

Gratitude Diary: The Impact on Depression Symptoms

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Abstract

In order to explore the effect of gratitude diary intervention on depression, 156 female college students participated in a one-month intervention of gratitude diary experiment. Using Beck Depression Rating Scale and Gratitude Questionnaire to assess the degree of gratitude tendency and deceptive emotion. The results showed that keeping a gratitude diary can significantly improve students' gratitude level ($t(305) = -3.94, p < 0.001, d = 0.45$) and reduce their depression ($t(305) = 2.06, p < 0.05, d = 0.24$). Further Chi-square tests showed that gratitude diary significantly reduced the number of subjects with mild depression ($\chi^2(1) = 3.97, p < 0.05, w = 0.14$), but not moderate to severe depression ($\chi^2(1) = 2.36, p > 0.05$). At the same time, one week after the pos-intervention, there was no significant difference in the level of gratitude ($t(297) = 0.24, p > 0.05$) and depression ($t(297) = 1.23, p > 0.05$), indicating that the intervention effect of gratitude diary can be sustained. Therefore, it can prevent depression and maintain students' mental health by guiding students to keep a gratitude diary or recall grateful things.

Keywords

Gratitude, Depression, Positive Emotion, Intervention, Gratitude Diary

1. Introduction

During the period of COVID-19 pandemic, with a 28% increase in cases of depression and 26% increase in anxiety disorders worldwide in 2020, women were more affected by the pandemic than men, and younger people were more affected than older people (Santomauro et al., 2021). COVID-19 pandemic may have exacerbated the mental health of university students. Depression is not only an important indicator of mental health but also one of the most common psy-

chopathological conditions in the general population (Global Burden of Disease, 2020). The global rate of depression was estimated at 4.4% in 2015, which was more prevalent among females (5.1 percent) than males (3.6 percent) (World Health Organization, 2017). A study showed that the number of undergraduates with depression is increasing year by year (Wang et al., 2020). In two meta-analyses of depression in college students, the incidence of depression (symptoms) in college students was 24.71% (Ma, Yang, & Liu, 2019) and 28.4% (Gao, Xie, & Wang, 2020). Depression seriously affected college students' study and life. During the COVID-19 pandemic, students' study and life had been changed. Many courses were taught online, and extracurricular lives were restricted. They not only couldn't travel freely as before but also feared and worried about whether they will be infected. A meta-analysis found that the fear of COVID-19 was associated with mental health problems such as depression, anxiety, and stress (Erbiçer, Metin, Çetinkaya, & Şen, 2022). Depression not only seriously affected college students' study and life but is also the major contributor to suicide deaths (World Health Organization, 2017).

In 2000, Seligman and Csikszentmihalyi (2000) published special issue—positive psychology: An introduction, marking the birth of positive psychology. Positive psychology is a branch of psychology. Researchers mostly focused on how to deal with negative emotions until 2000. With the rise of positive psychology, psychological research began to aim to study people's positive psychological qualities. Gratitude is the key construct in the positive aspects of the human experience (Seligman & Csikszentmihalyi, 2000; Emmons & McCullough, 2004).

1.1. Gratitude

Gratitude refers to the psychological tendency of individuals to use gratitude cognition, emotion and behavior to understand or respond to the favor or help of others or things so that they get positive experience or results (McCullough, Emmons, & Tsang, 2002). Gratitude, however, seems to not only a feeling following help from others but also a habitual focusing on and appreciating the positive aspects of life (Wood, Froh, & Geraghty, 2010). Lambert, Graham, Fincham, and Stillman (2009) found that gratitude figures prominently among the positive dimensions of the human experience. A meta-analysis about the association between gratitude and depression manifested that a higher level of gratitude would be associated with fewer symptoms of depression (Iodice, Malouff, & Schutte, 2021). In a cross-sectional study of the relationship between gratitude and depression, Gratitude has previously demonstrated significantly negative correlation with depression (Froh et al., 2011; Lambert et al., 2012). Studies found that people accustomed to more gratitude experienced fewer negative emotions, such as depression and anxiety (Laird et al., 2004; Grandchampa, Gordeeva, & Sychevc, 2021), meanwhile, individuals that with higher levels of gratitude report more optimism, positive affect, and satisfaction with life (Dickens, 2017). Long et al. (2014) found that depression has a predictive effect on gratitude in

high school students. [Wei et al. \(2015\)](#) showed that gratitude has a significant predictive effect on depression, and individuals with high gratitude level have a lower degree of depression. The longitudinal study of the relationship between gratitude and depression found that individual gratitude can reduce depression level and relieve stress in a follow-up study ([Wood et al. 2008](#)). By tracking 312 college students for 10 months and using cross-lag regression analysis, [Hui, He, & Li \(2018\)](#) found that gratitude level and depressive symptoms of college students are mutually causal and can predict each other.

