b). This occurs due to unmanageable fatigue, resulting in feelings of inferiority and incompetence (Schaufeli & Greenglass, 2001).

If these factors cannot be adequately handled, failure may cause students to become frustrated and depressed. Schunk (2012) mentioned that the consequences of failure in the academic field will lead to surrender, frustration, and even depression that builds up in students if it is not handled optimally. This is also reinforced by the research results on the level of depression in Indonesia conducted by national basic health research from the Ministry of Health in 2018 that found that the prevalence rate of depression was 6.1% of the total population and experienced by adolescents starting from the age of 15–24 years (RI, Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan, 2018). Indonesian adolescents aged 15–19 years had the highest symptoms of depression compared to other age groups. The research found that 21.8% of adolescents aged 15 to 19 reported moderate or severe depressive symptoms (Peltzer & Pengpid, 2018).

Based on the phenomena described above, this situation could have a negative impact on adolescents or students if not handled optimally because it could also affect the students' emotional state and behavior. In this sense, not all adolescents or students can pass through the dynamics of their life smoothly. Several students are faced with conditions where they cannot overcome the obstacles that arise, and it causes them to choose to retreat, surrender, and experiences desperation concerning the dynamics of their lives. Thus, adolescents or students could develop grit to consistently survive in achieving success (Duckworth, 2016).

Grit is defined as perseverance and passion for a long-term goal (Duckworth et al., 2007) and the "character assertiveness; persistent spirit". Grit is an aspect of personality that is characterized by attempts to achieve a goal despite obstacles or failures to achieve that goal. Problems related to students' low grit frequently result in individuals quitting attempts to achieve goals, especially in academics. Research by Duckworth & Quinn (2009), grit is a predictor of students' success in academic achievement compared to their intelligence score.

The concepts of grit and resilience are generally used to describe the ability to persevere through hardships to meet goals (Stoffel & Cain, 2018). Grit and

resilience are two related terms often used interchangeably, but in actuality, are entirely different constructs. Various definitions for resilience exist, but the term generally refers to one's ability to maintain or regain mental health after experiencing adversity. In more simple terms, resilient individuals exhibit the ability to "bounce back" from stressful and negative emotional experiences (Montas et al., 2021).

Grit and resilience have been separately shown to contribute to the positive well-being of students to cope with the stressors of study and life and academic success (Calo et al., 2019). Rational beliefs are related to social-emotional factors and influence the success of students (Jibeen, 2013). Rational beliefs have a relation between aspects of grit and resilience this is shown when students are faced with discomfort or obstacles, those who maintain rational belief related to work habits are better positioned to tolerate and overcome those barriers, students who think rationally may demonstrate behaviors that represent grit and resilience (Warren & Hale, 2020).

When individuals have grit, they will pursue the things they want, such as running in a marathon, and they will strive to maintain those things despite experiencing disappointment and saturation (Duckworth et al., 2007). Students who have grit will set academic achievements as their goals and pursue these targets despite experiencing various challenges and several failures. Individuals who have high grit are also willing to put more effort and greater attention to achieve the goals they have set (Silvia et al., 2013; Kalia et al., 2018).

Students who give up quickly and have low grit will lead to fixed beliefs. Individuals who have fixed beliefs, those individuals will consider failure to be a permanent thing that can hinder their success. However, when the individual has a growth mindset or a rational mind, the individual could develop grit (Dweck, 2015; Duckworth et al., 2007). Then by having a growth mindset, students could increase their grit. A growth mindset is a perspective that could help students to keep developing themselves even though they faced various difficulties (Park et al., 2020). Students with a growth mindset will have an unyielding attitude and tend to change their strategies, seek help, and consult additional sources of information. Meanwhile, students with a fixed mindset tend to get discouraged if they face difficulties since they have irrational thoughts that lead to hopelessness and surrender attitudes.

This is reinforced by Baruch-Feldman (2017), who declared that one way to develop grit in individuals could be done by changing thought patterns, emotions, and behavior. This mindset is a crucial thing, and by developing a mindset, a person would be able to learn to be more persistent and resilient so that they will perceive failure and adversity as a step towards success. Therefore, the researcher assumed to use a rational emotive behavior therapy (REBT) model in increasing students' grit since the focus of rational emotive behavior therapy emphasized the relationship between cognition, emotions, and behavior, which are interrelated (Corey, 2013). Ellis asserted that fixed beliefs lead to unhealthy emotions resulting in dysfunctional behavior in individuals (Dryden, 1994). In addition, research related to the use of REBT interventions has been widely conducted and proven to be an effective form of psychotherapy (Engels et al., 1993; Lyons & Woods, 1991; Smith & Glass, 1977, David et al., 2017).

REBT has also been proven effective in dealing with various adolescents' or students' problems, such as problems related to psychological, emotional, and behavioral issues in the field of education (Banks & Zionts, 2009). In addition, REBT is also often used in the social-emotional learning curriculum in schools to improve emotional health and to live happier and more efficient lives (Bernard & Terjesen, 2020).

This rational emotive behavior therapy could be used to overcome problems in academics to increase healthy emotions and to help in developing behaviors that are more effective in achieving student academic success (Egan et al., 2007). Rational emotive behavior therapy hypothesized that as humans, we have a biological tendency to think irrationally and the same tendency to think rationally (Voltan Acar & Şahin, 2019). An irrational belief is seen as the opposite of rational belief. An irrational belief is considered as rigid and negative beliefs, while rational belief is defined as flexible and positive beliefs (Dryden, 2013).

Characteristics of irrational beliefs are those who inconsistent, illogical, and cause unhealthy emotions and behaviors likewise hinder the pursuit in the process of achieving desired goals (Dryden, 2013; Davies, 2008). Unhealthy emotional responses arise from depression, excessive anxiety, extreme guilt, and anger, while unhealthy behavioral responses such as aggression, withdrawal, impulsivity, and a lack of emotional and academic resilience (Bernard & Terjesen 2020). In contrast, rational belief generally produces healthy emotions that help individuals achieve their life goals and satisfaction (Smith, 1982). People who have rational beliefs are those who are efficient, flexible, and logical. This belief leads to self-acceptance and adaptive compliance to stressful events, reduces the vulnerability of psychological stress, and plays a vital role in achieving valuable goals (David et al., 2009).

