



Effectiveness of Reality Therapy and Mindfulness-Based Cognitive Therapy in Academic Meaning and Academic Emotions of Procrastinating Students

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Abstract

Background: Procrastination is considered an obstacle to academic progress because increasing stress and negative consequences in the academic life of students reduce the quality and quantity of academic success.

Objectives: The aim of the present study was to compare the effectiveness of reality therapy and mindfulness-based cognitive therapy (MBCT) in the academic meaning and academic emotions of procrastinating students.

Methods: The current study was an experimental study with a pre-post-test design. The study population included all undergraduate students of Payam Noor University, Bostanabad, East Azerbaijan province, Iran, in the academic year 2020-2021. The sample size included 45 subjects who were selected from the eligible students and divided into three groups based on random allocation using Random Number Generator software (version 1.3). The first experimental group received mindfulness training for 8 one-hour sessions, and the second experimental group received 8 one-hour sessions of reality therapy. Nevertheless, the control group did not receive any intervention. It should be noted that after the end of the study, a compressed combination of interventions was taught to the control group. To collect the data, questionnaires on procrastination (Tuckman, 1991), educational meaning (Henderson-King and Smith, 2006), and Pekrun's academic emotions (Pekrun et al., 2002) were used. Finally, the collected data were analyzed using multivariate analysis of covariance (MANCOVA) and SPSS software (version 25).

Results: The results of MANCOVA showed that both MBCT and reality therapy had significant effectiveness in increasing positive emotions and academic meaning and reducing negative emotions compared to the control group ($P < 0.01$). Additionally, comparing the effectiveness of interventions showed that MBCT was more effective in increasing positive emotions than reality therapy ($P < 0.01$).

Conclusions: Mindfulness-based cognitive therapy was more effective in increasing positive emotions and academic meaning than reality therapy. However, the present findings show a promising perspective. Therefore, university and school counseling centers can pay attention to the role of mindfulness interventions and reality therapy in the academic emotions and academic meaning of students.

Keywords: Reality Therapy, Mindfulness, Academic, Emotions, Procrastination

1. Background

The growth of societies in today's world requires the training of specialized human forces, which is dependent on the growth and development of the educational system of countries (1). Therefore, improving and developing the academic performance of learners is one of the main goals of academic centers. The way of using time, managing emotions, and optimism among

students is different, which is one of the reasons for their excellence in education (2). Procrastination is considered the lack of self-regulation and behavioral tendency to delay what is necessary to achieve the goal (3). Academic procrastination is defined as the constant tendency of learners to postpone academic activities, which is almost always associated with anxiety. A clear example of that is postponing studying until the night of the exam and the resulting haste and anxiety that plague students (4).

Based on a study conducted in the field of procrastination, it has been estimated that 20-30% of students suffer from chronic procrastination (5). The literature on procrastination shows that this phenomenon is related to certain concerns, such as fear of failure, test anxiety, social anxiety, hyperactivity, and difficulty in emotion regulation (6,7).

It seems that one of the variables related to procrastination is academic excitement (8). Emotions that are related to learning, teaching, and achieving success in educational environments are called academic emotions (7). Academic emotions are emotions that are directly tied to progress activities or academic results. Several studies have shown that academic emotions are related to academic progress and failure (9-11). However, despite the constant presence of emotions in the classroom, the examination of emotions in educational contexts, especially pleasant emotions, has been neglected. Not paying attention to positive emotions causes academic failure, and paying attention to pleasant emotional elements causes positive academic meaning in the mind of the learner. The meaning of education means the inner implication of education for learners, which for some of them is considered a way to enter a profession and, for others, as a source of pressure (10). The meaning of education for learners is different due to having different pleasant and unpleasant educational experiences, and these different experiences are effective in the formation of their self-esteem (12). For example, in terms of meaning, the degree of similarity that learners see between themselves and their place of study has an effect on their satisfaction, success, or failure (13). The meaning of education is influenced by culture and society. Moreover, parents' expectations, the prevailing mood of the educational institution, changes, and social values can affect an individual's experience of education (14).

One of the interventions that can improve the academic meaning and academic emotions of procrastinating students and has not yet received the attention of researchers is reality therapy. Reality therapy is considered one of the newest efforts of therapists in describing human beings, determining behavioral rules, and how to achieve satisfaction, happiness, and success (15). The reality approach is one of the therapeutic approaches that pays special attention to the motivational aspect of behavior change and has placed great emphasis on responsibility and training (16). The main philosophical theories and ideas are the therapeutic reality that a person is ultimately self-determining. In addition, it is said that although the internal and external psychological pressures might have a direct relationship with the client's current emotional performance, in the long term,

the client is self-follower and responsible, and everything the client does is to satisfy his/her basic needs in terms of survival, belonging, power, fun, freedom, and finally, to control one's life (17). Motaharinasab et al. observed in a study that reality therapy significantly reduces academic procrastination, and the self-regulation scores of the experimental group increased significantly from the control group's scores (18). Additionally, the background of the study showed that reality therapy affects the quality of teaching (19), happiness, motivation for progress, problem-solving skills (20, 21), and academic progress (22). Academic motivation, reduction of academic procrastination, and positive self-concept have an effect (23).

