Exploring the Effectiveness of CBT and Mindfulness on Academic Procrastination

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Abstract: Procrastination is one of the most discussed behavior patterns nowadays. It can significantly reduce one's life quality through decreased self-confidence and increased negative habits including heavy drinking, insomnia etc. According to research, procrastinating is very common among students when dealing with their academic tasks, and it can cause them moderate-to-high level problems when procrastination behaviors accrued. Although some strategies are commonly suggested for students to improve their procrastination behavior, the effectiveness of certain specific intervention for academic procrastination behavior was not analyzed enough. So, the purpose of this article is to analyze and discuss the effectiveness of specific interventions including cognitive behavioral therapy (CBT) and mindfulness on academic procrastination among students through reviewing existing empirical studies. Five articles were discussed, and the reviewed studies showed that both CBT and mindfulness are effective on improving academic procrastination behavior. Group CBT was found to be more effective compared to ICBT. The results could help create possible future interventions to improve academic procrastination or procrastination related behaviour.

1 INTRODUCTION

A lot of people have experienced this situation, the deadline of a task is getting closer and closer, the anxiety and stress level is getting higher and higher. However, instead of taking reasonable actions such as finishing the task as soon as possible, escaping behavior seems unstoppable. This typical behavior that a lot of people have experienced is defined as procrastination. For students who tries to accomplish their academic goals, procrastination behavior is one of the biggest problems in their way. A study found that academic procrastination was closely related to lower academic success rate and was related to academic failure. Additionally, the study found that procrastination is correlated with impulsivity and perfectionism (Alaya et al., 2021).

CBT was developed from cognitive therapy (CT). CT believes that distorted cognitive pattern is the cause of mental distress and behavior issues, by identifying and modifying the cognitive pattern could improve the issue (Beck, 1979). While CBT combines cognitive principles with behavioral techniques. This makes CBT a good choice in improving procrastination. For example, CBT could help reconstruct perfectionist individual's cognitive

believes to set reasonable goals instead of high standards to avoid procrastination behavior caused by fear of failure. While mindfulness is a practice of being at the present without any judgement. This intervention is a great choice for improving procrastination because it helps create this muscle memory to stop impulsivity individual from their automatic behavior of instant gratification.

However, how effective each intervention or sub intervention was not fully discussed, specifically how each intervention worked under different conditions and environment. Therefore, this study aims to analyze the effectiveness of CBT and mindfulness on academic procrastination. This study searched empirical studies within the past 10 years in database such as PsycINFO and Google Scholar. Five articles were selected from the search, two focused on CBT intervention and three focused on mindfulness. All studies aimed to test the effectiveness of the intervention on academic procrastination among students. These studies were conducted in different culture background to validate generalization.

2 IMPACT OF INTERVENTIONS ON ACADEMIC PROCRASTINATION

2.1 The Effectiveness of CBT in Reducing Academic Procrastination

CBT combines cognitive principles with behavioral techniques, and it believes that distorted cognitive pattern and maladaptive behaviors are both the cause of mental distress and should be adjusted simultaneously. According to Dryden, CBT helps reducing procrastination through replacing irrational beliefs with rational ones since procrastination behavior rooted in established ways of thinking (Dryden, 2021).

Rozental et al. conducted an experiment to test the effectiveness of CBT in treating academic procrastination. More specifically, compared self-guided Internet-based CBT (ICBT) and group CBT (Rozental et al., 2018). The author mentioned why these two groups were selected. ICBT is not as commonly available as group CBT, especially in university setting. Moreover, by comparing these two methods, helps evaluate the effectiveness in university setting. The participants were screened by standardized tests such as Pure Procrastination Scale (PPS) and the Procrastination Assessment Scale for Students (PASS) to find participants meeting the criteria of university students with severe academic procrastination. This study had a Pragmatic Randomized Controlled Trial (pRCT). 92 university students participated this study and were randomly assigned to two groups (Internet-based CBT (ICBT) and group CBT). For ICBT group, students received self-guided, online intervention while group CBT group had in-person therapy sessions facilitated by clinicians. Both interventions lasted 8 weeks with a follow up assessment 6 months after the original intervention. PPS and PASS were used to measure procrastination levels both pre- and post-treatment. Analysis was conducted right after the intervention and the follow up. To determine how much procrastination was reduced within each group after the intervention, participants' procrastination scores pre- and post-treatment within each group was compared. Participants took PPS and PASS before and after the intervention, effect sizes (Cohen's d) were calculated by researcher as quantify the changes within each group. Both ICBT and Group CBT resulted in significant reductions in procrastination scores after treatment (d > 1.2), which means both ICBT and group CBT were effective in reducing academic procrastination.