Ellis has noted that human psychological problems could be divided into two main categories: ego disorders and discomfort disorders (Dryden & Neenan, 2004). Ego disorders have to do with the demands we make of ourselves and the negative self-assessment consequences we make when we fail to meet our demands. Such as "I must... do well/not fail/get approval from others"; followed by negative self-evaluation such as: "when I fail/get rejected", proving that "I am not good" (Froggatt, 2005).

Discomfort disorders are more related to the human comfort domain and occur when we make dogmatic orders that comfort and comfortable living conditions must exist (Madihie & Noah, 2013). Such as "other people must treat me right", "the circumstances where I live should like what I want" (Froggatt, 2005). Students' conditions that could not pass obstacles posed this irrational belief; this is included in irrational belief related to their demands (Neenan & Dryden, 2004). This belief raises ego anxiety which is an emotional tension that comes from the individual's perception and threatens him/her; this anxiety causes the individual to avoid situations that carry a risk of failure or disapproval (Froggatt, 2005; Balkis & Duru, 2019). Students consider themselves unable to face this situation and feel useless, so it causes unhealthy emotional reactions such as low self-esteem, lack of confidence, withdrawal, frustration, helplessness, anxiety, giving up easily, and depression (Jibeen, 2013; Lee, 2017).

REBT views would consider low academic grit as similar to low frustration tolerance, namely the inability to tolerate unpleasant feelings or stressful situations

(Ellis et al., 2001). It stems from the feeling that reality should be as wished and that any frustration should be resolved quickly and easily. People with low frustration tolerance in academics experience emotional disturbance when frustrations are not quickly resolved, leading to procrastination (Harrington, 2005b). Behaviors are then directed towards avoiding frustrating events, which, paradoxically, leads to increased frustration and even greater mental stress (Harrington, 2005a). Rational emotive behavior therapy helps individuals to identify and fight irrational beliefs, teach new effective behaviors, and accept themselves (Corey, 2013). Learn to tolerate frustration more effectively, and these students can learn to develop grit (Katsikis & Kostogiannis, 2020). Therefore, the research aims to find the effectiveness of rational emotive behavior therapy in increasing students' grit and realizing their optimal potentials.

## Method

### Ethical Approval

The Research Ethics Committee of the Faculty of Education, University of Muhammadiyah Tasikmalaya-Protocol Number 051.d/1.3.UMTAS/L2/PGT/2020 approved the study. We carried out this study in conformity with the Ethical Principles of Psychologists and Code of Conduct as set out by the American Psychological Association. Before engaging in a counseling session, the participant and counselor make a counseling contract that includes agreed information about the activities during the research. The participant was provided with an information sheet at the pre-counseling meeting and agreed that the information could be collected and used in the case study. Each session is recorded with client consent and given the opportunity if the client wants to stop recording. Clients are invited to comment and change personal details before publication.

### Participants

The Participants were adolescent students who studied at a Vocational High School and showed a low grit scale and likewise agreed to be the research subjects voluntarily. The participants' ages ranged from 16 to 17 years. Three persons met the criteria and were willing to participate in therapy interventions. The names of participants below are not real names, and confidentiality is maintained.

Participant 1. Indri is a 16-year-old girl, and she is the first child of three siblings. Indri felt that she was incapable of facing pressure. Her mother tended to pressure the counselee to study, get good grades, and not play around too much. The counselee had the opposite attitude where she tended to be discouraged in studying, feeling lazy, and felt that she was not capable of even surrendering.

Participant 2. Miranda is a 16-year-old girl and she is the third child of four siblings. Miranda felt that she had no enthusiasm for going to school or study; she saw

herself as inadequate, had no potential, had no interest in learning. She quickly gave up.

Participant 3. Rivda is a 17-year-old girl, and she is the second child of three siblings. Rivda thought that she was inadequate and wanted to withdraw from her major. When the counselee faced difficulty during the practice, she tended to keep quiet and bury it herself without daring to ask the teacher since the counselee was afraid of being scolded, no longer enthusiastic about studying, and she felt depressed because there was no support from her parents.