1.2. Effect of Gratitude Intervention on Depression

There are many studies through the invention to explore the relationship between gratitude and depression. Research shows that gratitude interventions may improve people's appreciation of positive qualities in their lives, and may improve mental health ([Seligman et al., 2005](#)). Interventions promoting gratitude could not only help decrease depression but also improve well-being. Fostering gratitude can through optimistic thinking ([Grandchampa, Gordeevaa, & Sychevc, 2021](#)) and simple exercises ([Wood et al., 2010](#)) to improve well-being. Positive psychology researchers have found that gratitude things, gratitude cards and gratitude diaries are some important ways to improve gratitude awareness and happiness. Interventions with older adults found that training of a range of positive activities in gratitude increased positive affect, and Optimism interventions decreased scores in Depression ([Salces-Cubero, Ramírez-Fernández, & Ortega-Martínez, 2019](#)). A 7-day positive psychology program in adults for current suicidal ideation or a suicide attempt found the intervention of gratitude diary to be more useful than the food diary, participants in the gratitude journal group showed efficacy to reduce remarkably depression and anxiety levels ([Ducasse et al., 2019](#)). Two-week optimism ($\beta = -0.11$, $SE = 0.05$, $p = 0.039$) and gratitude ($\beta = -0.10$, $SE = 0.05$, $p = 0.028$) were associated with reductions in symptoms of depression in regression model ([Millstein et al., 2016](#)). Some studies have also demonstrated the mediating ([Jiang et al., 2016](#)) and moderating effects ([Kwok & Gu, 2019](#)) of gratitude and optimism on depression.

Some reviews and meta-analyses have found that the effects of inventions were significant but small, especially when the control group received a placebo ([Cregg & Cheavens, 2021](#); [Davis et al., 2016](#); [Iodice et al., 2021](#)).

As far as we know, no study was conducted to examine why some interventions work and some don't. Hence, one of our objectives in this study was to distinguish between those subjects for whom gratitude intervention was effective and those for whom it was not in order to guide campus mental health education. Similarly, participants in the previous pieces of literature knew they were taking part in an experiment. Therefore, in order to avoid the subjects realizing the purpose of the experiment, we just told the subjects in the psychology lecture that their course assignment for the next month was to write about people or things they were grateful for around them, to avoid the placebo effect, and at the

end of the intervention, the subjects were told the purpose of the gratitude diary.

1.3. Goals of the Current Study

The first goal of current study was to examine and compare the effects of pre- and post-intervention of gratitude on female freshmen's depressive symptoms.

The second aim of this study is to examine at what level of depression is intervention effective.

2. Method

2.1. Participants

Because females have better emotional memory and stronger susceptibility to negative emotions than males, they will show more negative emotions and psychological states in the face of a huge public health crisis. Therefore, in this study, 156 female college freshmen were selected from 4 classes of pre-school major in Guangdong Preschool Normal College in Maoming to conduct the questionnaires for three times and write gratitude diaries for a month. The questionnaires were distributed and collected through the Internet. Among them, 21 participants were only daughters and 133 were not; 83 were from urban areas and 71 were from rural areas; The age range was 17 - 22 (18.62 ± 0.74) years. The male students do the same things as female freshmen, but the data was excluded during the analysis. All the participants have rewarded credit points toward their children's psychology grade as an incentive for participation.

The collected questionnaires are screened to eliminate extremely consistent answers (e.g., all choose the first or last option). After excluding invalid data, there were 154 valid questionnaires in the first time, 153 in the second time and 146 in the third time respectively. This article was performed in accordance with the Declaration of Helsinki and was approved by the Ethics Committee of Guangdong Preschool Normal College in Maoming.

2.2. Beck Depression Rating Scale

The Beck Depression Rating Scale (BDI-13; Beck & Beamesderfer, 1974) is a 13-item self-report questionnaire that measures people's severity of depressive symptoms over the past two weeks using a four-point Likert scale (0 = not at all, 3 = often indeed). The total score is the sum of the scores: 0 to 4 (basically) no symptoms of depression, 5 to 7 for mild depression, 8 to 15 for moderate depression, and 16 or more for major depression (Beck & Beamesderfer, 1974). Cronbach's α of BDI-II is reported to be 0.92 in non-clinical samples (Beck, Steer, & Brown, 1996). Similarly, the BDI-13 also has good internal reliability with Cronbach's α from 0.87 to 0.91 in this study.

