

The intervention effect of the Panbrain EC2 on executive function

1. Introduction

Execution refers to an individual's ability to quickly start and continue to advance when faced with tasks or decisions. This lack of ability is often accompanied by an increase in psychological pressure and a decrease in efficiency, becoming a key factor affecting daily life and work efficiency. Procrastination is the most common manifestation of a lack of execution. The strength of executive power is closely related to an individual's self-regulation ability, emotional management level and brain executive function. When execution ability is insufficient, individuals tend to be distracted and lack the ability to act, which in turn leads to a backlog of tasks and an increase in psychological burden. In modern society, the fast-paced work environment, information overload and lack of self-management strategies may further weaken an individual's execution ability. Therefore, exploring and implementing effective intervention methods to improve execution and optimize task completion efficiency has become the key to improving individual performance and quality of life.

Transcranial direct current stimulation (tDCS) is a non-invasive brain stimulation technology that has been proven to be able to modulate the excitability of the cerebral cortex through microcurrent, thereby enhancing self-control and executive functions.^[1,2] This study was conducted based on the Panbrain EC2 (Shenzhen Panbrain Technology Co., Ltd., using tDCS technology), aiming to evaluate the intervention effect of this device in improving execution ability, reducing procrastination behavior, and improving task initiation and completion efficiency.

2. Experimental method

2.1. General information

This study recruited social groups. After screening, 220 subjects were finally included and randomly divided into stimulation group and control group, with 110 subjects in each group. Comparison of general information such as age and gender

between the two groups of subjects showed no significant differences. See Table 1.

Table 1 Comparison of the general information of the two groups of subjects

Group	n	Age (years, $\bar{x} \pm s$)	Gender (n)	
			Male	Female
Stimulation	110	34.68±8.77	60	50
Control	110	34.51±8.07	64	46
t/x^2		0.152	0.296	
P		0.879	0.587	

Inclusion criteria: (1) Frequent procrastination behavior in the past two weeks, and the score on the Pure Procrastination Evaluation Scale is ≥ 37 points; the score on the Irrational Procrastination Scale is ≥ 31 points (2) Age ≥ 18 years old; (3) Voluntarily participate in the trial and sign an informed consent form.

Exclusion criteria: (1) Suffering from physical or mental illness; (2) Contraindications to tDCS.

Exit criteria: (1) Adverse reactions occur during the trial and cannot be alleviated in time; (2) Poor compliance and failure to cooperate in completing all trial arrangements; (3) Voluntary withdrawal due to emergencies.

2.2. Intervention

The stimulation group uses the Panbrain EC2 for tDCS treatment, and the stimulation site is the dorsolateral prefrontal cortex. Before treatment, first use 0.9% sodium chloride solution to soak the electrode cover, and then gently pinch the electrode cover with your hands to ensure that there is no dripping. Secondly, fix the electrode cover on the electrode. Finally, refer to the 10-20 international standard system, place the anode electrode in the F3 area and the cathode electrode in the F4 area. Each treatment lasted 15 minutes, once a day, 5 days a week, for 4 consecutive weeks (20 sessions).

The operation of the control group was the same as that of the stimulation group,

but no current stimulation was applied during the treatment process.

2.3. Evaluation indicators

Procrastination is the most important manifestation of insufficient execution, so this study uses the procrastination scale to evaluate the subject's execution level. Before the start of treatment and after the 4-week treatment, the subjects' procrastination was assessed and compared using the Pure Procrastination Scale (PPS) and the Irrational Procrastination Scale (IPS).

PPS has good consistency, reliability and validity. It involves three aspects: decision-making procrastination, general procrastination scale and adult procrastination. It contains 12 items in total, each item is scored from 1 to 5 points, and the total score is from 12 to 60 points. The scale score is proportional to the level of procrastination.^[3,4]

IPS can be used to assess an individual's level of irrational procrastination, and has been verified to have good reliability, validity and consistency in multiple studies.^[4,5] The scale contains 9 items, scored using a 5-point Likert scale, where 1 means "completely disagree" and 5 means "completely agree", with a total score of 9 to 45 points, of which the sixth item is a negative score. A higher IPS score indicates a higher level of procrastination in an individual.

