

Positive Psychology Intervention and Cognitive–Behavioural Therapy as Treatments for Academic Procrastination: A Comparative Study

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Abstract

Academic procrastination is a type of dilatory behavior which involves delaying beginning or completion of an intended course of action despite the resultant deleterious consequences. Objective: This study tested the efficacy of Positive Psychology Intervention (PPI), compared with Cognitive–Behavioural Therapy (CBT), in alleviating academic procrastination. Method: A total of 60 undergraduate students suffering from academic procrastination were randomly assigned to two treatment groups (PPI and CBT) and a control group. The procrastination symptoms and related psychological mechanisms were assessed immediately after the closure of treatment and at 3-month follow-up (FU). Results: Both therapies showed remarkable short-term effects in decreasing academic procrastination, but PPI had a better long-term effect. Participants achieved internal locus of control through treatment of both PPI and CBT. At 3-month follow-up (FU), PPI significantly improved openness to

experience, CBT had no effect on the big five traits or locus of control. Conclusion: The findings suggest that both CBT and PPI are effective interventions for procrastinators but may have different therapeutic mechanisms.

Keywords: positive psychology Intervention cognitive-behavioural therapy, academic procrastination, big five traits, locus of control, undergraduate students

Introduction

Academic procrastination usually refers to a student's propensity to intentionally delay the completion of academic-related tasks at the cost of detrimental outcomes (Solomon & Rothblum, 1984). The frequency of self-reported academic procrastination among college students is on the higher side between 30% and 60%, despite the omnipresent negative outcomes (Rabin, Fogel, & Nutter-Upham, 2011). Existing research has corroborated the negative academic and non-academic consequences resulting from academic procrastination (Kim & Seo, 2015;). Negative academic consequences like time management problems, increased duration of study, course work completion difficulties, burgeoning academic workload, absenteeism, and course withdrawal have been reported in previous studies (Burka & Yuen, 1983; Schraw et al., 2007). In consideration of these harmful consequences, the need for developing an effective intervention for academic procrastination becomes paramount. Several studies have demonstrated the benefits of time management (TM) strategies, such as setting deadlines (e.g., Ariely & Wertenbroch, 2002), monitoring and reporting compliance to deadlines (Roberts, Fulton, & Semb, 1988), creating specific plans for completing goals (Häfner, Oberst, & Stock, 2014), and learning study skills (Tuckman & Schouwenberg, 2004) for task completion. Studies have varied with respect to how they have defined procrastination. The present study aimed to examine the effectiveness of a relatively new therapy, the Positive Psychology Intervention (PPI), in reducing academic procrastination among college students, compared with the traditional Cognitive-Behavioral Therapy (CBT).

Method**Design**

A group-comparison design with two types of treatment and a control group with measures for pretest, posttest, Academic Procrastination (PASS), the Big Five traits (BFI) and Locus of control(LOC) was implemented (Kazdin, 1992).

Procedure

All procedures described below were executed by the first author, with close supervision of the second author (research supervisor). Three eighty-four students were informed they could be part of the study in a first contact via e-mail and during classes (January 2021). At that time, they received an overview of the research, as well as its purpose, which was testing treatments to improve academic procrastination, and its potential benefits at a clinical and personal level. From the 384 potential participants, 60 agreed to participate in the study by signing an informed consent form. During the first three weeks of the study, participants filled out online questionnaires corresponding to the pre-test measures (PASS, BFI, LOC). After the screening procedure, 60 undergraduate students were randomly assigned to PPI (n=20; 5 males and 15 females), CBT (n=20; 5 males and 15 females) and wait-list control group (n=20; 5 males and 15 females). The intervention group received either PPI or CBT.