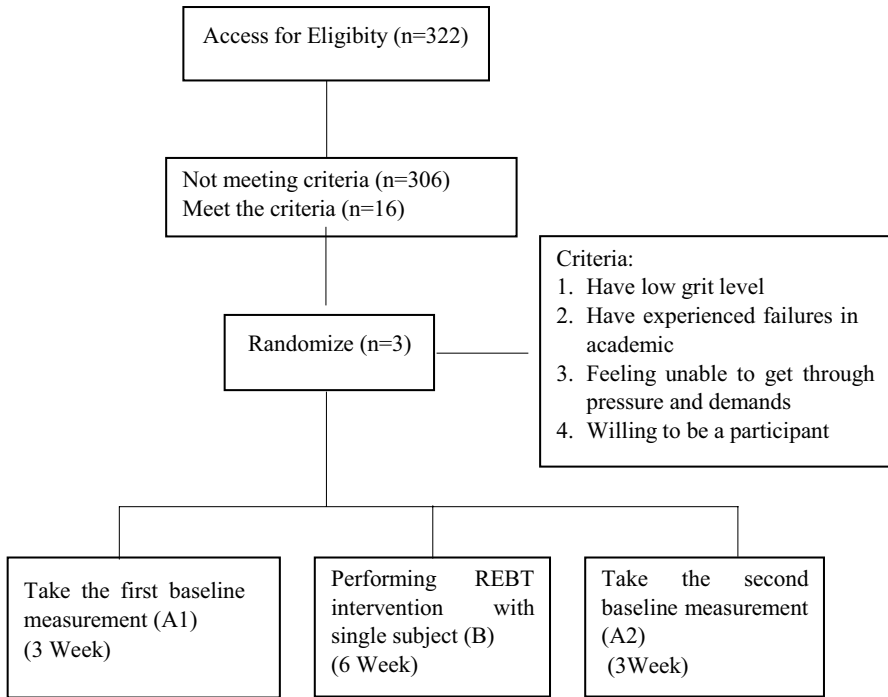
## Counselor and Supervision

The first author served as the counselor for this study. She has three years of experience applying REBT. She received REBT training in a graduate counseling program at university. The supervisor (corresponding author) was a professional counselor with ten years of experience applying cognitive behavior therapy in counseling sessions. He has been registered as a counseling practitioner by The Indonesian Guidance and Counseling Association. The supervisor is also a lecturer in the Clinical Mental Health Counseling program and a practicing counselor at the Edupotensia Mental Health Counseling Center. Counselors recorded videos of each counseling session according to participant agreement and the supervisor watched the counseling session to ensure the counselors followed REBT intervention.

## Procedures

This study used a single case study research with the design A-B-A that involves the baseline, intervention, and maintenance. Baseline is related to the measurements before the intervention, intervention to the measurements at the intervention stage, and maintenance to the permanence of the change after the intervention. A single case, A-B-A design was adopted for data collection and analysis of REBT intervention effects on academic grit. The rationale for using A-B-A design was straightforward and robust in demonstrating effective relationships between an independent and dependent variable (Cooper et al., 2007; Lundervold & Belwood, 2000; Ray, 2015). In the baseline phase, measurements are repeated to obtain stable condition data. For this reason, all participants received the same repeated measurements to identify a steady-state data pattern (Sidman, 1960; Kazdin, 2021). Past research has also adopted this approach (Swan, 2014) as it affords an in-depth investigation into a single case A-B-A research design, as would often be the case in applied practice.

The sampling technique used was a saturated sampling technique to determine the general description of the students' grit level, and the randomized sampling technique to determine samples had criteria according to the phenomenon under study. At first, the researcher made initial measurements for all participants, 322 students ( $M = 72$ ,  $SD = 16$ ) to obtain an overview of the grit level experienced by students before choosing the research subjects to be given intervention. After getting an overview of the initial measurement score results regarding the students' grit level, then it was obtained three students ( $N = 3$ ) who experienced a low level of grit and were



**Fig. 1** Participant Determination Procedure

willing to attend therapy sessions voluntarily. The calculated grit score provides where above 88 indicates high grit, 70–88 indicates moderate, and less than 70 is low grit. Participant 1 Indri had a score of 59, Participant 2 Miranda had a score of 58, and participant 3 Rivda had a score of 68.

Furthermore, the selected subjects were scheduled individually to follow the measurements in the baseline phase three times. Then after obtaining stable baseline data, the selected subjects attended the intervention session. The flow diagram is presented in Fig. 1. The intervention phase consisted of six sessions over 6 weeks. The procedure used in implementing the intervention session was arranged based on the protocol contained in rational emotive behavior therapy. Every week after the therapy session implementation, the subjects followed the measurements to get an overview of the changes in them after attending the therapy session. Therapy sessions were conducted face-to-face or online and lasted for 45 to 60 minutes. Each session evaluated regarding what changes felt, what has been done to develop the grit, as well as the success factors if they could achieve the change or the difficulties, they had found in achieving these changes. This considered help the counselor to know more about the extent of improvement and changes in the clients' grit.

The stages of therapy used to increase students' grit were the main stages of rational emotive behavior therapy described by Ellis (Dryden & Neenan, 2004). The beginning stage, namely, the stages of building productive therapeutic alliances with the client. The middle stage, namely the process of change is the

stage where the client is encouraged to make changes. Counselors use REBT techniques to help transform irrational thoughts into new rational and productive thinking patterns. The ending Stage is where the counselor needs to appreciate the changes that have occurred to the client. The post-intervention phase was carried out after completing the intervention phase. Measurements were conducted three times to measure the subjects' conditions after attending the therapy session using rational emotive behavior therapy. The measurements after the therapy process would be compared with the measurements before the therapy so that the changes that occurred could be seen and the effectiveness of providing rational emotive behavior therapy in increasing subjects' grit could be measured.

The following is a schedule participant determination procedure rational emotive behavior therapy, which is presented in the following table:

### Rational Emotive Behavior Therapy Intervention

The procedure used in the implementation of rational emotive behavior therapy is based on the concept of grit which is based on passion and perseverance (Duckworth, 2016). Besides that, there were techniques used in rational emotive behavior therapy to increase students' grit, namely cognitive techniques, emotion techniques, and behavior techniques (Vernon, 2002; Dryden & Neenan, 2004; Hickey & Doyle, 2018).

The first session uses cognitive techniques by teaching the A–B–C framework to clients. This session aims to provide understanding to the client if their condition is determined by irrational beliefs that gave rise to unhealthy emotions. Second session focused to convince the client their rational beliefs are more logical. The client mentions, repeats, and records the irrational beliefs raises by using a tape-recorded examination of beliefs technique, so their will realize that beliefs have been irrational. Third session uses the emotive technique by using Rational Emotive Imagery to build a new emotional pattern that the client has. Clients will assume a failure or disappointment is a push to develop grit for their purpose and not something terrible.

Fourth session fosters a feeling of happiness to pass challenges to achieve their goals using the time projection technique. Fifth session cultivates and develops new behavior patterns so that they can be implemented using self-monitoring. In this session, the client is expected to develop an attitude to clients trying to pursue long-term goals that will help in increasing the grit that will continue to be applied in everyday life. Sixth session evaluates the changes felt by the client. Clients write down what things they can do to change their behavior and write down the rewards they will get when they succeed and the punishments they get when they fail. This is done so that clients can commit themselves to always trying.