In addition to reality therapy, another therapy whose effect on academic procrastination is investigated is mindfulness-based cognitive therapy (MBCT). Mindfulness is a non-judgmental and balanced sense of awareness that helps clearly see and accept emotions and physical phenomena as they occur (24). Kabat-Zinn et al. showed in a study that mindfulness training leads to a reduction of pain, false beliefs, pessimistic attribution styles, anxiety, and psychological distress (25). Studies have shown that mindfulness-based education has positive behavioral and emotional consequences (24, 25). Mindfulness training leads to lower anxiety scores, reduction of psychological distress, reduction of psychological inflexibility, and reduction of false beliefs (26). Lotfalian and Ahmadi in a study showed the effectiveness of mindfulness therapy in reducing academic procrastination and self-impairment in secondary school male students (27). Additionally, Tavakoli and Ebrahimi, in a study, showed that mindfulness therapy improved academic motivation and self-efficacy and reduced academic procrastination of students (28).

These two therapies have something in common with each other in that they both emphasize life in the present and here and now and cognition; since reality therapy is a judgmental therapy, the client must accept responsibility for his/her behavior. Nevertheless, mindfulness therapy involves a receptive, non-judgmental awareness of what is happening now. Mindful individuals perceive internal and external realities freely and without distortion and have a great ability to face a wide range of thoughts and emotions. In general, considering the high prevalence of procrastination among students and the importance of treating procrastination and its related variables, this study intended to compare these two types of interventions.

2. Objectives

The current study sought to answer the following question:

“Is the effectiveness of reality therapy and MBCT in academic meaning and academic excitement of procrastinating students different?”

3. Methods

3.1. Design Study

The present study was an experimental study. The population of the research included all undergraduate procrastinating students of Payame Noor University, Bostanabad, Azerbaijan province, Iran, in the academic year 2020 - 2021. The study sample consisted of 45 undergraduate students. The total sample size (45) was also selected based on G*Power statistical software (version 3.1) with an effect size of 0.55, a significance level of 0.05, a test power of 0.8 (1-B), and the number of three groups ($n = 15$) (29). To select a sample, first, 300 students were selected by Morgan's table. They completed the procrastination questionnaire, out of whom 63 students obtained a procrastination score above 50% and had the inclusion criteria. However, finally, 45 students were willing to cooperate and were randomly assigned to three groups (15 subjects in reality therapy, 15 subjects in the mindfulness group, and 15 subjects in the control group). Random allocation was performed by dividing the participants into desired groups based on the Random Number Generator software (version 1.3).

3.2. Participants

The inclusion criteria included procrastination (selection based on a screening questionnaire) and not suffering from mental disorders or drug use.

The exclusion criteria included absence in more than one intervention session, experience of severe stressful experiences (e.g., bereavement) in the last 6 months, or participation in similar courses.

3.3. Data Collection Tools

3.3.1. The Tuckman Procrastination Questionnaire

This questionnaire is a 16-item self-report scale and is designed based on a four-point Likert scale ranging from completely agree to completely disagree. Getting a high score on this scale is a sign of high procrastination (30). Tuckman has reported the reliability of this questionnaire as 0.86 (30). In addition, in a study conducted by Moghadis Bayat on 600 students of the Islamic Azad University, Tehran branch, Tehran, Iran, the reliability coefficient of

this questionnaire was reported as 0.73 (31). Furthermore, Cronbach's alpha coefficient in the present study for the whole scale was 0.86. Additionally, the present study's findings showed that the content validity index (CVI = 0.75) and content validity ratio (CVR = 0.81) were in an acceptable spectrum.

3.3.2. Educational Meaning Questionnaire (Henderson-King and Smith, 2006)

This questionnaire was designed to measure the meaning of education by Henderson-King and Smith (12). This questionnaire has 86 items that include 10 components. Each component shows a special meaning of education, and getting the highest score in each of these components shows the priority of that meaning from the person's side. The components of this questionnaire are profession (11 items), independence (5 items), future (3 items), learning (10 items), self (11 items), next step (3 items), social meaning (12 items), the surrounding world (8 items), mental pressure (12 items), and emancipation (11 items). The answers to the items are based on a Likert scale, including very low, low, medium, high, and very high, and scores of 1, 2, 3, 4, and 5 are assigned to each type of option. Henderson-King and Smith reported the reliability of this tool to be 0.77 to 0.91 (12). The reliability of this questionnaire has been reported based on Cronbach's alpha from 0.77 to 0.91 (32). In the present study, the alpha coefficient for this questionnaire was within the range of 0.64-0.78.

3.3.3. Pekrun Academic Emotions Questionnaire

In order to measure academic emotions, Pekrun et al.'s academic emotions scale was used. This scale has 75 items that are scored based on a five-point Likert scale (never = 1 to always = 5). Academic excitement is also measured with these questions (e.g., I look forward to reading). Pekrun et al. reported the Cronbach's alpha for this questionnaire subscales from 0.75 to 0.95 (33). Hosseini's reliability study showed that both Cronbach's alpha coefficients and retest coefficients of the instrument's subscales range from 0.70 to 0.89, which indicates its appropriate internal consistency (34). Additionally, Cronbach's alpha coefficient in the present study for the whole tool was 0.73.

3.4. Summary of Mindfulness-Based Cognitive Therapy Sessions

The mindfulness program was taught in 8 one-hour sessions according to the Kabat-Zinn et al. (25) mindfulness training protocol in a group. The steps to run the program are shown in Table 1.

As can be seen in Table 1, a summary of MBCT sessions is mentioned.