After the scale evaluation, the scores of PPS and IPS are converted into a percentage system, and the score is calculated based on the weight of PPS accounting for 40% and IPS accounting for 60%. The specific calculation method is as follows:

$$\text{Score} = \frac{\text{PPS}}{60} \times 100 \times 40\% + \frac{\text{IPS}}{45} \times 100 \times 60\%$$

2.4. Statistical method

Use SPSS 27.0 software for data analysis. Continuous data are expressed as mean $\pm$ standard deviation ($\bar{x} \pm s$), and paired t test and independent sample t test are used; Categorical data are expressed as counts (n) and χ^2 tested. $P < 0.05$ was considered as a statistically significant difference.

3. Results

Table 2 Comparison of PPS scores of two groups of subjects before and after treatment ($\bar{x} \pm s$)

Group	Before	After	<i>t</i>	<i>P</i>
Stimulation	43.43±5.10	31.56±7.12 ^{ab}	-16.891	<0.001
Control	42.36±4.45	40.23±4.73 ^a	-3.374	0.001
<i>t</i>	1.648	-10.627		
<i>P</i>	0.101	<0.001		

Note: Compared with before treatment, ^a*P*<0.05; Compared with the control group, ^b*P*<0.05;

Table 3 Comparison of IPS scores of two groups of subjects before and after treatment ($\bar{x} \pm s$)

Group	Before	After	<i>t</i>	<i>P</i>
Stimulation	36.68±4.47	27.48±6.55 ^{ab}	-14.395	<0.001
Control	36.59±4.35	36.18±4.12	-0.690	0.492
<i>t</i>	0.153	-11.796		
<i>P</i>	0.879	<0.001		

Note: Compared with before treatment, ^a*P*<0.05; Compared with the control group, ^b*P*<0.05;

Table 4 Comparison of composite scores between the two groups of subjects before and after treatment ($\bar{x} \pm s$)

Group	Before	After	<i>t</i>	<i>P</i>
Stimulation	77.86±8.87	57.68±13.26 ^{ab}	-15.866	<0.001
Control	76.34±8.17	75.06±8.39	-1.095	0.276
<i>t</i>	1.322	-11.614		
<i>P</i>	0.187	<0.001		

Note: Compared with before treatment, ^a*P*<0.05; compared with the control group, ^b*P*<0.05;

Before treatment, the differences in PPS, IPS and composite scores between the two groups of subjects were not statistically significant (*P*≥0.05); after 4 weeks of treatment, the scores of the stimulation group were significantly lower than before

treatment ($P<0.05$), while in the control group, only the PPS score decreased, and there was no significant change in the IPS and composite scores. The comparison results between groups showed that the decrease in each score of the stimulation group was significantly higher than that of the control group, and the difference was statistically significant ($P<0.05$). See Table 2-4.

4. Test conclusion

This study confirmed through a randomized controlled trial that after 4 weeks (20 sessions) of treatment, the Panbrain EC2 using tDCS technology can significantly improve execution and improve procrastination behavior.

The results showed that the PPS score of the stimulation group decreased by 27.32% ($P<0.001$) with a responder rate of 90.00%; the IPS score decreased by 25.08% ($P<0.001$) with a responder rate of 88.18%; the composite score decreased by 25.91% ($P<0.001$) with a responder rate of 90.00%.

In contrast, the PPS score of the control group decreased by 6.19% ($P=0.001$) with a responder rate of 60.00%, the IPS score decreased by 0.97% ($P=0.492$) with a responder rate of 50.00%, the composite score decreased by 3.50% ($P=0.276$) with a responder rate of 55.45%.

Comparison between groups showed that the improvement rate of the stimulation group was significantly better than that of the control group, and the difference was statistically significant ($P<0.001$).

The above results show that as a non-invasive neuromodulation device, Panbrain EC2 can provide a safe and feasible intervention plan for individuals to improve their execution ability and optimize task completion efficiency.