The schedule and sequence of contents for the rational emotive behavior therapy intervention session carried out for six weeks are presented in the following Table 1.



**Table 1** Schedule and Sequence of Session Contents

Phase	Session	Aim	Activities
Cognitive	1	The counselee is able to identify her irrational beliefs and be able to oppose them	<ul style="list-style-type: none"> <li>■Building a good relationship with the counselee</li> <li>■Exploring problems related to a low grit</li> <li>■Analyzing and diagnosing related beliefs, emotions, behaviors raised by the counselee</li> <li>■Teaching the A–B–C framework</li> <li>■Providing homework</li> <li>■Administer Student Grit Inventory (SGI)</li> </ul>
	2	The counselee believes and focuses on the goal, does not think that she is worthless and not good at everything	<ul style="list-style-type: none"> <li>■Evaluating the changes that appeared after passing the previous session</li> <li>■Teaching and providing an understanding to the counselee that problems, failures, disappointments were not completely seen as bad things</li> <li>■Using the Tape Recorded Examination of Beliefs technique</li> <li>■Providing homework</li> <li>■Administer Student Grit Inventory (SGI)</li> </ul>
Emotive	3	Building new emotional patterns, thinking that adversity is not something terrible	<ul style="list-style-type: none"> <li>■Evaluating the changes that appeared after passing the previous session</li> <li>■Using the Rational Emotive Imagery technique</li> <li>■Helping the counselee to identify what needs to be done in order to get through the obstacles</li> <li>■Using Forceful Coping Statements technique to overcome irrational beliefs</li> <li>■Providing homework</li> <li>■Administer Student Grit Inventory (SGI)</li> </ul>
	4	Fostering a feeling of happiness to go through challenges in order to consistently achieve goals	<ul style="list-style-type: none"> <li>■Evaluating the changes that appeared after passing the previous session</li> <li>■Using the Time Projection technique</li> <li>■Providing homework</li> <li>■Administer Student Grit Inventory (SGI)</li> </ul>
Behavior	5	The counselee could develop an attitude to pursue goals	<ul style="list-style-type: none"> <li>■Evaluating the changes that appeared after passing the previous session</li> <li>■Using Self-monitoring technique</li> <li>■Providing homework</li> <li>■Administer Student Grit Inventory (SGI)</li> </ul>

**Table 1** (continued)

Phase	Session	Aim	Activities
	6	Evaluating changes to develop the grit felt by the counselee	<ul style="list-style-type: none"> <li>■Evaluating the changes that appeared after passing the previous session</li> <li>■The counselor was actively involved with the counselee to discuss the therapy process that had been carried out</li> <li>■Using Self-commitment technique</li> <li>■The counselor asked the counselee about the experience she had during the therapy session</li> <li>■The counselor explored the experiences gained during the therapy session</li> <li>■Administer Student Grit Inventory (SGI)</li> </ul>

## Measure

The Student Grit Inventory (SGI) was developed by Rusadi et al. (2021) by Duckworth and Quinn (2009) and consists of 24 statement items. This instrument includes two subscales, namely 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 can overcome obstacles in achieving goals", "I gave up when faced with a task I wasn't mastering." SGI demonstrated a high internal consistency,  $\alpha = 0.737$ , and retest reliability,  $\alpha = 0.851$  for three weeks in the original validation study (Rusadi et al., 2021). The scale achieved a high internal consistency ( $\alpha = 0.832$ ) for the current sample. For the grit subscales reliability tendency of passion ( $\alpha = 0.694$ ) and perseverance ( $\alpha = 0.683$ ). This shows that the level of reliability of the Student Grit Inventory (SGI) is at a high criterion, which means that this instrument can produce a consistent score and is suitable for use in research. Research has found grit positively associated with academic rational belief (Warren & Hale, 2020), academic achievement (Lam & Zhou, 2019), goal commitment, and academic persistence (Tang et al., 2019).

## Data Analysis

A single-case study with an A-B-A design was adopted for data collection and analyses of intervention effects. The design consists of measuring baseline (A), conducting intervention (B), and re-measuring at follow-up (A). Single case study research is a study conducted to evaluate the causal relationship between intervention and the dependent variable where the client or individual is the subject of analysis. The A-B-A design provides a steady data trend in determining the extent to which

interventions should be considered effective (Kennedy, 2005). Visual analysis and calculation of the percentage of non-overlapping data (PND) are the most widely used and accepted methods for analyzing data of single case study research (Harrington & Velicer, 2015; Lenz, 2015).

Visual analysis of graphical data displays to interpret the effects of rational emotive behavior therapy interventions during a single subject study by visually examining graphical data (Vannest & Ninci, 2015). Analyses were initiated at conditions initiated during the first condition and continued at the time of research. The purpose of visual analysis is to identify a relationship between rational emotive behavior therapy interventions to increase academic grit (Rubin, 2008). A vital component that is analyzed in this way is the amount of data in each condition; it is called the length of the condition and the tendency in the direction of the graph. Changing trends is the best evidence to support the effect of an intervention in a single case study research design (Tankersley et al., 2008). For this purpose, the researchers analyzed the rising or falling trends in the data across conditions and computed the increase or decrease in straight lines by calculating the regression squares (Horner et al., 2005).

Efficacy rational emotive behavior therapy to increase academic grit was analyzed by calculating the Percentage of non-Overlapping Data (PND) between the baseline and the intervention phase (Vannest & Ninci, 2015) and effect size intervention and Reliable Change Index (Barker et al., 2013). PND is calculated using the highest data from the baseline score, and a straight line is drawn from the point. Specifically, visual and descriptive analyses were carried out to check the number of points in the intervention phase above the line of the highest point on the baseline. The number of data points did not overlap with the lowest data points added and multiplied by 100. The calculated percentages provide an estimate of the effect of treatment, where a PND greater than 90% indicates highly effective treatment, 70–90% indicates effective treatment, 50–69% indicates questionable effectiveness, and less than 50% is considered ineffective (Scruggs & Mastropieri, 1998; Vannest & Ninci, 2015).

