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Randomized Trial Investigating of a Single-Session Character-Strength-Based Cognitive Intervention on Freshman's Adaptability

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Abstract

Purpose: To investigate the efficiency of a single-session character-strength-based cognitive intervention on enhancing freshmen's adaptability. **Method:** A randomized trial, pretest, posttest, follow-up intervention was employed using repeated-measures analyses to evaluate the effect. This 90-min intervention contained four activities with 52 undergraduate freshmen (age 17–20) randomly assigned to the intervention and control group, 38 of whom completed all the programs (19 of each group). **Results:** Compared with the control group, the intervention group showed a remarkable increase in well-being and a significant reduction in depression and anxiety at post and follow-up assessment. The stress level of the intervention group significantly decreased only at the follow-up test. Time effect and the interaction between time and group were significant in anxiety and stress. **Conclusions:** This intervention can quickly reduce negative affect and elevate well-being for freshmen. It expands the role of social worker in the prevention of mental illness among college population.

Keywords

strength-based intervention, positive intervention, positive education, single-session model, freshman, negative emotion

Mental health issues (e.g., anxiety, depression, and stress) are becoming prevalent on campuses. These mental health problems plague the college population, especially the freshmen in transition. Many factors can easily lead to depression, anxiety, and stress (Fisher & Hood, 1987), such as separating from parents, living an independent life, adjusting to the unfamiliar environment, balancing new interpersonal relationships (Jackson, 2016), fulfilling academic demanding, and dealing with homesickness and money problems (Healy, 2012; Thurber & Walton, 2012; Zhang, Luo, Chen, & Duan, 2016). As a result, a number of programs and interventions have been constructed, such as creating opportunities for personal empowerment (Hoying, 2013); *Feeling Better*, an online cognitive behavioral therapy (CBT) program (Currie, McGrath, & Day, 2010); and *Breathe*, an e-mail delivered CBT program (Trockel, Manber, Chang, Thurston, & Taylor, 2011). These programs help vulnerable freshmen alleviate negative affect and adapt to university life more quickly. For example, the program Breathe was designed to improve mood and increase freshmen's resilience to stress through typical cognitive behavior protocols, such as challenging negative thoughts, dealing with interpersonal conflict, engaging in enjoyable activities, and relaxation. This program offered treatment modules through e-mail and encouraged students to keep daily logs for a variety of tasks relevant to each module (Trockel et al., 2011).

Although these abovementioned intervention programs which employed CBT as a core component could be effective manners for reducing negative affect, two issues worth discussing in the existing studies. The first issue is that researchers have gradually realized that existing therapies mainly focused on symptoms reduction but lacked attention on promoting positive changes (Chaves, Lopez-Gomez, Hervas, & Vazquez, 2016; Dunn, 2012). With the emergence of positive psychology, the feasibility of combing positive psychology ingredients to enhance the efficiency of CBT has been under discussion (Karwoski, Garratt, & Ilardi, 2006). Positive psychology takes character strengths into greater account and focuses on both negative emotion reduction and well-being promotion (Delle Fave & Fava, 2011; Peterson & Seligman, 2004). Studies have demonstrated that interventions based on character strengths can increase happiness and decrease depressive symptoms (Duan, Ho, Tang, Li, & Zhang, 2014; Proyer, Gander, Wellenzohn, & Ruch, 2015). Both cross-sectional and longitudinal

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study also indicated that character strengths were helpful in preventing students from perceived stress and staying mental well-being (Duan, 2016; Duan, Ho, Siu, Li, & Zhang, 2015). The study showed that, as cognitive self-schemas, character strengths can be defined as strategies, beliefs, and personal assets (Padesky & Mooney, 2012), which cause changes on negative and positive sides; however, the CBT and positive psychology intervention (PPI) literature do not show a close integration. A newly developed intervention called prison-based psychological gymnasium was set in 2011; this program fused CBT with PPI to address female offenders' needs, and the results indicated significant reduction in their negative emotions (e.g., depression, anxiety, and stress) and remarkable increase in their positive sense (e.g., hope and gratitude; Mak, Ho, Kwong, & Li, 2016). However, this initial trial targeted at a special group.