References

- [1] Dockery, C. A. , Hueckel-Weng, R. , Birbaumer, N. , & Plewnia, C. . (2009). Enhancement of planning ability by transcranial direct current stimulation. *The Journal of Neuroscience : The Official Journal of the Society for Neuroscience*, 29(22), 7271-7277.
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Appendix A

Table A.1 General information and scores of the two groups of subjects

Group	Subject	Gender	Age	Before treatment			After treatment		
				PPS	IPS	Composite score	PPS	IPS	Composite score
Stimulation group (1~110)	1	Female	21	45	35	76.67	27	19	43.33
	2	Female	34	38	36	73.33	22	20	41.33
	3	Male	49	40	40	80.00	26	25	50.67
	4	Male	36	38	31	66.67	25	25	50.00
	5	Female	35	49	39	84.67	28	20	45.33
	6	Male	29	43	38	79.33	34	27	58.67
	7	Male	35	53	45	95.33	43	35	75.33
	8	Female	37	37	36	72.67	32	24	53.33
	9	Female	39	45	36	78.00	30	25	53.33
	10	Female	32	37	32	67.33	22	11	29.33
	11	Male	33	42	31	69.33	21	21	42.00
	12	Male	53	40	39	78.67	20	16	34.67
	13	Female	19	47	36	79.33	25	23	47.33
	14	Female	55	52	40	88.00	33	30	62.00
	15	Female	38	43	32	71.33	43	37	78.00
	16	Male	44	57	45	98.00	41	39	79.33
	17	Female	20	44	38	80.00	27	25	51.33
	18	Male	30	51	43	91.33	28	24	50.67
	19	Male	33	47	36	79.33	34	32	65.33
	20	Female	39	37	36	72.67	31	29	59.33
	21	Male	20	48	41	86.67	33	31	63.33
	22	Female	39	51	40	87.33	33	31	63.33
	23	Male	24	40	32	69.33	21	16	35.33
	24	Female	36	37	32	67.33	32	30	61.33
	25	Female	41	38	31	66.67	30	25	53.33

Continued Table A.1 General information and ratings of the two groups of subjects

Group	Subject	Gender	Age	Before treatment			After treatment		
				PPS	IPS	Composite score	PPS	IPS	Composite score
Stimulation group (1~110)	26	Male	38	37	31	66.00	26	21	45.33
	27	Female	45	46	37	80.00	24	21	44.00
	28	Male	44	38	35	72.00	37	35	71.33
	29	Female	29	40	35	73.33	20	20	40.00
	30	Male	37	40	31	68.00	18	17	34.67
	31	Female	27	46	42	86.67	34	28	60.00
	32	Male	23	41	40	80.67	44	40	82.67
	33	Female	43	44	37	78.67	32	26	56.00
	34	Male	35	52	43	92.00	29	28	56.67
	35	Male	35	40	32	69.33	19	19	38.00
	36	Male	43	51	40	87.33	38	38	76.00
	37	Female	40	49	39	84.67	27	27	54.00
	38	Male	38	47	39	83.33	34	30	62.67
	39	Female	46	40	33	70.67	20	19	38.67
	40	Female	43	41	39	79.33	37	32	67.33
	41	Female	37	45	34	75.33	33	29	60.67
	42	Male	29	38	32	68.00	24	18	40.00
	43	Male	29	37	32	67.33	27	26	52.67
	44	Female	46	51	43	91.33	24	23	46.67
	45	Male	21	38	32	68.00	29	27	55.33
	46	Male	35	37	36	72.67	27	24	50.00
	47	Male	18	43	32	71.33	33	25	55.33
	48	Female	44	39	35	72.67	19	19	38.00
	49	Male	43	38	32	68.00	27	24	50.00
	50	Male	35	41	31	68.67	38	31	66.67
	51	Female	34	43	31	70.00	44	38	80.00

Continued Table A.1 General information and ratings of the two groups of subjects

