



Effects of Mindfulness Training on Psychological Capital, Depression, and Procrastination of the Youth Demographic

Li LI, *Mu LI

School of Law, Humanities and Sociology, Wuhan University of Technology, Wuhan, China

*Corresponding Author: Email: limu98@163.com

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Abstract

Background: The incidence rate of depression in youth demographic increases year by year. High-level psychological capital is conducive to relieving depression, and mindfulness training is an effective psychotherapy. We aimed to investigate the influences of mindfulness training on psychological capital, depression, and procrastination, thereby providing a direction for psychotherapy in the youth demographic.

Method: A questionnaire survey on the youths in four resident communities in the cities of Wuhan and Tai'an in China was carried out in 2020 by sending a self-rating depression scale (SDS). A total of 240 youth with SDS standard scores >53 were filtered out, as the research objects to be assessed by using SDS, positive psychological capital questionnaire (PPQ), five-facet mindfulness questionnaire (FFMQ), and pure procrastination scale (PPS).

Results: Two groups showed no statistically significant differences in SDS, PPQ, FFMQ, and PPS scores before intervention. Self-efficacy, toughness, hope, optimism, and PPQ scores of the experimental group were improved significantly after intervention compared with those before the intervention, and they were significantly higher than those of the control group ($P<0.05$). SDS, PPQ, FFMQ, and PPS scores showed statistically significant differences before and after intervention. SDS and PPS scores of the experimental group after intervention were far lower than those of the control group, while FFMQ score was significantly higher than that of the control group ($P<0.05$).

Conclusion: Mindfulness training can improve psychological capital of the youth demographic effectively and relieve their depression, thereby improving their procrastination.

Keywords: Psychological capital; Mindfulness training; Depression; Youth; Procrastination

Introduction

The continuous improvement of global education levels increases talent competition. For modern youth, high social competition will result in heavy psychological stress. Together with heavy schoolwork and complicated interpersonal relations, the youth demographic in the late stage of puberty cannot bear psychological stresses. In particular, China has been seriously affected by Coronavirus Disease 2019 (COVID-19) since December, 2019. The outbreak of the epidemic further aggravates the mental health burden of Chinese youth (1), developing submental health

problems like anxiety and depression (2). According to relevant investigation results (3), the incidence rate of depression of youth demographic in China increases year by year and has become the primary threat to psychological health of the youth demographic. How to relieve depression of the youth demographic and promote their psychological health has attracted major attention from all sectors of society. Psychological capital refers to a positive psychological state of individuals during growth. It is a type of resource different from social and



human capital. Instead of individuals' interpersonal relations, skills, or professional knowledge, psychological capital only focuses on who the individual is. However, psychological capital can considerably influence individual behaviors (4).

Psychological capital is composed of self-efficacy, hope, optimism, and humanity. Self-efficacy refers to the attitude of an individual in believing in himself/herself to realize a specific goal. Hope refers to a motivation state of individuals to try to realize an expected goal through various methods. Optimism refers to an attributional pattern that individuals have to ascribe good outcomes to internal permanent reasons. Toughness refers to an ability that individuals have to recover to the original, normal physiology, and psychological states, finally gaining positive outcomes. Psychological capital comprises specific manifestations of individuals' positive psychological traits. Individuals with higher psychological capital are more able to conduct self-adjustment of psychological state, solving various psychological problems. Procrastination denotes behavior that makes delayed decisions on actions in aspects such as life and learning. It is a personality trait that delays the accomplishment of tasks (5).

Behaviorism theory indicates that procrastination is a manifestation of learned helplessness and it is an incorrect cognition that individuals may develop after consistent failure experiences in a type of task, so they believe in the same outcome regardless of whether they tried. As a result, individuals tend to delay their responses to the task. Procrastination is a non-rational avoidance behavior that individuals will conduct voluntarily or positively in facing an event. It is not only a problem of time management, but also a complicated process involving emotion, cognition, and behaviors. Procrastination of the youth demographic can cause their weariness toward pressures such as those in life and academics. The essence of procrastination is a negative response when individuals cannot easily fulfill life and academic responsibilities and meet relevant demands. Depression is useful to predict

procrastination, whereas the occurrence of procrastination can decrease academic performance of the youth demographic directly, further intensifying anxiety and depression. Finally, the youth demographic is caught in a vicious circle. Psychological capital is also proved to positively affect psychological health, happiness, and academic achievements of individuals. Improving psychological capital of individuals can promote their mental health, relieve depression, and improve procrastination (6). The concept of mindfulness originated from Buddhism and its essence is a special state of consciousness, which refers to self-awareness of and concern with current stimuli (7, 8).