The second issue is that freshmen need a rapid adjustment to the brand new life but most of the current interventions for new college students last several weeks, such as the aforementioned Breathe lasting 8 weeks (Trockel et al., 2011) and the Feeling Better program lasting over 10 weeks (Currie et al., 2010). Negative emotions (e.g., depression, anxiety, and stress) can lead to various problems including heavy drinking (Sebena, El, Stock, Orosova, & Mikolajczyk, 2012), low sleep quality (Samaranayake, Arroll, & Fernando, 2014), and weight changes (Boyce & Kuijer, 2015). According to the National Institute on Alcohol Abuse and Alcoholism (2015), the first 6 weeks of freshmen life can be an especially vulnerable time for increased alcohol consumption. Hence, a very quick and efficient intervention should be implemented to help freshmen adjust to college life within the shortest time. One promising framework of intervention is a single-session model. This model can be used to promote changes by assisting clients to identify and target one or two key targets within a single 90-min session (Campbell, 1999; Gee, Mildred, Brann, & Taylor, 2015). The basic elemental principles of the single-session model are (a) to conduct a short-term intervention within a 90-min session by therapists and ongoing activities by clients in the time after the session; (b) to focus on one or two issues, identify strategies to modify the issues, and set therapeutic goals within the intervention; and (c) to enact the strategies and accomplish the goals after the intervention (Bloom, 2001; Gee et al., 2015). The single-session model has been used in drug addiction (Marcus, 1999), adolescent disturbances (Cooper & Archer, 1999), and family problems (Brown, 1984). Also, it has been employed combining with many psychotherapies approaches such as Ericksonian approaches (Marcus, 1999), CBT (Kunik et al., 2001), and PPIs (Feldman & Dreher, 2012).

In general, freshmen in transition are at-risk population, who are more likely to experience mental health problems (e.g., anxiety, depression, and stress); therefore, effective interventions should be developed to help them ameliorate disturbances and elevate well-being rapidly. CBT and PPI can result in negative and positive changes, but this approach consumes much time and focuses mainly on special groups. The single-session model can provide a solution to the lengthy intervention episode, but existing studies utilized the approach in only CBT or PPI. Therefore, conducting a trial of a single-session PPI combined with CBT-related components among freshmen is meaningful.

Present Study

The current study consists of a randomized controlled trial. It aimed at investigating the feasibility and utility of a single-session character-strength-based cognitive intervention in increasing the well-being and reducing the anxiety, stress, and depression among college freshmen. The present study may not only offer an important addition to the literature on complementary advantages in single-session model, CBT, and PPI, but it also provides an innovative way of school social work, campus psychological counseling, and positive education in practice. Postintervention and 1-week follow-up changes were tested to examine the efficacy of the intervention over time. To the best of our knowledge, this study is the first to test a single-session character-strength-based cognitive intervention among college freshmen.

Method

Participants

Participants were 52 undergraduate freshmen (22 males and 30 females) ranging in age from 17 to 20 ($M = 18.2$, $SD = .6$) from Wuhan University, China. These freshmen were admitted through the China's college entrance examination. This examination is a nationwide enrollment examination. The vast majority of these college age students are in good health and have normal intelligence. Therefore, this sample is a representative sample of freshmen. Participants were recruited according to the inclusion and exclusion criteria. Inclusion criteria included: enrolled freshmen students, living on campus, willing to participate voluntarily, could understand and response to Chinese, and have not participated in any other similar interventions before. Exclusion criteria included: students suffering severe psychotic symptoms or substance abuse. These two exclusive criteria were based on the results of a campus-wide psychological evaluation at the beginning of admission. All participants were randomly assigned to the intervention group ($N = 26$) and the waiting-list control group ($N = 26$). Randomization was conducted through computer random number generators. Some students dropped out during the intervention period. Finally, 38 participants (19 of each group) remained, data of whom were analyzed. Participants in the two conditions did not differ in their age, $F(1, 36) = .63$, $p = .43$, and gender ratio, $\chi(1, N = 38) = 1.73$, $p = .19$. Figure 1 summarizes the sample assignment, randomization, intervention, and evaluation in terms of numbers of participants. The purpose of the intervention was not presented to students until the intervention was completed to avoid the influence of their anticipation of negative affect reduction. Ethics approval was provided by the Department of Sociology of Wuhan University, China.