Group	Subject	Gender	Age	Before treatment			After treatment		
				PPS	IPS	Composite score	PPS	IPS	Composite score
Stimulation group (1~110)	52	Male	19	39	31	67.33	21	18	38.00
	53	Male	40	42	36	76.00	46	43	88.00
	54	Female	18	39	35	72.67	45	37	79.33
	55	Female	19	55	45	96.67	40	27	62.67
	56	Female	36	38	34	70.67	30	24	52.00
	57	Male	27	44	36	77.33	26	21	45.33
	58	Female	39	38	32	68.00	39	32	68.67
	59	Male	41	37	34	70.00	22	21	42.67
	60	Female	43	37	31	66.00	31	23	51.33
	61	Male	29	47	37	80.67	37	32	67.33
	62	Male	39	47	42	87.33	33	29	60.67
	63	Female	36	41	40	80.67	35	32	66.00
	64	Female	42	38	33	69.33	35	30	63.33
	65	Male	40	40	31	68.00	24	23	46.67
	66	Male	43	46	44	89.33	27	22	47.33
	67	Male	34	55	45	96.67	38	32	68.00
	68	Female	34	44	38	80.00	25	21	44.67
	69	Female	44	40	31	68.00	42	34	73.33
	70	Male	18	45	44	88.67	34	32	65.33
	71	Female	31	37	34	70.00	33	28	59.33
	72	Male	24	45	34	75.33	33	26	56.67
	73	Female	32	50	42	89.33	34	29	61.33
	74	Female	41	41	31	68.67	47	45	91.33
	75	Male	42	42	31	69.33	28	25	52.00
	76	Male	26	48	40	85.33	40	35	73.33
	77	Male	31	41	40	80.67	45	39	82.00

Continued Table A.1 General information and ratings of the two groups of subjects

Group	Subject	Gender	Age	Before treatment			After treatment		
				PPS	IPS	Composite score	PPS	IPS	Composite score
Stimulation group (1~110)	78	Male	36	42	38	78.67	36	30	64.00
	79	Male	32	48	40	85.33	28	21	46.67
	80	Female	38	50	44	92.00	49	44	91.33
	81	Female	39	49	43	90.00	33	30	62.00
	82	Male	27	38	34	70.67	33	28	59.33
	83	Female	33	51	42	90.00	39	32	68.67
	84	Male	18	45	38	80.67	26	19	42.67
	85	Male	45	37	34	70.00	26	24	49.33
	86	Male	29	39	32	68.67	24	23	46.67
	87	Male	24	52	41	89.33	33	29	60.67
	88	Female	33	38	35	72.00	36	31	65.33
	89	Female	22	40	37	76.00	25	24	48.67
	90	Female	35	39	32	68.67	42	38	78.67
	91	Male	30	40	32	69.33	38	37	74.67
	92	Male	54	45	38	80.67	35	27	59.33
	93	Male	45	49	37	82.00	30	24	52.00
	94	Male	19	49	44	91.33	35	34	68.67
	95	Male	39	47	42	87.33	37	33	68.67
	96	Male	23	44	43	86.67	34	31	64.00
	97	Male	33	43	33	72.67	27	21	46.00
	98	Female	36	41	32	70.00	25	23	47.33
	99	Male	42	37	32	67.33	22	21	42.67
	100	Male	33	50	40	86.67	34	30	62.67
	101	Male	49	52	44	93.33	39	32	68.67
	102	Male	31	50	41	88.00	32	28	58.67
	103	Female	38	40	32	69.33	31	30	60.67

Continued Table A.1 General information and ratings of the two groups of subjects