In an assessment of single-case intervention effect sizes were calculated using Cohen's  $d$  that  $< 0.87$  indicated a small effect while  $0.87$ – $2.67$  suggested a medium effect and a large effect being anything  $> 2.67$  (Parker & Vannest, 2009). Therefore, the latter was selected for this analysis because single-cases were assessed. To determine whether the magnitude of change for each participant was also statistically reliable, the present analysis included calculating the Reliable Change Index (RCI; Jacobson and Truax, 1991) for total grit, dimension of grit namely passion and perseverance. If the value of the RCI is greater than 1.96, then the probability that the change in score is random is less than .05. RCI values are provided for each individual on total grit, passion, and perseverance in Table 2.

## Result

### Total Grit

Total grit data for all participants across all phases of the study are presented in Fig. 2. Overall, there was a significant increase in the total grit of all participants. Participant 1 demonstrated a large increase ( $d=3.4$ ) in total grit from the pretest ( $M = 65.67$   $SD=6.51$ ) to during intervention ( $M=87.83$ ,  $SD=13.35$ ) and an increase from during to post-intervention phases ( $M=108$ ,  $SD=0.58$ ). Participant 2 demonstrated a large increase ( $d=3.10$ ) in total grit from the pretest ( $M= 54$   $SD=7.81$ ) to during intervention ( $M=74.2$ ,  $SD=11.9$ ) and a stable increase from during to post-intervention ( $M=90$ ,  $SD=1$ ). Participant 3 demonstrated a medium increase ( $d = 2.24$ ) in total grit from the pretest ( $M=76.3$   $SD= 7.09$ ) to during intervention ( $M=92.2$ ,  $SD=5.39$ ) and an increase from during to post-intervention phases ( $M=95$ ,  $SD=0.10$ ). This shows that the grit score increased from the baseline phase to the post-intervention. To further examine the magnitude of the treatment effect, the percent of non-overlapping data (PND) statistic was computed. Results indicated that the PND statistic was 100% for Indri indicating that REBT was a very effective treatment for increasing total grit and 88 % for Miranda and Rivda indicating REBT was an effective treatment for increasing total grit. This is confirmed by RCI's indicated significant changes in total grit from pre- to post- REBT for all participants.

### Passion

Dimension of passion data for all participants across all phases of the study is presented in Fig. 3. Participant 1 demonstrated a large increase ( $d=3.56$ ) in passion score from the pretest ( $M = 32.3$ ,  $SD=3.06$ ) to during intervention ( $M=43.2$ ,  $SD=7.4$ ) and an increase from during to post-intervention phases ( $M=54$ ,  $SD=1$ ). Participant 2 demonstrated a medium increase ( $d=1.87$ ) in passion score from the pretest ( $M = 27.7$ ,  $SD=10.2$ ) to during intervention ( $M=46.8$ ,  $SD=4$ ) and a decrease from during to post-intervention phases ( $M=44$ ,  $SD=1$ ). Participant 3 demonstrated a medium increase ( $d=1.10$ ) in passion score from the pretest ( $M = 42$ ,  $SD=4.35$ ) to during intervention ( $M=46.8$ ,  $SD=4$ ) and a decrease from during to post-intervention phases ( $M=46$ ,  $SD=4.04$ ). RCI's indicated a significant change in dimension of passion for participants 1 and 2 but non-significant changes for participants 3.

### Perseverance

Dimension of perseverance for all participants across all phases of the study is presented in Fig. 4. Participant 1 demonstrated a large increase ( $d=3.25$ ) in perseverance score from the pretest ( $M = 33.3$ ,  $SD=3.51$ ) to during intervention ( $M=44.7$ ,  $SD=6.2$ ) and an increase from during to post-intervention phases ( $M=54$ ,  $SD=0.58$ ). Participant 2 demonstrated a medium increase ( $d=1.37$ ) in perseverance score from the pretest ( $M = 26.3$ ,  $SD=7.46$ ) to during intervention ( $M=36.5$ ,  $SD=5.9$ ) and an increase from during to post-intervention phases ( $M=46$ ,  $SD=1.73$ ). Participant 3

demonstrated a medium increase ( $d=1.68$ ) in perseverance score from the pretest ( $M=34.3$ ,  $SD=6.56$ ) to during intervention ( $M=45.3$ ,  $SD=3.4$ ) and an increase from during to post-intervention phases ( $M=50$ ,  $SD=6.51$ ). RCI's indicated a significant change in dimension of perseverance for participants 1 and 3 but non-significant changes for participants 2 (Table 2).

## Discussion

The purpose of this study was to determine the effectiveness of rational emotive behavior therapy in increasing students' grit. This is the first study to apply REBT with academic grit in students. The results showed that rational emotive behavior therapy was effective in increasing students' grit. The visual analysis showed consistent improvement in grit scores from the baseline and intervention phases for three participants. The effectiveness of rational emotive behavior therapy techniques is also supported by the increase in almost all aspects of grit. The change is shown as one of the goals of rational emotive behavior therapy to help clients in the process of achieving unconditional self-acceptance, and unconditional acceptance of others to make them become more able to accept themselves, and also, they can more inclined to accept others unconditionally (Davies, 2008; Dryden, 2004). Besides, it increases clients to reduce emotional reactive, teaches them to identify and fight irrational beliefs, teaches new behavior that is effective, and can accept themselves even though they have a deficiency (Ellis & Dryden, 2007). This finding supports the vast literature advocating the use of REBT to reduce irrational beliefs (David et al., 2005; Dryden, 2014), and specifically within the domain of academic performance (Blankstein & Winkworth, 2004; Rusadi et al., 2021).