Table 1. Summary of Mindfulness-Based Cognitive Therapy Sessions

Sessions	Content of Sessions
The first session	Introducing mindfulness training and its definition and explaining the reason for implementing this training course for subjects, explaining how to plan mindfulness exercises and incorporate these exercises into daily life, parent involvement, and daily notes about mindfulness practice, teaching and doing exercises related to the postures of mindfulness meditation exercises (i.e., sitting on a chair, lying down, sitting on all fours, full lotus position, and hands position)
The second session	Talking about participants' experiences with mindfulness, mindfulness breathing practice, abdominal breathing training, disturbed mind versus calm mind practice
The third session	Talking about the participants' experience of mindfulness and repetition of mindfulness breathing and body scan training
The fourth session	Repetition of basic breathing exercises and teaching awareness of the present with the help of the water glass exercise
The fifth session	Talking about the participants' experience of mindfulness exercises and mindfulness eating training, along with repetition of mindfulness breathing exercises and body scanning
The sixth session	Repetition of basic breathing exercises, mindfulness eating practice, mindfulness smelling, mindful touching, mindfulness stretching exercises
The seventh session	Reviewing the exercises of the previous sessions, teaching the practice of listening mindfully, doing the practice of mindfulness toward thoughts, "flowing river meditation", "unwritten whiteboard", and "entering the gap between thoughts."
The eighth session	Repetition of basic breathing exercises and mindfulness of body sensations, doing meditation relief from depression in the present moment, review and summary of previous sessions, summary and final conclusion, thanking the group and ending the session, post-test

3.5. Summary of Reality Therapy Sessions

The reality therapy training program included 8 one-hour sessions that are held twice a week. This intervention is based on Glasser's protocol (35); a summary of its sessions is shown in Table 2.

As can be seen in Table 2, a summary of reality therapy sessions is mentioned.

Analysis of covariance and SPSS software (version 25) were used for data analysis.

3.6. Data Analysis

In the next step, a pre-test was performed for all three groups first, and the first experimental group was exposed to mindfulness training in 8 one-hour sessions twice a week. The second experimental group was exposed to reality therapy training in 8 one-hour sessions twice a week. The control group did not receive any intervention at this stage. In the end, a post-test was taken from all three groups, and after the intervention, in order to maintain the research ethics, the control group was exposed to an intervention session. It should be noted that both interventions were conducted by the first author with a PhD in psychology. Finally, the collected data were analyzed using the analysis of variance test with multivariate analysis of covariance (MANCOVA) and SPSS software (version 25).

3.7. Ethical Consideration

Before conducting the study, the study subjects were assured that their participation in the study was unspecified and only the results would be reported. Moreover, all the private information of the participants

would remain confidential, and they could withdraw from the study at any stage of the intervention. The subjects were requested to complete and sign a consent form to participate in the study.

4. Results

In this study, the mean \pm standard deviation (SD) of participants' age was 24.30 ± 5.93 years. In Table 3, the comparison of age distribution among the groups showed that there was no significant difference between the means of the three groups ($P > 0.05$). Furthermore, the results of the Chi-square test showed that gender distribution was the same among the groups ($P > 0.05$).

In Table 4, descriptive indicators show that the means of positive emotions and academic meaning from pre-test to post-test in the experimental groups increased, compared to the control group; however, the negative emotions in the reality therapy and mindfulness groups decreased more than the control group. The significance level of the Shapiro-Wilk test ($P > 0.05$), Levene's test ($P < 0.05$), and Box's Test ($P = 0.092$) indicated the confirmation of the main assumptions for analysis. The results of the analyses showed that the changes in positive emotions ($P < 0.01$), negative emotions ($P < 0.01$), and academic meaning ($P < 0.01$) between the groups were significant. However, the pairwise comparison of the groups showed more detailed differences in the findings, which are reported in Table 5.

As can be seen in Table 5, there is a significant difference between the three groups in positive emotions. Examining the difference of means in Table 4 and descriptive indices in Table 3 shows that the difference

Table 2. Summary of Reality Therapy Sessions

Sessions	Content of Sessions
The first session	Familiarizing the members with each other, with the expectations, and with criteria, how to participate in the group, performing the pre-test.
The second session	Familiarization of members with the concept of reality therapy and a brief explanation about the background of reality therapy and emotional involvement with group members
The third session	Teaching choice theory and fundamental concepts of reality therapy
The fourth session	Being aware of the basic human needs, cataloging the basic needs of the members with their own efforts and the help of counseling, examining the importance of meeting these needs, explaining the basic needs and their comprehensive definition, explaining the importance of the balance of the five needs and their impact on the human psyche
The fifth session	In this meeting, the members are asked to give a summary of the previous meeting and ask questions that might have arisen, and others are asked to be active in the group by answering or making statements.
The sixth session	Preparing plans and programs, helping clients through useful and practical plans to transform unsuccessful behavior into successful behavior, concluding a contract, not blaming and examining work obstacles
The seventh session	Creating a sense of responsibility to satisfy the needs by using concrete examples, familiarizing the members with the way of commitment to carrying out and implementing the plans, the beginning of the meeting the same as the previous meetings
The eighth session	Summarizing the material presented and performing the post-test

Table 3. Comparison of Demographic Characteristics in Three Groups

	Mindfulness-Based Cognitive Therapy	Reality Therapy	Control Group	P-Value
Age	24.11 ± 1.96	23.87 ± 2.03	24.61 ± 1.88	0.11
Gender				0.18
Male	6 (40)	5 (33.3)	7 (46.7)	
Female	9 (60)	10 (66.7)	8 (53.3)	

Abbreviation: SD, standard deviation.

^aValues are expressed as Mean ± SD or No. (%).