Participants in group A received virtual (online) treatment in Positive Psychological Intervention for a month and a half. The treatment consisted of session involving psychoeducation based on experiential learning and homework assignments. The goal was to make students understand and practice the different aspects of flourishing according to the PERMA-model, such as positive emotions, engagement, meaning, positive relationships, and accomplishment. Homework was the most important

component of this intervention. Students were required to complete exercises in a structured and self-directed manner, and each exercise takes at least one hour to complete. Some exercises run throughout the whole intervention (e.g., the 'Three Good Things' application; Seligman et al., 2005). All participants received the same homework exercises in a fixed sequence and at each of the weekly session clients were given clear instructions on how to complete their exercises. PPI was compared with a standard CBT that followed guidelines outlined by Ferrari, Johnson, and McCown (1995). The manual includes recognizing and challenging cognitive distortion, cognitive restructuring, emotion rating, relaxation training, group discussion, time estimation practice, time management skills, and goal setting. All the group members were required to do the homework and discuss it in the next session.

Materials and Methods

Demographic sheet-It was used to collect information about name, age, gender.

The Procrastination Assessment Scale for Students (PASS)

PASS is a 44-item 5-point Likert scale used to evaluate one's academic procrastination in two-parts (Solomon & Rothblum, 1984). PASS evaluates the frequency with which one procrastinates on academic tasks. The higher the score an individual has, the more self-reported procrastination he or she indicates.

Rotter's Locus of Control Scale (RLOC)

RLOC developed in 1966 contains 29-items including six filler items and 23 items in which individuals choose between two statements and pick the one they agree with most. Individuals with low scores have an internal locus of control, while those with high scores have an external locus of control. The scale has an adequate internal consistency ranging from $r = .65$ to $.79$ (Rotter, 1966).

The Big Five Inventory (BFI):

Neuroticism, conscientiousness, extraversion, agreeableness, and openness to experience were measured by BFI (John & Srivastava, 1999). BFI consists of 44 short phrases to be scored on a 5-point Likert scale. In scoring each scale, some items are reversed (denoted by R), the coded responses are added, and an average score is then computed. The BFI has a high reliability with Cronbach alpha ranging from .81 to .88 (Soto & John, 2009).

Ethical Consideration

A brief research proposal was submitted to Department of Psychology, Osmania University, India for ethical approval. Ethical permission was obtained after meeting all the requisite ethical principles, i.e., consent, anonymity, and confidentiality. The consent of the college authorities was sought before the commencement of the study. Participants were contacted for consent from colleges that provided permission. All participants provided written informed consent.

Results

Kruskal-Wallis (K-W) test run on baseline values of academic procrastination, Locus of control, and the Big five traits as dependent variables revealed no significant difference between three groups of treatment conditions. The results indicated that no statistically significant group differences were found in academic procrastination, $H(2) = 0.0224$, $p = .98887$, openness to experience, $H(2) = 1.7395$, $p = .4191$, conscientiousness, $H(2) = 1.3912$, $p = .4988$, extraversion, $H(2) = 4.0524$, $p = .1318$, agreeableness, $H(2) = 1.3363$, $p = .5126$, neuroticism, $H(2) = 0.945$, $p = .6235$ and Locus of control, $H(2) = 5.0967$, $p = .07821$ (Table 1), respectively, indicating the equivalency of the groups before treatment.

Table 1

Kruskal-Wallis Analysis of Variance Summary Table Comparing Intervention Groups and Wait-List Control Group on Academic Procrastination post-intervention

Variable	χ^2	df	p	ε^2
PASS	0.0225	2	0.989	3.81e-4
LOC	5.097	2	0.078	0.08638
Openness	1.739	2	0.419	0.02948
Conscientiousness	1.391	2	0.499	0.02358
Extraversion	4.052	2	0.132	0.06868
Agreeableness	1.336	2	0.513	0.02265
Neuroticism	0.945	2	0.623	0.01602

Note: The dependent variable was PASS= Academic Procrastination, LOC= Locus of Control