2.3. Gratitude Questionnaire

The Gratitude Questionnaire (GQ-6; McCullough, Emmons, & Tsang, 2002) is a 6-item self-report that assess an individual's grateful disposition on a Likert scale

from 1 to 7 (1 = strongly disagree, 7 = strongly agree). The third and fifth items in GQ-6 are reverse scoring questions. McCullough et al. (2002) found that the higher the total score is, the more significant the individual's gratitude tendency is. The GQ-6 yielded an internal consistency of .82 (Sheridan, Boman, Mergler, Furlong, & Elmer, 2015). Accordingly, the GQ-6 also produced acceptable reliabilities of Cronbach's α (0.79, 0.85, and 0.87 separately).

3. Procedure

A repeated measures factor—Time—covering three levels (pre-intervention, post-intervention, and an assessment one week after intervention completion) was used.

3.1. Pre-Intervention

Before filling in the questionnaire, all the subjects were told: "This questionnaire is just to investigate people's attitude towards society. Fill in anonymously and all information will not be leaked. Please fill in according to your real situation." The self-reported questionnaires were listed in the same order as above. After completing the questionnaire, the subjects were told to write a consecutive one-month diary from now. "Wrote down one thing or person you're grateful for every day, which could be about your relatives, friends or even people you meet for the first time. In the process of writing, write clearly about specific things or actions that you are grateful for, particularly, write clearly about your feelings with about 50 words every time. Every week in my lecture, the diaries will be randomly checked in class. At the end of one month, the gratitude diaries will be collected, and you will get extra points on your final grade." Participants volunteered to participate because they could get extra credits.

3.2. Post-Intervention

A month later, participants were asked to fill out the above three questionnaires again. The process of filling out the questionnaire was the same as the first time. And then I put away the gratitude journals of all the subjects, which make all the students feel like they were just handing in homework.

3.3. One Week after Post-Intervention

One week after post-intervention, the subjects were asked to fill in the above two questionnaires again. The order of the two questionnaires was reversed. After all the students filled in the questionnaire, I told them the purpose of the study and hoped they could keep a gratitude diary or just thought about something worthy of gratitude every day.

3.4. Statistical Analysis

Data were analyzed by SPSS20 and the statistical decisions were made at significant levels of 0.05 or lower. The first goal of this study was to examine whether

remarkable changes occurred for the various dependent variables before, after and after, one-week post-intervention through independent-samples T-test. The degree of the influence was estimated by Cohen’s d. The second goal was explored at which depressive level did writing gratitude diaries work best through chi-square test. The fitting degree tests were carried out by Phi ϕ (w) to calculate the effect quantity.

4. Results

4.1. Descriptive Statistics and Intervention Effect

As we can see in **Table 1**, there was no significant difference between participants who lived in urban and rural of scores of gratitude tendency and depressive symptoms at three times, except the gratitude score in post-intervention.

The intercorrelations among two variables at three times can be found in **Table 2**. Gratitude and depressive symptoms were significantly associated with each of the three measures ($p < 0.05$). The depression score after intervention was significantly lower than that before intervention ($t(305) = 2.06, p < 0.05, d = 0.24$); Gratitude scores were remarkably different pre- and post-intervention, and gratitude tendency was significantly higher after intervention ($t(305) = -3.94, p < 0.001, d = 0.45$). There were no significant differences in depression ($t(297) = 1.23, p > 0.05$) and gratitude ($t(297) = 0.24, p > 0.05$) scores between post and one-week intervention.

4.2. Chi-Square Test for the Number of Different Deceptive Level

The intervention effect of gratitude on depression was significant as previous analysis. Some studies (Cregg & Cheavens, 2021; Davis et al., 2016; Iodice et al., 2021) have shown that the intervention effect of gratitude is not obvious, while some studies have shown that the effect is significant, so this study used chi-square

Table 1. Descriptive statistics (M \pm SD) and difference between variables at three times.

	Pre (n = 154)			Post (n = 153)			One-week (n = 146)		
	Urban (n = 80)	Rural (n = 74)	t	Urban (n = 82)	Rural (n = 71)	t	Urban (n = 80)	Rural (n = 80)	t
BDI-13	5.87 \pm 5.77	6.83 \pm 6.58	-0.96	4.71 \pm 4.68	5.35 \pm 4.90	-0.83	3.94 \pm 5.33	4.69 \pm 5.71	-0.82
GQ-6	27.37 \pm 5.28	26.23 \pm 4.36	1.44	30.04 \pm 4.91	28.13 \pm 5.64	2.24*	29.77 \pm 5.60	28.05 \pm 5.72	1.83

* $p < 0.05$.

Table 2. Means, standard deviations (M \pm SD) and correlation of variables at three times.

	Intervention		
	Pre (n = 154)	Post (n = 153)	One-week (n = 146)
BDI-13	6.31 \pm 6.15	5.01 \pm 4.78	4.27 \pm 5.50
GQ-6	26.85 \pm 4.90	29.15 \pm 5.33	29.00 \pm 5.70
r	-0.16*	-0.57**	-0.47**

* $p < 0.05$; ** $p < 0.01$.

test to find out which degree of depression the intervention effect is more obvious for the subjects.