Mindfulness training is improved by many scholars from mindfulness pressure-relieving therapy, and it belongs to the scope of meditation practices. It emphasizes expanding attention through non-reaction and non-judgment modes so that individuals have increased and deep perceptions of their feelings, thinking, and emotions in the present (9). Mindfulness training is an effective clinical psychotherapy for depression and prevention of depression relapse. Mindfulness training has good intervention effects on other psychological diseases and chronic pains (10).

Considering close relations among depression, psychological capital, and procrastination, as well as the application advantages of mindfulness training in depression treatment, we investigated influences of mindfulness training on psychological capital, negative emotion, and procrastination of the youth demographic, aiming to provide references for psychological health intervention for the group.

Materials and Methods

Research objects

Youths in four resident communities in the cities of Wuhan and Tai'an in China in 2020 were investigated through a cluster sampling method. Considering the influence of COVID-19, a self-rating depression scale (SDS) was released by online questionnaire, and the youths who had

SDS standard scores >53 and volunteered for this study were selected. After telephone or online video interviews, the youths who had received mindfulness training in 12 months or were using antidepressants or had other serious psychological or physiological diseases were excluded. Finally, 240 youths were selected as the research objects and divided into the experimental group and the control group randomly (120 in each group). The experimental and the control groups have no statistically significant differences in general information, including gender ratio,

average age, only child or not, and location of residence registration. These two groups had homogeneity (Table 1). Before the experiment, research objects were informed about purpose, contents, and requirements of the experiment and agreed to sign informed consent. This investigation passed through an ethical review for scientific research and gained support and compliance from the community and parents. All methods were implemented according to relevant guidelines and regulations.

Table 1: General information of two groups

Group	Number of research objects	Male/female	Age (years)	Only child		Census register	
				Yes	No	Urban	Rural
Experimental group	120	64/56	20.21±1.63	84	36	74	46
Control group	120	60/60	19.86±1.51	76	44	70	50
χ^2/t -value		0.134	1.220	0.600		0.139	
P-value		0.715	0.225	0.439		0.709	

Methods

The experimental group received mindfulness training for nine weeks, 2–3 times per week for 1.5–2h per session. Mindfulness training was organized and performed by China's national second-level psychological consultants in group guidance classrooms. Psychologists who implemented mindfulness training had received uniform and standard professional training of mindfulness training in advance. The control group received no psychotherapy and maintained their original life and learning habits. The implementation process of mindfulness training is as follows. Week 1: Respondents attended lectures about mindfulness and meditation to obtain relevant theoretical knowledge and psychologically prepare for mindfulness training.

Week 2: Respondents entered mindfulness training officially and experienced mindfulness respiratory training. They sat on a yoga mat or chair in a comfortable posture, closed their eyes, concentrated on the front edges of their noses, concerned their respiratory processes, experienced dynamic changes of airflow in the respiratory process, and relaxed completely. If they found

that they could not focus during mindfulness training, they were aware of the state and did not need to conduct self-accusation. All they needed to do was to return their attention to the current situation. Through mindfulness respiratory training, respondents could set up a consciousness of mindfulness and understand the core idea of mindfulness.

Week 3: Respondents were asked to focus on their bodies and began to implement body scanning training. After finishing the mindfulness respiratory training, respondents continued to close their eyes, and one respondent was chosen randomly to describe his/her clothing, hairstyle, physical conditions, and emotional feelings. Later, he/she described their feelings. Subsequently, respondents were led in body scanning practice, during which their body parts were observed and experienced. Respondents practiced to perceive their bodies.

Week 4: Training content focused on the mindfulness awareness respiratory process, and three-minute respiratory space and mindfulness exercises. Through training, respondents could describe the automatic thinking process of their brains.

Week 5: Training content focused on mindfulness awareness thinking and mindfulness walking. Through training, respondents could consistently pay attention to their current states and the source of inner thinking and accept them.