Table 4. Mean and Standard Deviation of Pre-test and Post-test of Academic Emotion and Academic Meaning in Three Groups ^a

Variables	Phase	MBCT	RT	Control Group	P-Value		Effect Size
					S-W	Between-Group	
Positive emotions	Pre-test	49.61 ± 5.05	56.46 ± 8.13	50.80 ± 7.14	0.18	0.001	0.862
	Post-test	84.73 ± 6.49	73.13 ± 4.39	52.53 ± 5.55	0.09		
Negative emotion	Pre-test	170.20 ± 14.79	157.86 ± 16.30	159.66 ± 15.47	0.07	0.001	0.766
	Post-test	95.53 ± 7.69	111.66 ± 7.74	156.13 ± 22.50	0.21		
Academic meaning	Pre-test	214.86 ± 10.94	219.53 ± 12.25	217.93 ± 15.85	0.19	0.001	0.424
	Post-test	254.06 ± 13.67	238.61 ± 21.42	218.66 ± 16.83	0.11		

Abbreviations: MBCT, mindfulness-based cognitive therapy; RT, reality therapy; S-W, Shapiro-Wilk test; SD, standard deviation.

^aValues are expressed as Mean ± SD.

between the mindfulness group (MBCT-control = 31.33; $P < 0.01$) and reality therapy group (RT-control = 21.52; $P < 0.01$) with the control group was significant. In addition, the comparison of experimental groups showed significant differences between groups (RT-MBCT = 9.80; $P < 0.01$). Observing the means of the two groups also showed that mindfulness therapy's mean ($M = 84.73 \pm 5.13$) increased more than reality therapy's mean ($M = 73.13 \pm 5.61$), indicating its greater effectiveness.

In addition, the comparison of negative emotions in

factor levels also showed that, unlike positive emotions, there was no significant difference between the two treatment groups in reducing negative emotions (RT-MBCT = 10.08; $P = 0.32$). Nonetheless, the effectiveness of the two groups in comparison to the control group was significant ($P < 0.01$). The comparison of academic meaning also showed that reality therapy (Control-RT = 16.96; $P < 0.05$) and mindfulness (RT-MBCT = 36.48; $P < 0.01$) were effective in increasing academic meaning. Additionally, the comparison of the effectiveness of the

two groups also showed that the meaning of education in the mindfulness group ($M = 254.06 \pm 13.47$), compared to reality therapy ($M = 238.61 \pm 15.05$), increased significantly.

5. Discussion

Based on the first finding of this study, it was shown that reality therapy increased all components of positive emotions and decreased academic negative emotions. The findings of various studies also indicated that reality therapy is associated with an increase in factors related to psychological well-being and a decrease in psychologically harmful factors.

Based on the first finding of this study, it was shown that reality therapy increased all the components of positive emotions and decreased academic negative emotions. Eslami et al. (20) confirm the effectiveness of reality therapy in increasing the happiness and life satisfaction of teenagers, which is in line with the findings of Shariatipour et al.'s study (36) regarding the effectiveness of hope, optimism, and self-efficacy. Shishehfar et al. (37) also reported the effectiveness of these types of interventions in increasing happiness. Other findings also indicated that reality therapy is associated with a reduction in anxiety (38, 39) and depression (40). In this regard, Motaharinasab et al. showed that the intervention of reality therapy significantly reduces academic procrastination, and the self-regulation scores of the experimental group increased significantly from the self-regulation scores of the control group (18). Moreover, Ghoreishi and Behboodi observed in a study that reality therapy is a suitable and effective method for increasing academic self-efficacy and regulating students' emotions in therapeutic and clinical interventions (41).

The reduction of academic emotions due to reality therapy can be attributed to several causes. For example, we can mention the therapeutic role of this intervention in reducing negative emotions, which will increase mental health and spread positive emotions. This problem sets up a phenomenon that, in positive psychology, is called "the theory of building and expanding positive emotions" (42). Based on this model, the spread of positive emotions increases individuals' intellectual-practical treasury. This increase causes individuals to have a wide scope for behavior and thinking; therefore, they will have better solutions and coping methods in the face of academic and interpersonal conflicts and tensions, which reduces the scope for re-experiencing unpleasant emotions. Such a part of the reduction of negative emotions can be attributed to the common positive outcomes in group interventions. For example, when procrastinating

students meet a number of individuals similar to themselves for the first time, a significant portion of their negative sense of uniqueness is reduced. Therefore, it is understandable as long as the procrastinating student suffers from disorganization and evasion of responsibility, and teaching the reality of the treatment is aimed at them taking control of their lives by teaching them to be responsible for their actions.

Another finding of this study showed that MBCT has been associated with increasing positive emotions and decreasing negative academic emotions. The investigations carried out in relation to the research background also show that the present finding is implicitly in line with studies that have been conducted with the aim of investigating the effectiveness of MBCT in emotions (43, 44). Several findings have also confirmed the relationship between mindfulness and a range of positive (45) and negative (46) emotions based on correlation studies.

The effectiveness of mindfulness in academic emotions can be inferred based on the emotional regulation model of mindfulness (47). In this therapeutic approach, paying attention and allowing emotions as they are experienced and not reacting automatically to emotions and their triggers prevents re-experiencing the consequences of emotions or secondary emotions. It can also be said that by emphasizing the present tense in mindfulness, one of the main causes of negative emotions (e.g., depression and anxiety), that is, worry and rumination, is affected. Therefore, the reduction of rumination and worry directly results in the reduction of negative emotions, or it can mediate the relationship between stress and anger (48).