According to the Beck Depression Rating Scale score, 69 (44.8%) had no depressive symptoms, 34 (22.1%) had mild depressive symptoms, 41 (26.6%) had moderate depressive symptoms, and 10 (6.5%) had major depressive symptoms before intervention in this study. After intervention, 87 (56.9%) had no depressive symptoms, 23 (15%) had mild depression, 39 (25.6%) had moderate depression, and 4 (2.6%) had severe depression.

No priori hypotheses were made, so according to the distribution difference of people with different levels of depression, we divided into four groups: not depression symptom (0 - 4), with depressive symptoms (5-39), mild depression (5 - 7), and moderate depression or above (8-39) (see **Table 3**). First, chi-square test of the number of students with or without depressive symptoms pre- and post-intervention showed significant difference ($\chi^2 (1) = 4.46, p < 0.05, w = 0.12$). There were more students without depressive symptoms after taking part in one-month diary writing than before. Second, Before and after the intervention, there was a significant difference ($\chi^2 (1) = 3.97, p < 0.05, w = 0.14$) between the number of students without depression and those with mild depressive symptoms, which means that there were more students without depressive symptoms and fewer students with mild depressive symptoms in post-intervention than in pre-intervention. Third, the number of people between the group of 0-4 and 8-39 wasn't obvious difference ($\chi^2 (1) = 2.36, p > 0.05$).

5. Discussion

Gratitude tendency was associated with depressive symptoms in **Table 1**, which was consistent with previous studies (Froh et al., 2011; Lambert et al., 2012; Iodice et al., 2021). Students with a higher level of gratitude felt fewer depressive symptoms. The first goal of current study was to examine and compare the effects of pre- and post-intervention of gratitude on female freshmen's depressive symptoms. In line with Wood et al. (2010), Ducasse et al. (2019), and Salces-Cubero et al. (2019), gratitude is usually defined as a trait, but it can be cultivated and practiced (Emmons & McCullough, 2003). People actively recall or discover people or good things in their lives that have helped them when writing a gratitude journal. When we realize and appreciate how many good things and people there are in our lives, we become more willing to interact with others and experience more happiness and confidence in the process, which in turn leads

Table 3. The number of people at different depressed levels in pre- and post-intervention.

	Depressive levels			
	0 - 4	5 - 39	5 - 7	8 - 39
Pre	69	85	34	51
Post	87	66	23	43

Note: 0 - 4 Not depression symptom; 5 - 39 with symptom; 5 - 7 mild depression.

to greater life satisfaction (Dickens, 2017), as a result, some symptoms of depression may be reduced. After a period of training in gratitude, people get used to focusing on and appreciating the positive aspects of life (Wood, Froh, & Geraghty, 2010), which is the reason why gratitude scores of one-week post-intervention were still not significantly different from that post-intervention. Froh et al. (2011) conducted a study on the relationship between gratitude and achievement, jealousy, depression, life satisfaction, social integration and concentration in 1035 middle school students and found that people with a high level of gratitude had higher life satisfaction and, in turn, lower depression. This enlightens us: whether teachers or parents, we should not only pay attention to the intellectual development of students but also pay attention to the cultivation of students' optimism and positive emotions.

Studies have found that the effect of gratitude may be due to the placebo effect (Cregg & Cheavens, 2021; Davis et al., 2016), so all the subjects before writing gratitude diaries did not know the purpose of the study, but only knew that it was homework, and they would get credit if they handed in the homework on time, to avoid the placebo effect. After the intervention, they were told the purpose of the experiment and wrote diaries. Another review suggested that gratitude interventions had small effect (Iodice et al., 2021). The second objective of this study was to examine whether there were significant differences in the number of participants with different levels of depression between pre- and post-intervention on gratitude. On the chi-square test, gratitude trend was associated with a reduction in depression, most notably in those with mild depression. The number of moderate to severe depression did not decrease significantly after gratitude intervention. It may be specific genes, an increase in the number of Met alleles has been associated with an increase in depressive symptoms and a decrease in well-being (Liu et al., 2017). As we know, patients diagnosed with moderate or severe depression by their doctors are generally prescribed antidepressant drugs, while mild depression may have more non-genetic causes and can be reduced by cultivating gratitude (Emmons & McCullough, 2003). Seligman (2006) proposed that human beings can effectively reduce their negative psychology of pessimism, helplessness and withdrawal through cognitive or positioning methods, and cultivate positive psychological qualities such as gratitude, optimism, persistence and happiness, so as to achieve "psychological immunity". Positive and optimistic students are more likely to adopt a positive explanation style for attributions. Whether they are facing success or failure, the results of their explanations can always play a positive role in their own emotions.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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