Group	Subject	Gender	Age	Before treatment			After treatment		
				PPS	IPS	Composite score	PPS	IPS	Composite score
Stimulation group (1~110)	104	Female	41	46	42	86.67	29	23	50.00
	105	Male	36	41	32	70.00	36	29	62.67
	106	Male	43	39	31	67.33	27	24	50.00
	107	Female	38	49	41	87.33	34	28	60.00
	108	Female	28	42	32	70.67	24	22	45.33
	109	Female	19	43	39	80.67	33	29	60.67
	110	Female	51	45	44	88.67	45	39	82.00
	111	Male	30	48	40	85.33	41	39	79.33
	112	Male	36	49	43	88.00	39	38	76.67
	113	Female	40	37	31	66.00	40	33	70.67
Control group (111~220)	114	Male	36	44	41	82.67	40	39	78.67
	115	Male	27	49	44	89.33	36	32	66.67
	116	Male	31	47	40	84.67	43	38	79.33
	117	Male	34	38	32	68.00	40	37	76.00
	118	Male	48	44	36	77.33	45	41	84.67
	119	Male	27	38	34	70.67	39	34	71.33
	120	Female	42	47	39	83.33	39	39	78.00
	121	Female	38	45	40	80.67	42	39	80.00
	122	Male	33	47	40	83.33	39	32	68.67
	123	Male	26	42	35	74.67	39	37	75.33
	124	Female	32	39	34	70.00	50	43	90.67
	125	Female	34	41	34	71.33	38	36	73.33
	126	Male	22	44	42	85.33	35	35	70.00
	127	Male	37	38	32	68.00	43	38	79.33
	128	Male	28	40	36	74.67	43	35	75.33
	129	Male	34	44	39	81.33	42	38	78.67

Continued Table A.1 General information and ratings of the two groups of subjects

Group	Subject	Gender	Age	Before treatment			After treatment		
				PPS	IPS	Composite score	PPS	IPS	Composite score
Control group (111~220)	130	Male	38	38	33	69.33	43	35	75.33
	131	Male	27	46	40	84.00	39	36	74.00
	132	Female	32	45	37	79.33	44	38	80.00
	133	Female	38	39	31	67.33	48	42	88.00
	134	Male	19	44	38	80.00	41	38	78.00
	135	Male	44	37	36	72.67	49	43	90.00
	136	Male	56	42	35	74.67	29	27	55.33
	137	Male	43	37	33	68.67	34	34	68.00
	138	Female	32	41	37	76.67	39	37	75.33
	139	Male	39	37	32	67.33	32	32	64.00
	140	Male	26	38	35	72.00	31	30	60.67
	141	Male	52	41	34	72.67	44	39	81.33
	142	Female	43	38	32	68.00	46	39	82.67
	143	Female	42	44	41	84.00	42	37	77.33
	144	Female	27	40	33	70.67	46	38	81.33
	145	Male	38	43	40	82.00	33	32	64.67
	146	Female	30	50	43	86.00	40	34	72.00
	147	Male	32	37	36	72.67	39	36	74.00
	148	Male	30	46	39	82.67	39	33	70.00
	149	Female	26	45	41	82.67	42	37	77.33
	150	Female	27	41	37	76.67	47	44	90.00
	151	Male	33	48	40	85.33	39	34	71.33
	152	Male	20	38	32	68.00	46	39	82.67
	153	Female	40	47	44	90.00	35	32	66.00
	154	Male	34	39	31	67.33	48	42	88.00
	155	Female	41	38	32	68.00	36	32	66.67

Continued Table A.1 General information and ratings of the two groups of subjects

Group	Subject	Gender	Age	Before treatment			After treatment		
				PPS	IPS	Composite score	PPS	IPS	Composite score
Control group (111~220)	156	Male	37	50	45	93.33	41	37	76.67
	157	Female	39	44	37	74.00	41	33	71.33
	158	Male	22	46	40	84.00	42	38	78.67
	159	Female	26	41	35	72.67	41	36	75.33
	160	Male	31	38	31	66.67	43	36	76.67
	161	Female	36	37	31	66.00	46	45	90.67
	162	Male	45	46	41	82.00	41	33	71.33
	163	Male	32	38	35	71.33	38	36	73.33
	164	Female	46	40	36	72.67	51	44	92.67
	165	Female	39	43	40	81.33	32	31	62.67
	166	Male	45	38	31	66.67	44	38	80.00
	167	Female	36	39	33	70.00	39	31	67.33
	168	Female	29	49	44	91.33	43	40	82.00
	169	Female	22	47	41	86.00	41	37	76.67
	170	Male	36	37	31	66.00	44	39	81.33
	171	Male	42	39	32	68.67	38	35	72.00
	172	Male	32	38	34	70.67	41	37	76.67
	173	Male	30	47	38	77.33	48	42	88.00
	174	Female	32	49	43	90.00	34	26	57.33
	175	Female	25	44	38	80.00	35	29	62.00
	176	Male	31	38	32	68.00	42	38	78.67
	177	Female	33	43	39	80.00	37	33	68.67
	178	Male	35	37	32	67.33	36	35	70.67
	179	Female	34	39	31	67.33	34	29	61.33
	180	Female	40	37	33	68.67	36	32	66.67
	181	Male	36	38	32	68.00	39	34	71.33