The comparison of the two treatments showed that MBCT was more effective in increasing positive emotions and reducing negative emotions. A review of the research background regarding the present finding shows that this result is consistent with the findings of Jokar et al.'s study (49). In relation to the greater effectiveness of mindfulness in reducing negative emotions, it can be said that activities that are based on the present tense and include exercises based on breathing make the individuals able to simultaneously control harmful factors, such as rumination and worry, as a result, the level of his/her negative emotions will be reduced. On the other hand, the findings indicated that individuals with high levels of awareness could continuously create dynamic and flexible environments in their lives due to time constraints and fear of change (50). The environmental changes created, with being in the present and lack of evaluation, will prevent negative emotions and reduce the distance from friends and support sources, which will result in an

Table 5. Summary of Results of Pairwise Comparison of Groups for Each of Dependent Variables

Dependent Variables	Groups		Mean Difference	Std. Error	P
Positive emotions	MBCT	RT	9.805*	2.292	0.001
		Control	31.331*	2.108	0.001
	RT	MBCT	-9.805*	2.292	0.001
		Control	21.526*	2.081	0.001
	Control	MBCT	-31.331*	2.108	0.001
		RT	-21.526*	2.081	0.001
Negative emotions	MBCT	RT	-10.087	6.125	0.323
		Control	-57.540*	5.632	0.001
	RT	MBCT	10.087	6.125	0.323
		Control	-47.453*	5.559	0.001
	Control	MBCT	57.540*	5.632	0.001
		RT	47.453*	5.559	0.001
Academic meaning	MBCT	RT	19.519*	7.428	0.037
		Control	36.486*	6.830	0.001
	RT	MBCT	-19.519*	7.428	0.037
		Control	16.967*	6.741	0.048
	Control	MBCT	-36.486*	6.830	0.001
		RT	-16.967*	6.741	0.048

Abbreviations: MBCT, mindfulness-based cognitive therapy; RT, reality therapy.

increase in positive emotions. On the other hand, facing reality and stressing responsibility that is emphasized in reality therapy might make procrastinating students face their inability to manage educational activities, which can result in learned helplessness (51).

Based on another finding of this study, the results showed that reality therapy had a significant effect on the components of academic meaning. A review of the research background related to the present finding shows that the present hypothesis is implicitly in line with the findings of Aziz's study (52). Additionally, according to reality therapy's emphasis on responsibility, correlational studies also show that responsibility is one of the factors related to educational structures, such as academic progress and self-efficacy (53), which can affect an educational and career process. The present finding can be inferred based on Glasser's theory and the emphasis of this approach on the present tense of references (54). Based on this therapeutic principle, Glasser believes that a person's focus and emphasis on past failures and unpleasant experiences that bring negative emotions to him/her causes the person to neglect the present time in which responsibility should flow, as a result of which his/her identity of failure continues. Therefore, by changing the therapist's attitude from the

past to the present, not only he/she can control most of the ruminations related to the past but also prevent the effects of negative educational experiences of the past on the present. Therefore, the student gives meaning to his/her education with a wide range of motivations.

As a comparison of the two treatments, it was observed that MBCT has been more effective in the components of "career, future, self, social, and liberation". In line with the first hypothesis of the study, it has been shown that no study has directly compared the effect of reality therapy and mindfulness on academic meaning; however, the evidence indicates that the present hypothesis is indirectly related to studies by Naderi et al. (55), Zandi et al. (50), Fadaei Vatan et al. (56), and Emamdoost et al. (57). Although a study by Falahiyan et al. (51) showed that the effectiveness of the two interventions in the emotional maturity of the groups did not differ, this disparity could be due to the research community and different variables. With the increase in psychological health and well-being, interactions and interpersonal relationships of students in educational environments will expand, which will result in a double increase in positive emotions and a decrease in procrastination. As a result, students will have more hope for their academic future to achieve a career, earn money, expand social connections, and get rid of psychological

pressure.

In addition to the above-mentioned statements, the explanation of the greater effectiveness of mindfulness in academic emotions might be found in the different nature of the two interventions. The emphasis of the reality therapy approach on elements, such as facing reality, responsibility, and evaluation of right and wrong behaviors, indicates that this approach might be a suitable method for intervention in “cognitive and behavioral” dimensions; however, procrastination models emphasize emotional dysfunction as one of the basic pathologies of procrastination (47). Some individuals consider procrastination to be a form of emotion regulation that aims to reduce negative emotions. Chiesa et al., in explaining the emotional regulation model of mindfulness, believe that mindfulness leads to emotional management through paying attention and allowing all emotions as they are experienced and not automatically reacting to them (47).

As previously stated, mindfulness-based interventions with changes in brain waves and the level of consciousness of individuals affect the range and dimensions of various types of attention. With the expansion of stable and dispersed attention, the comprehensive focus of academic content is opened to the process and other dimensions of education, which also covers the meaning of education. In addition, with the increase in psychological health and well-being, interactions and interpersonal relationships of students in educational environments will expand, which will result in a double increase in positive emotions and a decrease in procrastination. As a result, students will have more hope for their academic future to achieve a career, earn money, expand social connections, and get rid of psychological pressure.

Due to the time limit of this study, it was not possible to follow up on the results of the implementation of this training. In addition, it was impossible to re-access some of these subjects because it was impossible to travel due to the spread of the coronavirus; therefore, this limitation reduces the power of generalization of the findings.