Participant 1 showed highly effective results in increasing grit by using REBT. Before getting treatment, she feels depressed and not enthusiastic about learning. She often thinks that "I can't" when faced with adversity or failure. But after the counseling session, she can develop healthy emotions and a positive mind that she can face all the difficulties "I can face all difficulties". While participant 2 showed a fairly effective score in increasing grit by using REBT. She said that she had views if she had experienced a failure, she was so sure that no matter how hard she tried it would never succeed so she didn't want to try again "I don't have potential, and I can't". After being assisted by REBT, it was seen that there were changes that had occurred in her. She was enthusiastic in learning, felt comfortable, had the thought that she was capable and had potential if she intended to try hard, never gave up, and saw that difficulty or failure was a process to success. Then participant 3 showed an effective score too in increasing grit by using REBT. She often thinks that "I can't and I wanted to give up" when she has a difficult situation. After the counseling session, she is more enthusiastic about learning, understanding that giving up will not solve anything can think more rationally that she can face difficulties by continuing to try "I can do it".

This finding shows that their irrational beliefs are a discomfort to themselves, so they enter into a low tolerance for frustration which then makes them anxious

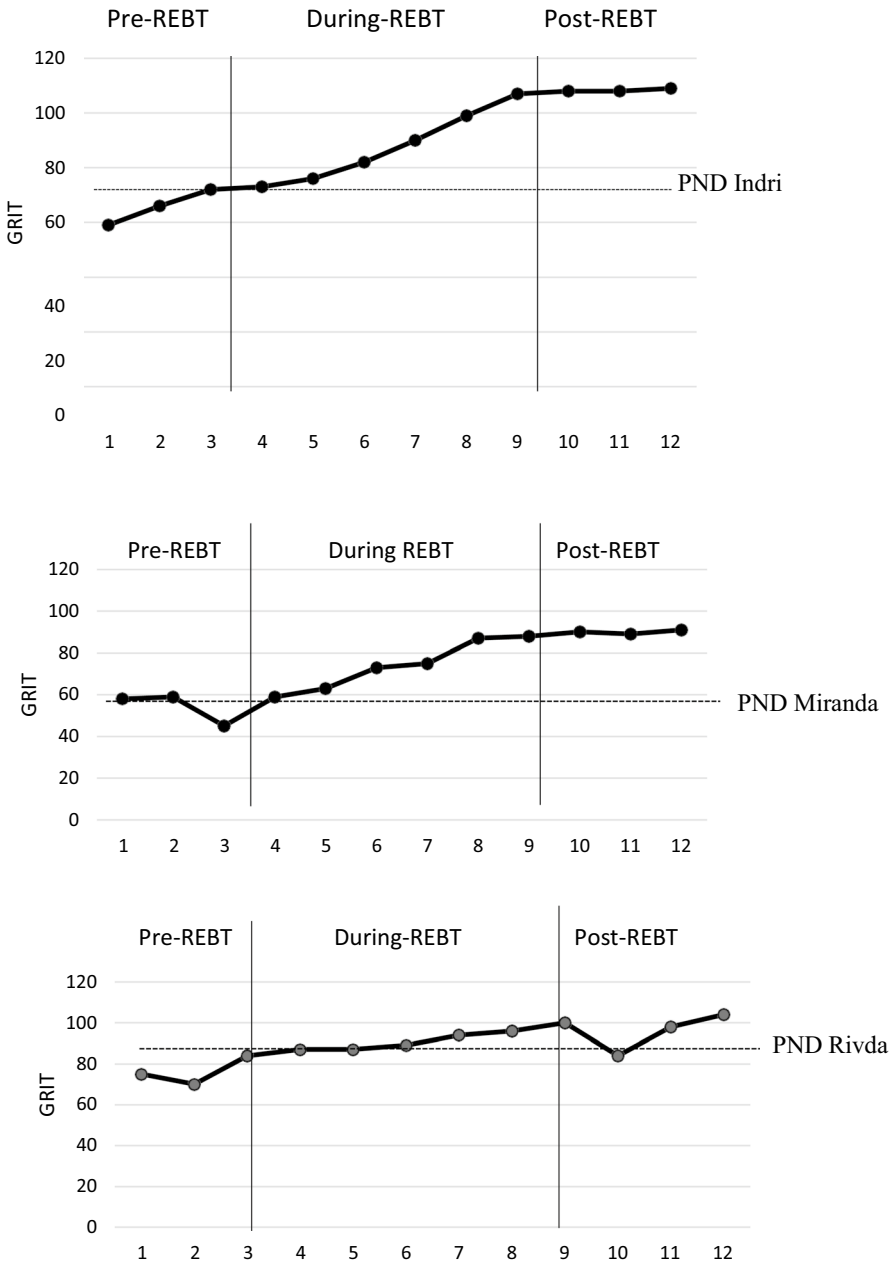


Fig. 2 Level of Total Grit across Conditions. PND = percent of non-overlapping data statistic