Week 6: Training content focused on mindfulness meditation breathing. Through training, respondents could accept themselves and their current states under the premise of no judgment and no evaluation.

Week 7: Training focused on kindness meditation and eliminating procrastination habits. Respondents were guided to focus on current situations, decreasing automatic thinking.

Week 8: Training plans were formulated according to specific situations of respondents. Three-minute respiratory space training aimed to consolidate mindfulness consciousness and cope with difficult goals easily.

Week 9: Respondents were asked to not only summarize training in previous weeks and communicate experiences but also insist on mindfulness training in future life to maintain their mindfulness level. Depression degree, psychological capital, mindfulness level, and procrastination of respondents one week before the intervention and one week after finishing the intervention were assessed.

Measuring tools

Self-rating depression scale (SDS). SDS was compiled by Zung, and it was proved to have high reliability and validity (Cronbach $\alpha=0.85$). The SDS covers 20 items, including 10 designed in a reverse scoring method. The Likert four-point scoring method (scores of 1–4) was applied. The original total score $\times 1.25$ is equal to the standard scores. The critical score of depression is 53, and high scores represent serious depression (11).

Positive psychological capital questionnaire (PPQ). PPQ was compiled by Zhang et al (12). The Cronbach's a of PPQ to youth demographic was in the range of 0.760–0.86, and the a coefficient of the entire questionnaire was 0.90, indicating high internal consistency reliability. The PPQ contains four dimensions that comprise 26 items.

A Likert seven-point scoring method was applied, which adopted scores of 1–7 from “complete inconformity” to “complete conformity.” High scores represent high psychological capital levels.

Five-facet mindfulness questionnaire (FFMQ). FFMQ was compiled by Baer et al. (13) and revised by Chinese scholars. It has good reliability and validity for youth demographic (Cronbach $\alpha=0.87$ and test-retest reliability=0.79). FFMQ was composed of 39 items of five dimensions (observation, description, consciousness movement, no judgment, and no reaction). A Likert five-level scoring method was applied. High scores reflect high mindfulness levels.

Pure procrastination scale (PPS). PPS was compiled by Zhong et al (14). Its internal consistency validity was 0.93, indicating high reliability and validity. PPS consisted of 10 items of two dimensions. A Likert five-level scoring method was applied. High scores reflect serious procrastination.

Statistical analysis

Research data were processed with SPSS 20.0 software (Chicago, IL, USA). Comparison of enumeration data (%) used the χ^2 test, and comparison of measurement data ($\bar{x}\pm s$) used the t-test. $P<0.05$ indicates that differences have statistical significance.

Results

Changes in FFMQ scores

FFMQ scores of the two groups were similar before intervention. FFMQ scores of the experimental group after intervention were significantly higher than those before intervention ($P<0.05$), whereas the FFMQ scores of the control group presented no significant changes. FFMQ scores of the experimental group after intervention were far higher than those of the control group ($P<0.05$) (Table 2).

Changes in psychological capital scores

Scores of different dimensions of psychological capital and total scores between two groups be-

fore intervention were compared, and no statistically significant differences were found. Self-efficacy, toughness, hope, optimism, and PPQ scores of the experimental group after intervention were improved significantly compared with

those before intervention. Self-efficacy, toughness, hope, optimism, and PPQ scores of the experimental group after intervention were significantly higher than those of the control group after intervention ($P < 0.05$) (Table 3).

Table 2: Comparison of FFMQ scores before and after intervention ($\bar{x} \pm s$, scores)

Group	Number of respondents	Statistical value	Before	After	T-value	P-value
Experimental group	120		117.14±29.67	126.35±12.38	2.219	0.028
Control group	120		116.61±20.54	118.70±13.69	0.877	0.382
		t-value	0.072	3.210		
		P-value	0.942	0.002		

Table 3: Comparison of PPQ scores before and after intervention ($\bar{x} \pm s$, scores)