5.1. Conclusions

Overall, the results of the analysis of the research findings showed that reality therapy and MBCT have been associated with an increase in positive emotions, a decrease in negative emotions, and an increase in academic meaning in procrastinating students. Furthermore, the comparison of the effectiveness of the two interventions shows that mindfulness therapy has been more effective than reality therapy in increasing academic emotions and academic meaning. In general, the explanation of the research findings also shows

that the effectiveness of the interventions has been done directly, that is, by influencing variables, such as positive emotions and attention, or indirectly, by reducing emotional disorders and increasing mental health.

A review of the research literature shows that the effects of academic procrastination on students are very destructive. Due to the success of mindfulness and reality therapy, the necessary plans can be used to reduce the academic procrastination of students and its problems. The results of this study can provide thoughtful information for experts and thinkers in the field of learning, reducing students' academic procrastination and increasing their academic success. In addition, procrastination is known as one of the most common academic problems in the educational system, which is associated with many long-term psychological and academic consequences; therefore, the findings obtained in the current study can be used in university counseling centers, schools, and higher education institutions with the aim of increasing the effective variables related to reducing procrastination, which at the same time as reducing procrastination and increasing academic progress can be used as a countermeasure against emotional problems and increase the mental health of procrastinating students.

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Footnotes

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Data Reproducibility: The entirety of the data generated or analyzed during this study has been meticulously included in this article.