The Effect of CBT and PPI on Academic Procrastination

A Kruskal-Wallis's test (Table 2) indicated that academic procrastination scores were significantly affected by treatment modality (PPI AND CBT), $H(2) = 6.9532$, $p = 0.03091$. Post-hoc Man-Whitney tests using a Bonferroni-adjusted alpha level of .017 (0.05/3) revealed that the difference in academic procrastination between Undergraduate students who belonged to PPI Intervention and Control group was significant, $U(N_{control}=20, N_{ppi}=20) = 294$, $z = 2.5347$, $p = 0.01126$. None of the other comparisons were significant; after Bonferroni adjustment (all $p > .011$). These results suggested that both PPI and CBT interventions influenced academic procrastination at post-intervention, it should be noted that there was no significant difference in the effectiveness between PPI and CBT groups. However, at 3-month FU (Table 3), academic procrastination scores were not significantly affected by any treatment modality (PPI AND CBT), $H(2) = 5.467$, $p = 0.065$.

Table 2

Kruskal-Wallis Analysis of Variance Summary Table Comparing Intervention Groups and Wait-List Control Group on Academic Procrastination post-intervention

Variable	χ^2	df	p	ε^2	Post-hoc Man-Whitney tests					
					Control-PPI		PPI-CBT		CBT-Control	
					U	p	U	p	U	p
PASS	6.953	2	0.031	0.11785	106	.0114	177.5	.5485	131	.06432
LoC	8.008	2	0.018	0.13572	98.5	.00634	184.5	.6818	125	.04338
O	4.843	2	0.089	0.08209	155.5	.23404	120	.0315	162.5	.31732
C	1.285	2	0.526	0.02178	158.5	.267	190	.7948	172	.4593
E	3.387	2	0.184	0.05741	143.5	.13104	192.5	.8493	140	.1074
A	3.829	2	0.147	0.06490	128	.0536	157	.2501	173	.47152
N	4.024	2	0.134	0.06820	134.5	.0784	139.5	.1052	184.5	.6818

Note: The dependent variable was PASS= Academic Procrastination, E= Extraversion, A= Agreeableness, C= Conscientiousness, N= Neuroticism, O= Openness, LoC= Locus of Control,

Table 3

Kruskal-Wallis Analysis of Variance Summary Table Comparing Intervention Groups and Wait-List Control Group on Academic Procrastination at 3 month follow up

Variable	χ^2	df	p	ε^2	Post-hoc Man-Whitney tests					
					Control-PPI		PPI-CBT		CBT-Control	
					U	p	U	p	U	p
PASS	5.467	2	0.065	0.09265	129	.05614	122.5	.03752	193.5	.8278
LoC	4.908	2	0.086	0.08638	122.5	.03752	144.5	.13622	172.5	.4654
O	6.151	2	0.046	0.10426	155.5	.23404	110.5	.01596	150.5	.1835
C	1.317	2	0.518	0.02232	158.5	.267	181.5	.62414	175.5	.5157
E	0.281	2	0.869	0.00477	200	.99202	180	.59612	186.5	.7263
A	2.984	2	0.225	0.05058	131	.06432	174.5	.4965	173	.4715
N	3.740	2	0.154	0.06339	133.5	.07346	151.5	.1936	171	.4413

Note: The dependent variable was PASS= Academic Procrastination, E= Extraversion, A= Agreeableness, C= Conscientiousness, N= Neuroticism, O= Openness, LoC= Locus of Control,

The Effect of CBT and PPI on Locus of Control

The effects of the two intervention groups on other outcomes were also examined.