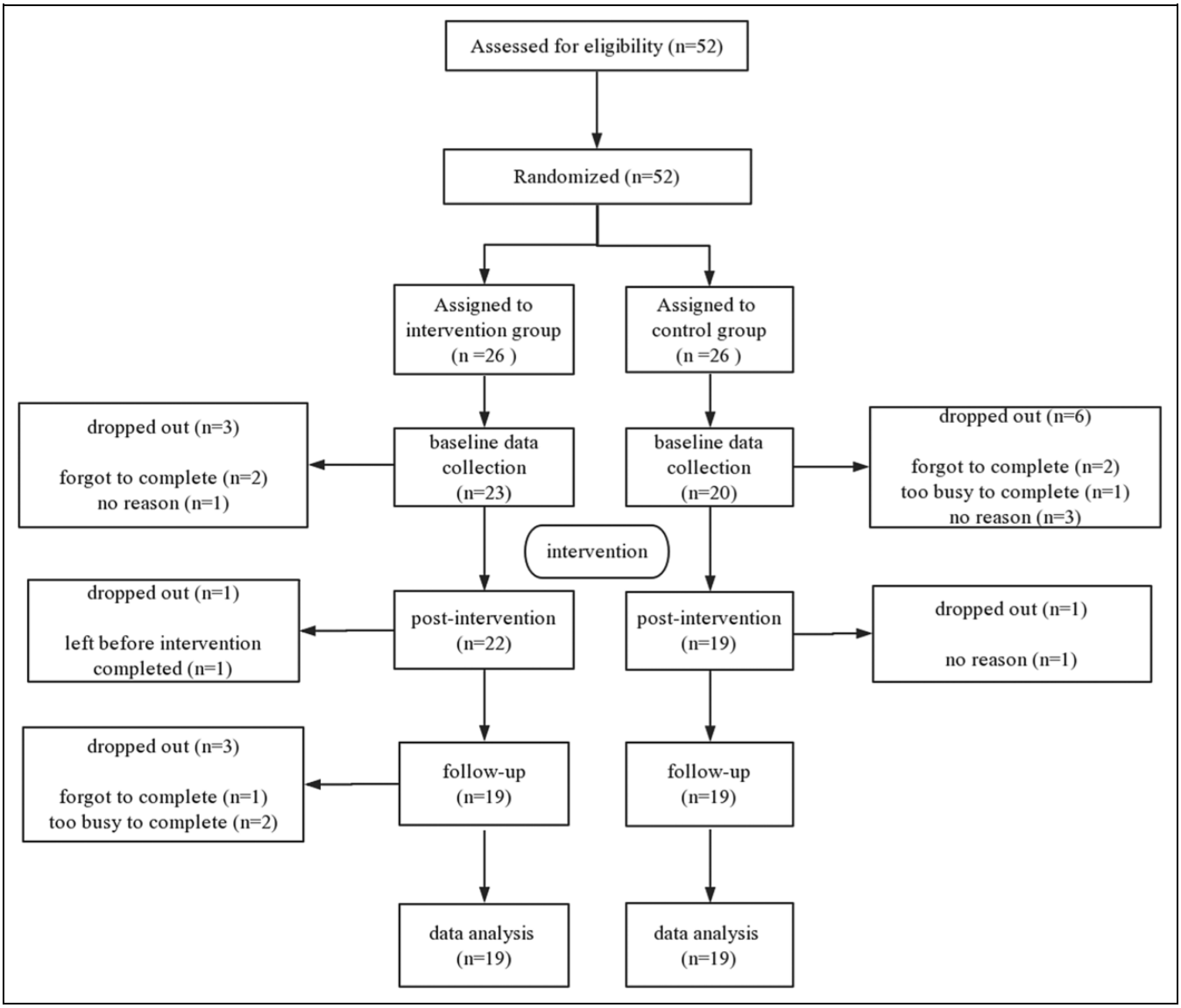

Figure 1. Flowchart of the intervention procedure.

Procedures

The intervention was offered at the beginning of the first semester of the freshmen year in the form of a 90-min lesson. All participants completed the Chinese Virtues Questionnaires (CVQs) and a pretreatment evaluation 2 days before the intervention by means of online questionnaires. The character strengths of each student in the intervention group were computed according to the results of CVQ as personal character strength profiles of each participant.

The single-session intervention was designed with two parts (i.e., a cognition section and a behavior section) based on CBT. The first one contained two activities: (a) *identifying character strengths* and (b) *character strengths 360°* (Padesky & Mooney, 2012; Shankland & Rosset, 2016) focusing on promoting self-awareness and helping them reconstruct the cognition of their own character strengths. The second one, including (c) *signature character strengths* and (d) *nominate goals*, aimed at helping participants use their character strengths to set goals and structure daily activities, so that they can transfer their character strengths into daily life. All handouts were printed and presented in Chinese.

Identifying character strengths. Students were asked to address strengths with the following instruction: *Can you think about a person who you respect and why this person was admired?* As the instructor wrote down all the different reasons on the blackboard, students could find that strengths are ubiquitous (Linkins, Niemiec, Gillham, & Mayerson, 2015) and see the positive sides people have. Then, the instructor introduced the meaning of character strengths to students. The definition and use of character strengths (Peterson & Seligman, 2004) were presented. A printed copy of character strengths description was handed out to each student.