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References

- Zarei A, Zandiniya Z. General and academic self-efficacy of students and its relationship with academic performance. *J Educ Psychol Stud.* 2009;**6**(9):13-28.
- FazliKhani M. [Selected articles and counseling experiences of teachers]. Tehran: Abed Publications; 2005. Persian.
- Wypych M, Matuszewski J, Dragan WL. Roles of Impulsivity, Motivation, and Emotion Regulation in Procrastination - Path Analysis and Comparison Between Students and Non-students. *Front Psychol.* 2018;**9**:891. [PubMed ID: 29922205]. [PubMed Central ID: PMC5996249]. <https://doi.org/10.3389/fpsyg.2018.00891>.
- Chen BB, Han W. Ecological Assets and Academic Procrastination among Adolescents: The Mediating Role of Commitment to Learning. *Front Psychol.* 2017;**8**:1971. [PubMed ID: 29379451]. [PubMed Central ID: PMC5696329]. <https://doi.org/10.3389/fpsyg.2017.01971>.
- Narimani M, Gholam Zade H, Dehghan HAR. [Comparative study habits, self-efficacy and procrastination among gifted students and normal]. *J Educ Psychol Stud.* 2014;**11**(20):175-96. Persian. <https://doi.org/10.22111/jeps.2014.2145>.
- Ferrari JR. Self-handicapping by procrastinators: Protecting self-esteem, social-esteem, or both? *J Res Pers.* 1991;**25**(3):245-61. [https://doi.org/10.1016/0092-6566\(91\)90018-1](https://doi.org/10.1016/0092-6566(91)90018-1).
- Liu G, Cheng G, Hu J, Pan Y, Zhao S. Academic Self-Efficacy and Postgraduate Procrastination: A Moderated Mediation Model. *Front Psychol.* 2020;**11**:1752. [PubMed ID: 32793073]. [PubMed Central ID: PMC7393210]. <https://doi.org/10.3389/fpsyg.2020.01752>.
- Shojaeifard A, Ahmadi Gharacheh AM, Farshbani R. [Causal model of predicting academic procrastination through academic emotions and self-regulated learning strategies mediated by perfectionism]. *J Res Educl Syst.* 2022;**16**(57):62-74. Persian.
- Ketonen EE, Dietrich J, Moeller J, Salmela-Aro K, Lonka K. The role of daily autonomous and controlled educational goals in students' academic emotion states: An experience sampling method approach. *Learn Instr.* 2018;**53**:10-20. <https://doi.org/10.1016/j.learninstruc.2017.07.003>.
- Lichtenfeld S, Pekrun R, Stupnisky RH, Reiss K, Murayama K. Measuring students' emotions in the early years: The Achievement Emotions Questionnaire-Elementary School (AEQ-ES). *Learn Individ Differ.* 2012;**22**(2):190-201. <https://doi.org/10.1016/j.lindif.2011.04.009>.
- Pekrun R. Academic emotions. In: Wentzel KR, Miele DB, editors. *Handbook of motivation at school.* 2nd ed. New York, NY: Routledge; 2016. 1.2E+146 p. <https://doi.org/10.4324/9781315773384>.
- Henderson-King D, Smith MN. Meanings of Education for University Students: Academic Motivation and Personal Values as Predictors. *Soc Psychol of Educ.* 2006;**9**(2):195-221. <https://doi.org/10.1007/s1218-006-0006-4>.
- Seginer R, Mahajna S. On the meaning of higher education for transition to modernity youth: Lessons from future orientation research of Muslim girls in Israel. *Int J Educ Res.* 2016;**76**:112-9. <https://doi.org/10.1016/j.ijer.2015.03.005>.
- Fooladi A, Kajbaf MB, Ghamarani A. [Effectiveness of Academic Buoyancy Training on Academic Meaning and Academic Performance of Third Grade Girl Students at the First Period of High School in Mashhad City]. *Research in School and Virtual Learning.* 1970;**4**(15):93-103. Persian.
- Corey G. *Reality Therapy. Theory and Practice of Counseling and Psychotherapy.* 9th ed. Belmont, CA: Brooks/Cole, Cengage; 2011. p. 333-59.
- Bradley EL. Choice theory and reality therapy: an overview. *International Journal of Choice Theory and Reality Therapy.* 2014;**5**(1):6-14.
- Naderi H, Abdullah R, Hamid T, Jamaluddin S. Intelligence and academic achievement: An investigation of gender differences. *Life Sci J.* 2010;**7**.
- Motaharinasab Z, Mohsenzadeh F, Zaharakar K. [The Effect of Reality-Therapy on the Negligence and Self-Regulation of School Students]. *Rahborde Farhand.* 2021;**13**(52):203-21. Persian. <https://doi.org/10.22034/jscf.2021.126585>.
- Mason CP. Using reality therapy trained group counselors in comprehensive school counseling programs to decrease the academic achievement gap. *International Journal of Choice Theory & Reality Therapy.* 2016;**35**(2).
- Eslami R, Hashemian P, Jarahi L, Modarres Gharavi M. Effectiveness of group reality therapy on happiness and quality of life in unsupervised adolescents in Mashhad. *Med J Mashhad Univ Med Sci.* 2013;**56**(5):300-6.
- Mollagholamali Hakak N. Effectiveness of group reality therapy in increasing the students' happiness. *Life Sci J.* 2013;**10**(1):1-4.
- Kianipour O, Hoseini B. An examination of the effectiveness of choice theory on teachers' teaching effectiveness and students' subsequent academic achievement. *International Journal of choice theory and Reality Therapy.* 2012;**31**(2):55.
- Nikbakht E, Abdekhodae MS, Hasanabadi H. Effectiveness of reality therapy group counseling program on academic motivation and procrastination. *Res Clin Psychol Couns.* 2014;**3**(2):81-94.
- Brown KW, Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. *J Pers Soc Psychol.* 2003;**84**(4):822-48. [PubMed ID: 12703651]. <https://doi.org/10.1037/0022-3514.84.4.822>.
- Kabat-Zinn J, Massion AO, Kristeller J, Peterson LG, Fletcher KE, Pbert L, et al. Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *Am J Psychiatry.* 1992;**149**(7):936-43. [PubMed ID: 1609875]. <https://doi.org/10.1176/ajp.149.7.936>.
- Hayes SC, Strosahl KD, Wilson KG. *Acceptance and Commitment Therapy.* New York: Guilford Press; 2003. <https://doi.org/10.1007/978-0-387-23369-7>.
- Lotfalian B, Ahmadi R. Investigating the effectiveness of mindfulness-based cognitive therapy group training on academic procrastination and self-handicapping of secondary school male students. *The 13th International Research Conference on Psychology, Counseling and Educational Sciences.* 2022.
- Tavakoli O, Ebrahimi S. The effectiveness of mindfulness based cognitive therapy on academic motivation, self-efficacy and academic procrastination of students. *J New Dev Psychol Educ Sci Educ.* 2019;**3**(28):41-27.
- Kobori O, Dighton G, Hunter R. Does perfectionism impact adherence to homework assignment? A preliminary pilot study of perfectionism and procrastination of CBT homework. *Behav Cogn Psychother.* 2020;**48**(2):243-7. [PubMed ID: 31576790]. <https://doi.org/10.1017/S1352465819000547>.
- Tuckman BW. The Development and Concurrent Validity of the Procrastination Scale. *Educ Psychol Meas.* 2016;**51**(2):473-80. <https://doi.org/10.1177/0013164491512022>.
- Moghads Bayat M. *Normalization of Takman's procrastination scale for students [Thesis].* Islamic Azad University of Roudhen; 1993.
- Isazadegan A, Micaeli F, Meroei Milan F. The relationship between hope, optimism and meaning of education with academic performance in high school students. *J Sch Psychol.* 2014;**3**(2):137-52.
- Pekrun R, Goetz T, Perry RP. *Achievement emotions questionnaire (AEQ). User's manual.* Munich, Germany: Department of Psychology, University of Munich; 2005.
- Hosseni SA. Validiton of Achievement Emotions Questionnaire-Elementary School (AEQ-ES). *Educational and Scholastic studies.* 2021;**10**(3):153-79.
- Glasser W. *Choice Theory.* New York: Harper Collins; 2006.
- Shariatipour S, Barabadi H, Heydarnia A. The Effectiveness of Reality Therapy based on Choice Theory on Psychological Capital of Orphan