To find out which format (ICBT or Group CBT) was more effective and their long-term effectiveness, the researcher firstly checked if the effect maintained after 6 months. Participants were tested after 6 months with the same scale. Then compared both pre and post treatment scores with follow up scores. The results were that group CBT improvements remained stable while some of the original improvements was lost over time for ICBT. In conclusion, both ICBT and group CBT had positive impacts, but group CBT was more effective compared to ICBT, especially in maintaining effective over time. However, this study does have its limitation. One of the biggest is that it does not have a control group. This study only compared ICBT group with group CBT group, which could have missed effect caused by other factors. Also, the dropout rate of participants was relatively high (19.6% at post-treatment and 20.7% at follow-up).

Another study by Toker & Avci also focused on the effectiveness of CBT intervention (Toker and Avci, 2015). In this study, 26 university students participated with 13 each in experimental group and control group. Each group has 6 females and 7 males between the age of 19 to 24. Participants were recruited from various majors including education, arts, economics and administrative sciences etc. Students applied voluntarily through university's website and was screened by scales including Academic Procrastination Scale (APS), Melbourne Decision-Making Questionnaire (MDMQ) etc. Students with extreme APS scores were excluded from this study to guarantee comparability. Additionally, students who received or were receiving psychiatric treatment, or experienced recent traumatic events, or had high depression scores were also excluded from the study. The remaining participants were randomly assigned to control group and experimental group. This study used a quasi-experimental design. During the 8-week session (90 minutes each), participants within the experimental group received CBT-based Psycho-Educational program which includes introduction, main activity and conclusion. 7 scales were used to measure participants' level of procrastination, resourcefulness, decision-making, anxiety, depression, and group processes at pre and post intervention and the follow up one month after the program ended. Both quantitative analysis and qualitative analysis was held. Quantitative analysis was used to measure and compare the changes in academic procrastination behaviors. While qualitative analysis was used to

open ended questions from General Evaluation Form of Group Processes (GEFGP) for participants' feedback on their experience. For results, compare to the control group that received no intervention, experimental group had significant changes in academic procrastination behavior, and the changes was proved to be consistent at follow up. According to feedback, students reported to find the intervention helpful in gaining skills against procrastination behavior. However, this study had some limitations including small sample size, short follow up periods.

Both studies tested the effectiveness of CBT in reducing academic procrastination. Moreover, both studies resulted in significant reductions in academic procrastination behavior. Additionally, both studies showed that group CBT had stronger and more sustainable results. However, the first study used RCT as study design, which is stronger in proving effectiveness of the intervention due to stronger causality. Also, the second study has a control group which the first study is lacking. Additionally, the first study has longer followed up duration to measure its long-term effectiveness while the second study has much more detailed qualitative information about participants.

2.2 The Effectiveness of Mindfulness in Reducing Academic Procrastination

Mindfulness is a practice of being at the present without any judgement. It includes focusing on thoughts, body sensation etc (Kabat-zinn, 2003).

As said by Sirois & Pychyl, procrastination behavior is driven by the fear of facing the negative emotions related to the main task (Sirois and Pychyl, 2013). Furthermore, according to Gross & Thompson, by practicing mindfulness, emotion regulation could be improved (Gross and Thompson, 2007). Therefore, with better emotion regulation, procrastination behavior could be reduced through decreased negative emotions.

A study conducted by Yue, Zhang, & Jing had supportive results of the effectiveness of mindfulness on academic procrastination (Yue et al., 2024). In this study, 733 middle school students (53.3 % female) from China were recruited with an average age of 13.12. This was a cross-sectional study to test the relationships between mindfulness and academic procrastination with learning engagement and harsh parenting as moderators. All participants completed questionnaires in a classroom setting under supervision. Mindfulness Attention Awareness Scale (MAAS) was used to test the level of mindfulness,