Continued Table A.1 General information and scores of the two groups of subjects

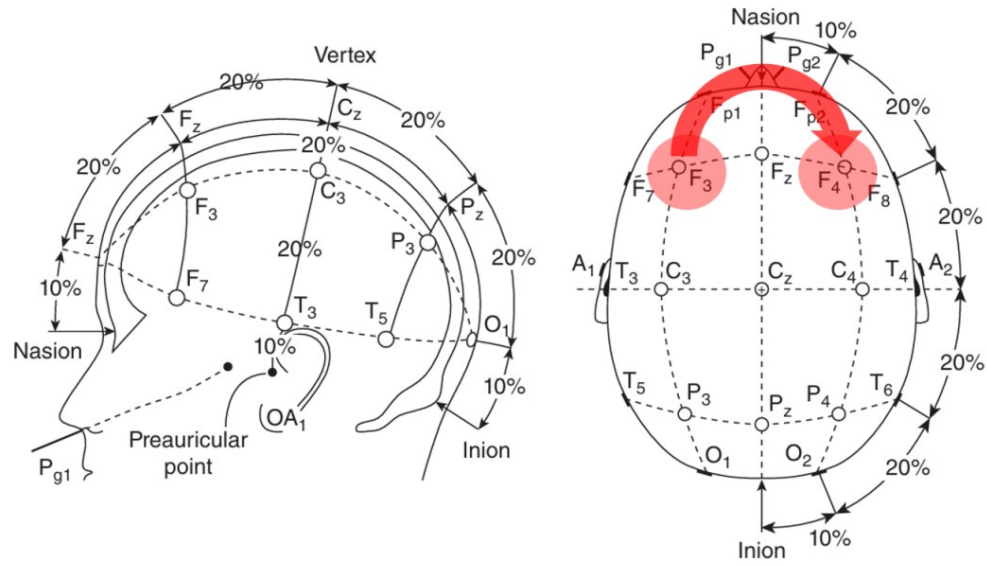
Group	Subject	Gender	Age	Before treatment			After treatment		
				PPS	IPS	Composite score	PPS	IPS	Composite score
Control group (111~220)	182	Male	51	41	35	71.33	39	33	70.00
	183	Female	38	38	32	68.00	39	32	68.67
	184	Female	51	39	35	72.67	36	34	69.33
	185	Male	29	40	34	72.00	33	32	64.67
	186	Female	40	39	35	71.33	44	42	85.33
	187	Male	33	38	34	70.67	35	32	66.00
	188	Male	40	52	45	94.67	52	44	93.33
	189	Male	40	45	41	82.67	34	34	68.00
	190	Female	18	41	37	76.67	35	30	63.33
	191	Female	23	40	32	69.33	34	33	66.67
	192	Male	22	38	31	66.67	45	40	83.33
	193	Male	39	37	31	66.00	44	41	84.00
	194	Male	48	53	45	91.33	42	37	77.33
	195	Male	32	49	43	86.67	39	37	75.33
	196	Male	42	46	39	79.33	45	39	82.00
	197	Female	40	41	31	68.67	38	30	65.33
	198	Female	26	39	32	68.67	38	33	69.33
	199	Female	39	47	40	82.67	29	28	56.67
	200	Male	28	52	45	94.67	37	34	70.00
	201	Male	48	37	31	66.00	41	40	80.67
	202	Male	35	41	34	72.67	41	39	79.33
	203	Female	49	43	37	78.00	47	44	90.00
	204	Male	31	38	31	66.67	39	37	75.33
	205	Female	40	46	42	84.67	32	27	57.33
	206	Male	34	43	35	71.33	50	43	90.67
	207	Male	19	52	45	92.00	45	42	86.00