Locus of Control. Post-intervention, A Kruskal-Wallis test (Table 2) indicated that Locus of Control scores were significantly affected by treatment modality (PPI AND CBT), $H(2) = 8.0077$, $p = 0.01825$. Post-hoc Man-Whitney tests using a Bonferroni-adjusted alpha level of .017 (0.05/3) revealed that there was a significant difference between the scores of Undergraduate students who belonged to the PPI Intervention and Control group on Rotter's Locus of control scale $U(N_{control}=20, N_{ppi}=20) = 301.5$, $z = 2.7512$, $p = 0.005937$. None of the other comparisons were significant; after Bonferroni adjustment (all $p > .011$). These results suggested that PPI and CBT interventions influenced Locus of control at post-intervention, it should be noted that there was no significant difference in the Locus of control between PPI and CBT groups. However, at 3-month FU, LOC scores were not significantly affected by any treatment modality (PPI AND CBT) $H(2) = 4.9084$, $p = 0.086$.

The Effect of CBT and PPI on the Big Five traits

Post-intervention, (Table 2) A Kruskal-Wallis test indicated that no statistically significant group differences were found in openness to experience, $H(2) = 4.8431$, $p = 0.08879$, conscientiousness, $H(2) = 1.285$, $p = 0.526$, extraversion, $H(2) = 3.3873$, $p = 0.1838$, agreeableness, $H(2) = 3.8294$, $p = 0.1474$, neuroticism, $H(2) = 4.0237$, $p = 0.1337$. A Kruskal-Wallis's test run at 3-month FU (Table 3) indicated that no statistically significant group differences were found in Conscientiousness $H(2) = 1.317$, $p = 0.518$, Extraversion $H(2) = 0.281$, $p = 0.869$, Agreeableness $H(2) = 2.984$, $p = 0.225$, Neuroticism $H(2) = 3.740$, $p = 0.154$. However, Openness to experience scores were significantly affected by treatment modality (PPI AND CBT), $H(2) = 6.1513$, $p = 0.046$. Post-hoc Man-Whitney tests using a Bonferroni-adjusted

alpha level of .017 (0.05/3) indicated a significant difference between the PPI group and CBT group ($U= 110.5$; $Z = 2.40746$, $p = 0.01596$), None of the other comparisons were significant.

Within Group Analysis of Academic Procrastination

Results of a Friedman test (Table 4) suggest that there is a significant difference in the PASS scores across the three time points in both groups PPI group $X^2 (2) = 21.0$, $p = <.001$, and the CBT group $X^2 (2) = 12.2$, $p = .002$. However, PASS scores changed little for the control group, $X^2 (2) = 0.0278$, $p = .0986$.

Table 4
Outcome measurements of participants at three points of times (baseline, after training, and follow-up of 5 months).

		Pre-test (a)		Post-test (b)		Follow-up (c)		Friedman Test		
		M	IQR	M	IQR	M	IQR	df	X2	P
Con	P	36.5	5.25	36	6.25	33.5	9.50	2	0.02	0.98
	L	12	4.25	11.5	3.25	12	4.00	2	0.76	0.68
	O	3.55	0.42	3.80	0.55	3.70	0.45	2	2.24	0.32
	C	3.11	0.88	3.33	0.80	3.33	1.11	2	0.33	0.84
	E	2.81	0.62	2.94	0.65	3.13	0.96	2	8.03	0.01
	A	3.72	0.94	3.50	0.91	3.61	0.80	2	0.11	0.94
	N	3.56	1.13	3.50	1.31	3.63	1.25	2	0.40	0.81
PPI	P	35.5	7.00	30.5	10.5	27	10.5	2	21.0	<.001
	L	11.0	6.25	10.0	3.50	8.50	5.75	2	4.41	0.11
	O	3.50	0.62	3.80	0.52	3.75	0.42	2	1.34	0.51
	C	2.94	0.83	3.44	0.69	3.44	0.80	2	18.4	<.001
	E	3.13	0.90	3.19	0.81	3.25	0.93	2	2.33	0.31
	A	3.72	0.55	4.00	0.55	3.89	0.58	2	4.73	0.09
	N	3.13	0.81	2.81	0.87	3.00	0.65	2	4.76	0.09
CBT	P	36.5	6.75	30.5	11.0	32.5	8.50	2	12.5	<.01
	L	9.00	3.50	9.50	5.25	10.0	5.00	2	2.78	0.24
	O	3.65	0.52	3.50	0.42	3.45	0.40	2	2.24	0.32
	C	3.28	0.89	3.28	1.25	3.44	0.66	2	4.20	0.12
	E	3.19	1.25	3.25	0.56	3.44	0.31	2	0.11	0.94
	A	3.89	0.80	3.67	0.88	3.78	1.39	2	1.19	0.55
	N	3.19	0.62	3.06	0.65	3.13	0.78	2	0.18	0.91