- Adolescent Girls. *J Couns Res.* 2019;**18**(71):36–59. <https://doi.org/10.29252/jcr.18.71.36>.
37. Shishehfar S, Kazemi F, Pezeshk S. [The effectiveness of reality therapy training to increase happiness and responsibility in the mothers of children with Autism disorder]. *Psychol Except Indivi.* 2017;**7**(27):53–77. Persian. <https://doi.org/10.22054/jpe.2018.18761.1487>.
 38. Emmelkamp PMG, Meyerbroeker K, Morina N. Virtual Reality Therapy in Social Anxiety Disorder. *Curr Psychiatry Rep.* 2020;**22**(7):32. [PubMed ID: 32405657]. [PubMed Central ID: PMC7220867]. <https://doi.org/10.1007/s11920-020-01156-1>.
 39. Zainal NH, Chan WW, Saxena AP, Taylor CB, Newman MG. Pilot randomized trial of self-guided virtual reality exposure therapy for social anxiety disorder. *Behav Res Ther.* 2021;**147**:103984. [PubMed ID: 34740099]. [PubMed Central ID: PMC8759454]. <https://doi.org/10.1016/j.brat.2021.103984>.
 40. Zhai K, Dilawar A, Yousef MS, Holroyd S, El-Hammali H, Abdelmonem M. Virtual Reality Therapy for Depression and Mood in Long-Term Care Facilities. *Geriatrics (Basel).* 2021;**6**(2). [PubMed ID: 34199801]. [PubMed Central ID: PMC8293126]. <https://doi.org/10.3390/geriatrics6020058>.
 41. Ghoreishi M, Behboodi M. Effectiveness of group reality therapy on emotion regulation and academic self-efficacy of female students. *SALĀMAT-I IJTIMĀI (Community Health).* 2017;**4**(3):233–43.
 42. Fredrickson BL, Losada MF. Positive affect and the complex dynamics of human flourishing. *Am Psychol.* 2005;**60**(7):678–86. [PubMed ID: 16221001]. [PubMed Central ID: PMC3126111]. <https://doi.org/10.1037/0003-066X.60.7.678>.
 43. Lindsay EK, Chin B, Greco CM, Young S, Brown KW, Wright AGC, et al. How mindfulness training promotes positive emotions: Dismantling acceptance skills training in two randomized controlled trials. *J Pers Soc Psychol.* 2018;**115**(6):944–73. [PubMed ID: 30550321]. [PubMed Central ID: PMC6296247]. <https://doi.org/10.1037/pspa0000134>.
 44. Tang YY, Tang R, Posner MI. Mindfulness meditation improves emotion regulation and reduces drug abuse. *Drug Alcohol Depend.* 2016;**163 Suppl 1**:S13–8. [PubMed ID: 27306725]. <https://doi.org/10.1016/j.drugalcdep.2015.11.041>.
 45. Munoz RT, Hoppes S, Hellman CM, Brunk KL, Bragg JE, Cummins C. The Effects of Mindfulness Meditation on Hope and Stress. *Research on Social Work Practice.* 2016;**28**(6):696–707. <https://doi.org/10.1177/1049731516674319>.
 46. Butterfield N, Schultz T, Rasmussen P, Proeve M. Yoga and mindfulness for anxiety and depression and the role of mental health professionals: a literature review. *J Ment Health Train Educ Pract.* 2017;**12**(1):44–54. <https://doi.org/10.1108/jmhtep-01-2016-0002>.
 47. Chiesa A, Serretti A, Jakobsen JC. Mindfulness: top-down or bottom-up emotion regulation strategy? *Clin Psychol Rev.* 2013;**33**(1):82–96. [PubMed ID: 23142788]. <https://doi.org/10.1016/j.cpr.2012.10.006>.
 48. Du J, Huang J, An Y, Xu W. The Relationship between stress and negative emotion: The Mediating role of rumination. *Clinical Research and Trials.* 2018;**4**(1). <https://doi.org/10.15761/crt.1000208>.
 49. Jokar B, Zaremohammadi A, Ghanbari A. The Effectiveness of Cognitive Therapy based on Mindfulness Training on Reducing Social Anxiety and Increasing Self-esteem of Students with Learning Disabilities. *Int J Health Stud.* 2022:6–10.
 50. Zandi H, Amirinejad A, Azizifar A, Aibod S, Veisani Y, Mohamadian F. The effectiveness of mindfulness training on coping with stress, exam anxiety, and happiness to promote health. *J Educ Health Promot.* 2021;**10**(1). [PubMed ID: 34250111]. [PubMed Central ID: PMC8249950]. <https://doi.org/10.4103/jehp.jehp-616-20>.
 51. Falahiyan M, Hatami H, Ahadi H, Asadzade H. [Comparing the effectiveness of reality therapy training and mindfulness-based cognition therapy on adolescent emotional maturity]. *J Psychol Sci.* 2019;**18**(78):667–74. Persian.
 52. Aziz ARBA. The Effectiveness of Reality Therapy In Group Counseling To Student Motivation For Academic Well-being. *Int J Acad Res Bus Soc Sci.* 2022;**12**(8):886–98.
 53. Heydarieh Zadeh SS. [Investigating the relationship between responsibility and self-efficacy with the academic performance of female high school students in Yazd city]. *New Adv Behav Sci.* 2018;**4**(33):41–56. Persian.
 54. Glasser W. [Reality therapy, introduction to the new reality therapy based on choice theory]. Tehran: Saye Sokhan; 2014. p. 121–5. Persian.
 55. Naderi Heydari H, Ba Ezat F, Qolam Ali Lavasani M, Rahimi S. Designing an Educational Mindfulness Program and Its Effectiveness on Students' Cognitive, Emotional and Educational Processes. *J Arch Mil Med.* 2019;**7**(3). <https://doi.org/10.5812/jamm.98188>.
 56. Fadaei Vatan Z, Estaki M, Ghanbari Panah A, Kochak Entezar R. [Comparison of Mindfulness-Based Cognitive Therapy and cognitive reconstructing training effectiveness on social and emotional self-efficacy in students with learning problems]. *Psychol Except Indivi.* 2019;**9**(35):169–92. Persian. <https://doi.org/10.22054/jpe.2020.43596.2008>.
 57. Emamdoost Z, Teimory S, Khoyneshad GR, Rajaei AR. [Comparison of effectiveness of mindfulness based Cognitive Therapy and Reality Therapy in attitudes of parents toward their children in mothers of children with Autism spectrum disorders]. *Med J Mashhad Univ Med Sci.* 2020;**62**(5.1):722–31. Persian.