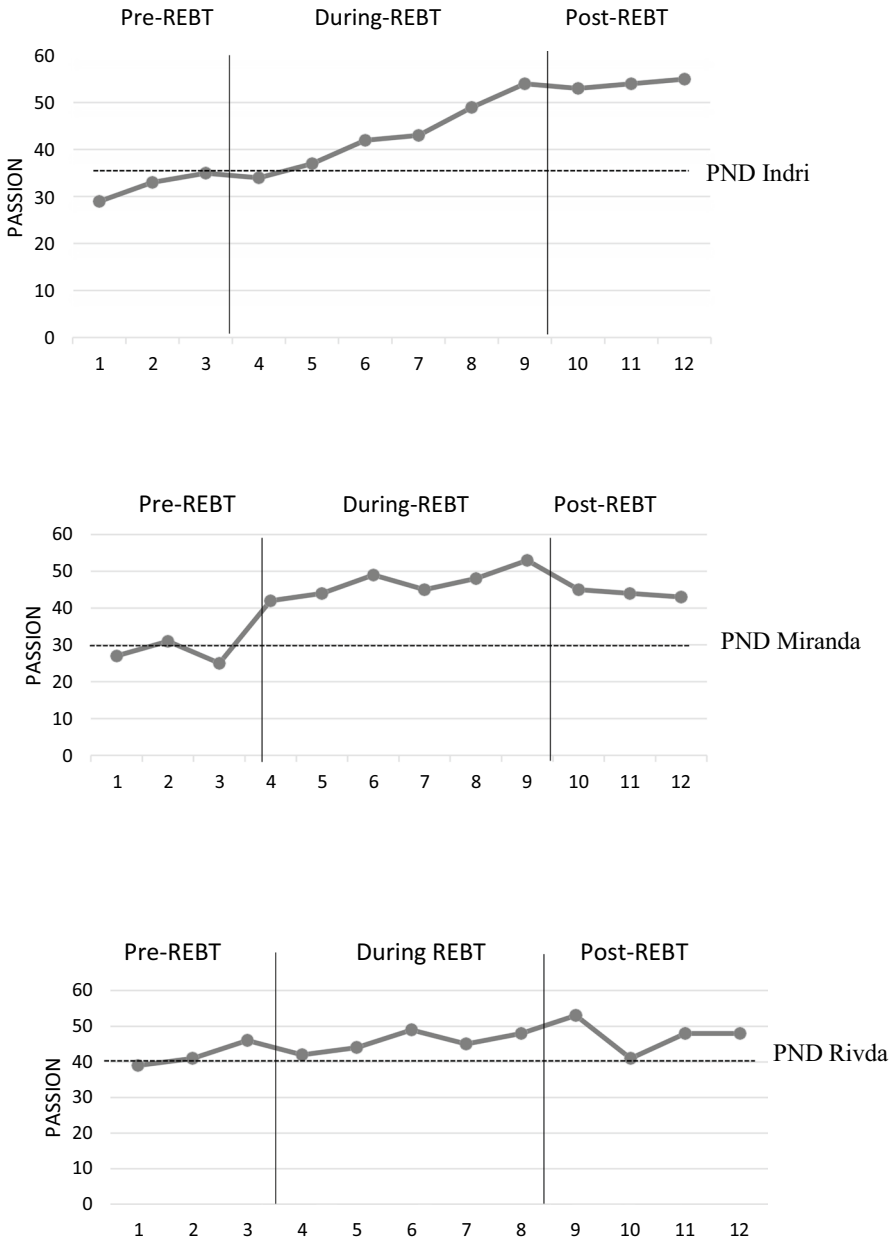
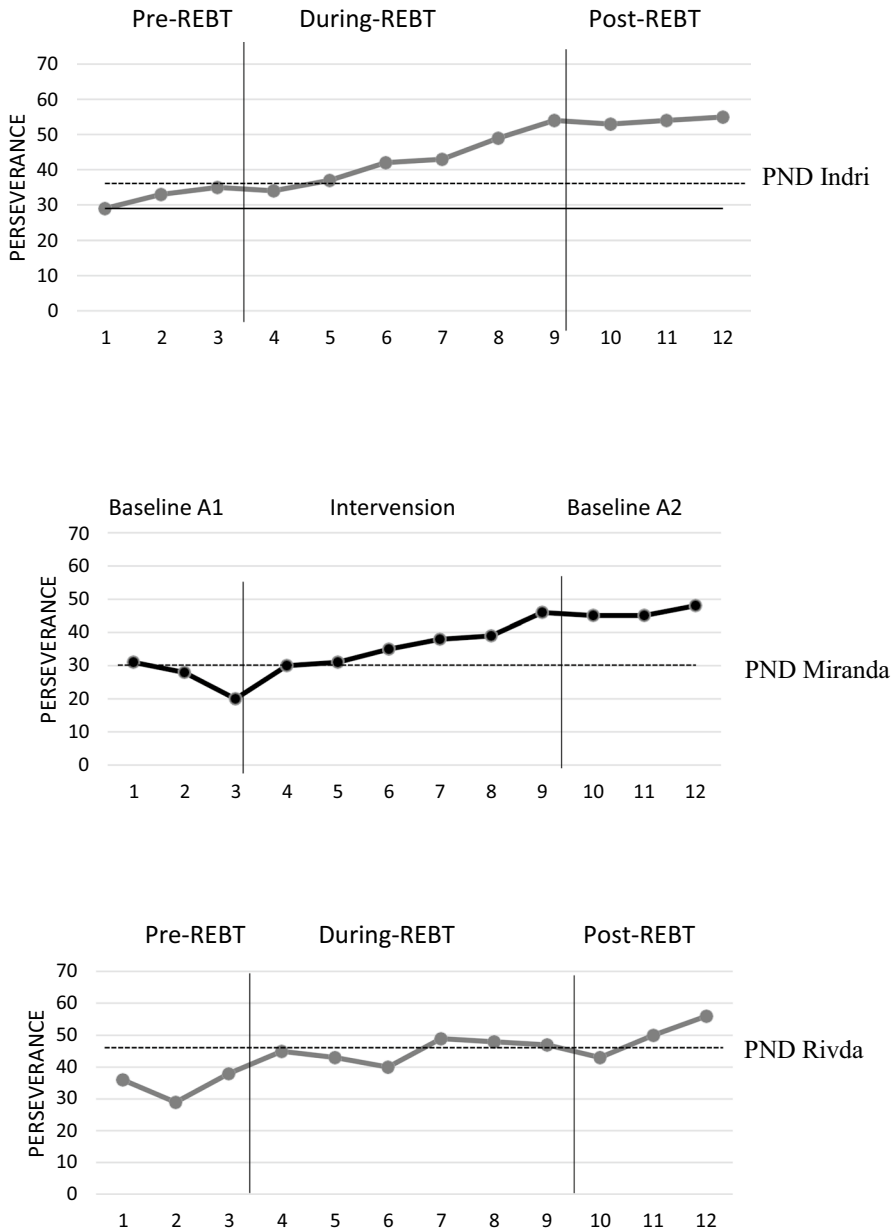