Before and after	Groups	Number of respondents	Statistical value	self-efficacy	Toughness	Hope	Optimism	Total scores
Before	Experimental group	120		27.33±6.21	26.47±5.28	28.86±6.33	26.35±4.26	109.01±22.08
After	Control group	120		27.42±5.58	26.63±4.78	29.03±5.64	25.98±5.32	110.06±21.32
			T-value	0.084	0.174	0.155	0.421	0.265
			P-value	0.932	0.862	0.877	0.675	0.792
Before	Experimental group	120		32.25±5.34**	31.30±6.06**	32.14±5.92**	32.35±5.38**	128.04±22.70**
After	Control group	120		28.04±4.74	27.09±4.82	28.86±5.33	26.32±4.87	110.31±19.76
			t-value	4.567	4.212	3.189	6.436	4.563
			P-value	0.000	0.000	0.000	0.000	0.000

Notes: ** $P < 0.05$ in comparison to the same group before intervention

Changes in depression scores

SDS scores of the two groups were similar before intervention. SDS scores of the experimental group after intervention decline significantly compared to those before intervention ($P < 0.05$), whereas SDS scores of the control group showed no significant changes. SDS scores of the experimental group after intervention were far lower compared to those of the control group ($P < 0.05$) (Table 4).

Changes in procrastination scores

PPS scores of two groups before intervention were similar before intervention. PPS scores of the experimental group after intervention declined significantly compared with those before intervention. PPS scores of the experimental group were far lower than those of the control group after intervention ($P < 0.05$) (Table 5).

Table 4: Comparison of SDS scores before and after intervention ($\bar{x} \pm s$, scores)

Group	Number of respondents	Statistical value	Before	After	T-value	P-value
Experimental group	120		59.63±6.23	50.71±5.28	8.461	0.000
Control group	120		60.07±5.87	59.74±6.33	0.296	0.768
		t-value	0.398	8.485		
		P-value	0.691	0.000		

Table 5: Comparison of PPS scores before and after intervention ($\bar{x} \pm s$, scores)

Group	Number of respondents	Statistical value	Before	After	T-value	P-value
Experimental group	120		36.78±5.20	30.54±4.98	6.713	0.000
Control group	120		37.02±4.87	36.89±5.32	0.140	0.889
		t-value	0.261	6.750		
		P-value	0.795	0.000		

Discussions

Table 2 shows that FFMQ scores of the experimental group after intervention are increased greatly, indicating that mindfulness training improves mindfulness levels of respondents effectively. This finding proves that mindfulness training is effective in improving the mindfulness level of the youth demographic. Table 3 shows that self-efficacy, toughness, hope, optimism, and PPQ scores of the experimental group are improved significantly after intervention and relevant scores are far higher than those of the control group after intervention. This result reflects that mindfulness training improves the psychological capital level of different dimensions by increasing mindfulness levels of respondents. Some studies (15) pointed out that mindfulness level is positively related with psychological capital. Mindfulness has significant a forward prediction effect on psychological capital. In other words, improving the mindfulness level of individuals is conducive to improving their positive psychological traits. This finding agrees with conclusions in the present study. Mindfulness training can adjust attention and stimulate positive emotions. Through prospective memory tasks and Stroop tasks, Chinese scholars (16) proved that mindfulness training has a deautomatization effect. Deautomatization makes individuals pay attention to conceal internal behavioral steps at the consciousness level. Deautomatization has positive effects on cognitive functions, self-control ability, and anti-interference capability of individuals. By contrast, mindfulness training is also in favor of eliminating negative cognitive mode and it helps individuals to ob-

serve their pessimistic and negative cognitive modes by paying attention to current feelings, thinking, and emotions, thus returning attention to tasks.

Mindfulness training can decrease self-cognition biases and automatic negative emotional response modes of individuals by expanding consciousness, stimulating their positive emotions. The influencing mechanism of mindfulness training on psychological health of individuals is mainly manifested by the deautomatization effect under four dimensions of “observation,” “attention,” “focusing on current situations,” and “acceptance”. Individuals could decrease these automatic classification interpretations (i.e. stereotyping) once they realized their cognitive process (17). This cognition mechanism deems that mindfulness can inhibit automatic responses. However, a later study (18) showed that in the deautomatization mechanism of observation level, mindfulness interrupts automatic processing. When stereotyping caused by stimuli influences current activities, mindfulness can recognize and interrupt this automatic cognitive process, thereby hindering influences of stereotyping on current activities. Through mindfulness training, individuals can improve deautomatization ability on the observation level. Individuals with high mindfulness levels can easily trigger control over the stereotype during target activation. With respect to the attention level, mindfulness can interrupt interferences of some automation and shift the attention of individuals to current tasks. Mindfulness training helps individuals to select task-related distribution mode in facing changing information, interrupting automatic processing of interference information, and returning attention

to current tasks (19). With respect to focusing on current situations, mindfulness can promote individuals' insights to metacognition, which refers to the repeated negative thinking and promoting individuals to shift attention from habitual passive negative thinking modes to desired aspects. Mindfulness training influences thinking modes of individuals through insights to metacognition, and it provides individuals guidance to control their actions.