Note: The dependent variable was P= Academic Procrastination, E= Extraversion, A= Agreeableness, C= Conscientiousness, N= Neuroticism, O= Openness, L= Locus of Control,

Discussion

This study compared the effect of CBT and PPI interventions on academic procrastinators. Immediate effect results showed that the two intervention groups had significant effects on academic procrastination and that the difference between the two intervention groups was not significant. However, with respect to FU effects, only the PPI group had a significant effect on the big five personality trait of openness to experience. Our study expanded previous research on PPI by providing preliminary evidence on its efficacy in reducing procrastination. This reflects different mechanisms on which PPI and CBT worked. The conscientiousness of the PPI group, but not the CBT group, increased over the three assessments. The reason may be that when treated with PPI, individuals focus on positive aspects of humans (Seligman et al. 2005), such as their psychological strengths that include positive characteristics such as conscientiousness (Dubreuil et al. 2016). As for Locus of Control, both intervention groups showed satisfactory effects in the post-intervention assessment. Results indicating greater level of internal locus of control for the CBT group might be due to reasons different from the PPI group: PPI might teach individuals to use signature strengths, which may be intrinsically motivating and satisfying and allows individuals to achieve optimal functioning (Meyers and van Woerkom 2017), whereas CBT corrected irrational beliefs, reduced self-devaluation thinking, and helped individuals overcome the fear of failure. We also interviewed participants after the intervention, and their feedback of feelings and growth during the intervention also lends support to this difference we proposed in the mechanisms of these two therapy approaches. Majority of members from the PPI group disclosed that as soon as they discovered their signature strengths, concomitantly they were also able to find a constructive way of dealing with painful memories, formulate meaningful goals and

savour positive emotions. On the other hand, a typical CBT group member would provide feedback that the most important thing they learned is how they can make use of making study plans and other time management skills to help prevent and overcome procrastination. Differences in these two therapy approaches derive from their contents. PPI puts emphasis on identifying and using signature strengths; it focuses on the amelioration of positive affect. CBT, on the other hand, tries to test and alter the content of thoughts. Hence, the mechanisms of the two therapies are also different. The primary aim of PPI is to identify and use signature character strengths which are important foundations for flourishing in life (Jayawickreme et al. 2012; Kobau et al. 2011). CBT techniques promote antecedent-focused emotion regulation strategies. By reappraising emotional stimuli (such as situation modification, attention deployment, and cognitive reframing of a situation), CBT helps enhance adaptability by preceding-focused emotion regulation. The present study provides school-based empirical evidence of effectiveness of these interventions on Indian undergraduate students, which has not been studied extensively in the past and would provide insights for mental health practitioners to make clinical decisions. The current study suggests that the factor of personality traits should be considered when evaluating the effectiveness of intervention for procrastinators and explores the mechanisms of both interventions, and the result enables the clinical social workers to provide treatment that best suits the clients

Limitations

This study has some limitations. Firstly, all measures were self-reported. In future studies, various types of data should be collected, such as a behaviour index and therapist-rated measure. Secondly, our study primarily consisted of college students from urban areas with an excessive number of female undergraduate students and

only focused on academic procrastination. Future studies can expand to broader age range sample (e.g., adolescence) and more general procrastination problems in daily life. A larger sample will guarantee stronger effects. Third, in this study, only 3 months of FU effects were examined. Researchers could track longer term effects to explore specific treatment mechanisms.

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