Aitken Procrastination Inventory (API) was used to test the frequency of academic procrastination behaviors, Utrecht Work Engagement Scale for Students (UWES-S) was used to test the level of engagement of students in learning tasks, and Harsh Parenting Questionnaire was used to assess strict punishing parenting behaviors. All data was collected by researchers after a single session to maintain consistency. SPSS was used to analyze the data, and all results were statistically significant($p<0.01$). More specifically, the results showed significant negative correlation between mindfulness and academic procrastination($r=-0.26$), positive relationship between mindfulness and learning engagement ($r=0.31$), and negative correlation between learning engagement and academic procrastination($r=-0.35$). Additionally, learning engagement mediated the relationship between mindfulness and academic procrastination by 52.27%, while harsh parenting weakened the positive effect of mindfulness on learning engagement. However, this study has its limitation, the cross-sectional design collect data at one time point, only tests the correlation between variables. Especially for mindfulness, something that needs practice over time, cross sectional design cannot show the changes over time.

Another study by Rad et al also focused on the effects of mindfulness in reducing academic procrastination (Rad et al., 2023). In this study, 36 undergraduate students in Iran were recruited based on their high academic procrastination scores with an average age of 20. With an RCT design, they were spited into two groups, the mindfulness training group and the wait-list control group. All participants completed questionnaires including Multidimensional Measure of Academic Procrastination (MMAP), Freiburg Mindfulness Inventory-Short Form (FMI-SF), Self-Regulation Questionnaire-Short Form (SSRQ), and General Health Questionnaire (GHQ) before the intervention. For the mindfulness training group, the intervention included over 8 weekly group sessions (90 minutes each) based on Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT). While the wait-list control group do not receive any intervention until the post-test data collection. Each group was tested again afterwards. Follow up data was collected after one week. Data was later analyzed using SPSS. The results showed significant reductions in academic procrastination behavior for the mindfulness training group compared to the wait-list control group and maintained the improvements after one week. The mindfulness level and self-regulation scores

increased while negative emotions and perceived negative consequences associated with procrastination were reduced. In brief, this study also supports the effectiveness of mindfulness in reducing academic procrastination. However, this study has limited generalizability due to a small sample size. Additionally, the follow up session was only one week after the intervention, lacking measures for long term sustainability.

Eltayeb conducted a study focused on the effectiveness of mindfulness in academic procrastination among female university students at Prince Sattam Bin Abdulaziz University (Eltayeb, 2021). 206 female students (105 science students, 101 arts students) were randomly selected out of 1890 students. Two scale was used in this study. Both was designed based on literature review. The mindfulness scale was refined after pilot testing on 30 students and the final version of has 28 items (Cronbach's alpha = 0.812). Items 2 and 5 were excluded due to negative correlation to maintain the internal consistency of the scale. The Academic Procrastination Scale was refined based on expert feedback, specifically excluded item 5 due to its weak correlation. The final version has 22 items (Cronbach's alpha = 0.818). All participants completed the scales during the second semester of the 2019-2020 academic year. Collected data was later analyzed using SPSS. The result for the overall level of mindfulness includes mean score of 105.77 (SD = 11.68), t=26.74, and p<0.01, showing high level of mindfulness among students. Students also scored high on procrastination (Mean = 68.02, SD = 12.34, t =2.35, p=0.02). In addition, for the correlation between mindfulness and procrastination, a significant negative correlation was observed (r =−0.472, p<0.01). This finding indicates that higher levels of mindfulness is related to lower levels of procrastination. However, this study uses a descriptive correlational design which cannot test causality, only the association between mindfulness and academic procrastination. Also, this study only recruited female students, which means the results may not be generalized to other gender.

In conclusion, all three studies focused on the effectiveness of mindfulness in reducing academic procrastination. All three studies found that higher level of mindfulness is related to lower academic procrastination. However, the first study used cross-sectional design while the second study used RCT design, which provided stronger evidence than the other two studies. Also, the possible impact of gender, cultural and age differences between the participants of the three studies could have potentially influenced the results.

3 CONCLUSION

The main purpose of this study is to analyze the effectiveness of the two interventions (CBT and mindfulness) on academic procrastination based on existing research. According to the findings mentioned above, both CBT and mindfulness are effective in improving academic procrastination. Moreover, studies indicate that group CBT has better and longer impacts on academic procrastination. The result of this study suggests that both CBT and mindfulness interventions can be used in decrease academic procrastination behavior. The purpose of this study is to explore evidence based practical interventions in improving academic procrastination. Which lays the foundation for future research in this topic and possible creation or combination of new interventions in decreasing academic procrastination behavior or procrastination in general.

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