Continued Table A.1 General information and scores of the two groups of subjects

Group	Subject	Gender	Age	Before treatment			After treatment		
				PPS	IPS	Composite score	PPS	IPS	Composite score
Control group (111~220)	208	Male	26	42	35	74.67	40	33	70.67
	209	Female	40	46	40	84.00	39	37	75.33
	210	Male	35	38	32	68.00	43	39	80.67
	211	Male	25	38	33	69.33	44	38	80.00
	212	Female	29	38	32	68.00	39	39	78.00
	213	Female	37	45	39	82.00	37	36	72.67
	214	Female	26	50	45	92.67	40	36	74.67
	215	Male	44	37	34	70.00	42	36	76.00
	216	Female	29	47	40	84.67	39	33	70.00
	217	Female	51	41	34	70.67	45	42	86.00
	218	Female	25	44	38	80.00	38	36	73.33
	219	Male	37	51	44	88.67	42	39	80.00
	220	Male	22	46	38	76.00	33	32	64.67

Appendix B

Diagram of intervention points based on the 10-20 international standard system



Appendix C Pure Procrastination Scale (sample format)

Pure Procrastination Scale, PPS

No.: _____ Date of Completion: _____ Gender: ☐ M ☐ F Age: _____

The following 12 statements refer to how you usually feel. Select the option that best applies to your situation and mark it with a “✓” mark.	Rating				
	1	2	3	4	5
1. I always make a decision until I can no longer put it off					
2. Even if I make a decision, I am still reluctant to act					
3. I always spend a lot of time on trivial matters before making the final decision					
4. Before the deadline, I often waste time doing other things					
5. Even if the task only requires sitting down to do it, I will put it off for a few days					
6. I often put off today's tasks until tomorrow					
7. I always tell myself "Let's do it tomorrow"					
8. I often put off what I have to do					
9. I find that I don't have enough time.					
10. I don't finish my work on time					
11. I put off organizing things even if it only takes a few minutes					
12. I used to put off work at a high cost					

Note: All items are scored on a 5-point scale from 1 to 5. Standards for each level: "1" means never, "2" means sometimes, "3" means usually, "4" means often, and "5" always.

The following information is summarized by the evaluator based on the
information filled in by the subjects

Total score T _____ = _____ × 1 + _____ × 2 + _____ × 3 + _____ × 4 + _____ × 5

Evaluator: _____

Appendix D Irrational Procrastination Scale (sample format)

Irrational Procrastination Scale, IPS

No.: _____ Date of Completion: _____ Gender: ☐ M ☐ F Age: _____

The following 9 statements refer to your usual feelings. Select the option that best applies to your situation and mark it with a "✓".	Rating				
	1	2	3	4	5
1. I procrastinate so often that my happiness or productivity is unnecessarily affected.					
2. My work often suffers from procrastination.					
3. I often put off starting important projects until there is not enough time to finish them properly.					
4. Even if I start a task, I'll put it down and go do other things instead of finishing it in time.					
5. I unreasonably put off tasks even when they are important to me.					
6. I am good at managing my time effectively. (R)					
7. It seems like my whole life is one big procrastination. Even if I had enough time, I would put it off until the last minute.					
8. When it comes to important tasks, I put them off until the last minute, even if I know it's not a good idea.					
9. I put off starting important tasks until the last minute, even without a valid reason.					

Note: (R) means reverse scoring. All items use a 5-point scoring method from 1 to 5. "1" means completely disagree, "2" means disagree, "3" means neutral, "4" means agree, and "5" means completely agree.

The following information is summarized by the evaluator based on the
information filled in by the subjects

Total score T _____ = _____ × 1 + _____ × 2 + _____ × 3 + _____ × 4 + _____ × 5

Evaluator: _____