Fig. 3 Level of Passion Score across Conditions. PND = percent of non-overlapping data statistic

to report them, anger for their unhealthy anger, depression because of their depression, embarrassment because of feeling hurt, and so on (Dryden & Neenan, 2004; David et al., 2010). Low frustration tolerance can be thought of as the inability or unwillingness to persist in an activity due to the unpleasant feelings



**Fig. 4** Level of Perserance Score across Conditions. PND = percent of non-overlapping data statistic

associated with the task (Wilde, 2012). According to the opinion, Stanković & Vukosavljević-Gvozden (2011), intolerance to frustration can lead to academic failure and low academic achievement. Students who have difficulties tolerating frustration might experience increased difficulties with procrastination which



**Table 2** Total Grit, Dimension of Grit scores (M  $\pm$  SD) from pre-REBT, during-REBT and post-REBT for all participants, Reliable Change Indices (RCI)

	Pre-REBT		During REBT		Post-REBT		RCI	Effect size
	M	SD	M	SD	M	SD		
<i>Total Grit</i>								
Participant 1: Indri	65.67	6.51	87.83	13.35	108	0.58	5.25	3.4
Participant 2: Miranda	54	7.81	74.2	11.9	90	1	4.79	3.10
Participant 3: Rivda	76.3	7.09	92.2	5.39	95	10	3.46	2.24
<i>Passion</i>								
Participant 1: Indri	32.3	3.06	43.2	7.4	54	1	4.55	3.56
Participant 2: Miranda	27.7	10.20	46.8	4	44	1	2.39	1.87
Participant 3: Rivda	42	4.35	46.8	4	46	4.04	1.41	1.10
<i>Perseverance</i>								
Participant 1: Indri	33.3	3.51	44.7	6.2	54	0.58	4.08	3.25
Participant 2: Miranda	26.3	7.46	36.5	5.9	46	1.73	1.72	1.37
Participant 3: Rivda	34.3	6.56	45.3	3.4	50	6.51	2.11	1.68

could negatively influence achievement (Balkis & Duru, 2019). When students are faced with discomfort or obstacles, those who maintain rational beliefs related to tasks are better positioned to tolerate and overcome those barriers. As a result, the student can overcome the obstacle and respond in an emotionally healthy manner (Warren & Halle, 2020). A student who maintains rational beliefs related to the academic task may not procrastinate and therefore demonstrates consistent interest and perseverance of effort (Tang et al., 2019).

According to Baruch-Feldman (2017) one way to develop grit is by changing the way of thinking, and how to act. A student who has rational beliefs can learn to be more persistent and resilient. REBT instructs students to dispute irrational thinking, develop self-help skills, and offer students tools that reinforce rational thinking (Rodman et al., 2009). Therefore, they can see failure, difficulty as steps in the process of success. Duckworth also confirms this et al., (2007) stated that grit can be developed by having an open, growth, or positive mindset because the focus of rational emotive behavior therapy is also a challenge, and the question of irrational beliefs along replacing them with rational beliefs that have more flexible, and appropriate preferences (David et al., 2010).

In addition, related to the research use of rational emotive behavior therapy interventions have been carried out and proven effective in dealing with various problems of adolescents, for instance, the problems related to psychological, emotional, and behavioral problems (Banks & Zions, 2009). This supports Hickey & Doyle (2018) comment that rational emotive behavior therapy succeeds in helping adolescents to overcome self-acceptance so they can better manage future difficulties and change unhealthy negative emotions to be healthy. Rational emotive behavior therapy interventions are effective in overcoming academic fatigue, and they can increase the ability of individuals or students to face challenges in academic achievement (Ghorbani et al., 2020). From the results of the research described above, we conclude that

the rational emotive behavioral therapy approach can be used to improve academic grit.

In conclusion, an REBT intervention focused on increasing grit in students was found to be effective in increasing grit for three of the participants. Indri can understand and apply more positive thinking, she can be more open to her mother, felt more comfortable, and fight the feeling of laziness. Miranda can be more enthusiastic, have an interest in learning, have more rational thinking, succeed in fostering an unyielding attitude, and have a new view of adversity or failure is a process to be succeeded. Rivda can understand that giving up will not make her better, think positively, more be brave when faced the difficult situations, develop hard efforts to achieve the desired goals.

Based on the results of the intervention given to Indri, Miranda, and Rivda, it can be concluded that rational emotive behavior therapy is effective in increasing students' grit. The effectiveness of the intervention can be seen from several things, including an increase in the grit score based on a graphic analysis in the baseline and intervention phases. Besides, based on the results of the Percentage Non-Overlapping Data (PND) shows that rational emotive behavior therapy is effective in increasing grit.

## Limitations

This research only used the Student Grit Inventory as data collection, it was also important to determine the irrational beliefs of the client and another discriminant instrument to take measurements throughout the sessions. Second, research had a relatively small sample with the use of a single case study research. Therefore, research t can examine a larger sample, and use a group design in the intervention. The third limitation, we calculated repeated measures for the baseline. We have taken measurements in each therapy session. Therefore, it made participants or clients were bored to fill the same instrument repeatedly.

## Implication

This research reinforces the growing research on the use of rational emotive behavior therapy. In particular, it adds to support literature in supporting the effectiveness of rational emotive behavior therapy in dealing with students' problems in the academic field, especially those related to increasing students' grit. Based on the implication above, this research also has implications for school counselors to provide services to overcome the problems related to the low students' grit so that students succeed in the process of achieving academic success.

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## Declarations

**Conflict of interest** The authors declared no conflict of interest concerning research and publication of this article.

**Informed Consent** Informed consent was obtained between the counselor and the client, including voluntary participation, the theoretical framework of therapy, video recording, psychometric measurements, and the research permit

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