According to the results in Table 4, SDS scores of the experimental group decrease significantly after intervention, and they are far lower than those of the control group after intervention. This finding proves that mindfulness training is beneficial to relieve depression of the youth demographic, which agrees with the conclusions of Li et al (20). A possible reason for this result is that individuals with higher mindfulness levels control their emotional experiences consciously rather than using an automatic thinking mode unconsciously. This process is conducive to preventing negative emotional responses that are produced by ruminations. With respect to deautomatization on the acceptance level, mindfulness is realized by inhibiting depression. Thus, at the occurrence of negative emotions like anxiety and fear, individuals can make automatic responses to the observed psychological events without judgment, adjust thinking and feeling caused by events through mindfulness, and protect themselves from the reflective thinking modes. Through mindfulness training, individuals cannot view stimulating events that can cause reflective fear responses as a harmful stimulus, and experience and fully accept fears through a separation attitude. As a result, the fear event is no longer a threat to the individuals (21).

In this study, mindfulness training can improve negative emotions and psychological capital of the youth demographic, which can be interpreted as follows. Improving mindfulness level helps the youth demographic to trigger control over stereotype quickly, consistently keep alert, and have clear perception when external stimulation occurs so that they can make quick and accurate responses. With respect to attention level, mindful-

ness training helps the youth demographic improve control of their attention and concentrate on current events and problems completely. These processes can avoid automatic negative thinking caused by stimulating events, relieving depression accordingly. By contrast, mindfulness training can improve acceptance of the youth demographic to various stimulating events and treat them with a peaceful attitude whether they are good or bad. Instead of producing negative emotions like depression and anger immediately, individuals can face problems calmly and seek solutions even though they know that the problems cannot be solved quickly. Moreover, mindfulness training helps the youth demographic to understand the current situations, which is beneficial to relieve tension caused by a fast-paced life and adjusted psychological states.

Table 5 shows that PPS scores of the experimental group after intervention drop significantly, indicating that mindfulness training can relieve procrastination of the youth demographic effectively by increasing mindfulness level. For the youth demographic, depression might cause academic procrastination, and intensifying depression can prolong or deteriorate procrastination. Under depression, individuals generally show continuous negative cognitions, obvious inability, and helplessness (22).

To protect self-esteem, individuals often tend to avoid pressure from experiencing negative emotions, thus delaying the accomplishment of tasks. Psychological capital, negative emotions, and procrastination are closely related with each other (23). Negative emotion has direct negative effects on psychological capital. Individuals will be dissatisfied with their current situation and lose hope in the future after long-term experiences of anxiety, pressure, and depression. Consequently, their positive psychological traits will decrease, but their negative psychological traits will increase. Depression also can weaken enthusiasm and decrease volition acts of individuals and promote individuals to cope with problems in negative ways. Procrastination is the most common manifestation of a negative attitude. The negative response of academic procrastination

often introduces difficulties in realizing goals. Finally, procrastination will cause poor academic performance which, in return, can influence individual emotions and psychological capital.

As a result, individuals are trapped in a vicious circle. Mindfulness training increases the emotional adjustment ability of the youth demographic and relieves individual depression. The youth demographic can observe their negative emotions through mindfulness training, adopt non-react attitudes, and focus on tasks, enabling them to accomplish tasks quickly and effectively.

Conclusion

Mindfulness training cannot only improve the psychological capital level of the youth demographic effectively, but also strengthen the emotional adjustment capability of individuals. Mindfulness training is in favor of relieving individual depression, thus improving their procrastination. Mindfulness training should be introducing into public services for resident communities as a beneficial way to improve psychological capital and promote psychological health of the youth demographic.

Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors declare that there is no conflict of interests.

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