Character strengths 360°. In this exercise, students were asked to figure out and list their top strengths with the following instructions: Please think about your own character strengths and write down five of the most highly ranked ones. If you think identifying your own character strengths is difficult, then you can communicate with others and seek for outside help such as asking friends or classmates. Through this activity, students obtained feedback on their character strengths from different people with various perspectives. Through the first two parts, the process of identifying and appraising character strengths may entail a modification of students' original cognition of their own character strengths. Moreover, as students explained the character strengths to others, their knowledge of strengths was increased (Linkins et al., 2015).

Signature character strengths. The individually customized CVQ results were distributed to each student. Students were advised to choose one or two character strengths they may use often in their daily life (Linkins et al., 2015). The following instructions were presented to students: *You can now compare the character strengths selected from CVQ with the strengths you recently listed. Then, please choose one or two strengths as your signature character strengths*. Students were invited to share their consequence with others, during which their cognition of character strengths was reinforced.

Nominate goals. After being instructed strength knowledge, students were given a handout which included some activities related to character strengths. Students could choose some of these activities to cultivate their signature character strengths after the lesson. The following instructions were presented to students: *As you have now already recognized your signature character strengths, you can consider choosing at least one activity consistent with your signature character strengths, and then nominating a goal and developing a plan through which you can apply your signature strength within the following week.* Pleasant activity scheduling is a typical technique of CBT (Karwoski et al., 2006). In this part, students were encouraged to schedule pleasurable activities which may help them increase the awareness and the use of their signature character strengths. Students who had the same or similar character strengths were encouraged to work in group. They discussed the activities they had already engaged in, the goals they wanted to achieve, and the plan they could implement. Through discussing, they may know themselves and others better. Then, students were encouraged to employ their signature character strengths and engage the activities in the following week. As students implement their plan and engage in the activities, they may acquire experience of using character strengths and accomplishing a task.

At the end of the lesson, the intervention group was asked to fill out the postintervention test immediately, and the data of control group were obtained through online questionnaires within the same day. The lesson lasted approximately 90 min including the postintervention assessment. The follow-up measure was completed 1 week after the lesson through online questionnaires.

Measures

Character strengths. The CVQ (Duan & Ho, 2017; Duan et al., 2012) is a 96-item scale for assessing three general character strengths, namely, *Caring* (*Interpersonal*; 32 items), *Self-control* (*Cautiousness*; 24 items), and *Inquisitiveness* (*Vitality*; 40 items) by summing the scores of corresponding items of each subscale. A 5-point Likert-type scale (1 = *very much unlike me* and 5 = *very much like me*) was used to asked the participants in describing themselves. Previous studies demonstrated satisfactory internal consistency (Cronbach's $\alpha = .87$ to .92), test–retest reliability ("r" = .70 to .76), and good validity in college populations (Duan, Ho, Bai, & Tang, 2013). The three-dimensional model of character strengths was invariant across different gender, age, education levels, and marriage status (Duan & Ho, 2017). In the present study, the reliability coefficients for Caring, Inquisitiveness, and Self-Control subscales were .90, .94, and .86, respectively.

Negative affect. Depression Anxiety Stress Scale of 21 items (DASS-21) is a self-report scale consisting of three 7-item subscales; this scale can measure depression, anxiety, and stress by calculating the sum of the corresponding items (Lovibond & Lovibond, 1995). Each item was in 4-point Likert-type scale from 0 (*did not apply to me at all*) to 3 (*applied to me very much*), assessing the extent to which the state symptoms depicted in the items has been experienced over the past week. The factor structure of the DASS-21 is stable, and the scale possesses good validity and high internal consistency (.82 for Depression, .90 for Anxiety, and .83 for Stress; Henry & Crawford, 2005). Wang et al. (2015) tested the Chinese version among college population and demonstrated good internal consistency (.83, .80, and .82 for the Depression, Anxiety, and Stress subscales, respectively) and for the instrument's factor structure. In the present study, the Cronbach's α of the three subscales ranged from .74 to .91.

Well-Being. The Brief Inventory of Thriving (BIT) is a 10-item self-report measure of comprehensive well-being in the form of a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*; Su, Tay, & Diener, 2014). The total score is calculated by summing the scores of each item and indicates the level of thriving. A high score means a high level of thriving. The BIT is reported to have a good internal consistency coefficient (more than 0.90; Su et al., 2014), while the Chinese version of BIT also has high internal consistency (Cronbach's αs > .85) and a satisfactory factor structure (Duan, Guan, & Gan, 2016). In the current study, the Cronbach's α was more than .83.

Manipulation checks. Strength knowledge and strength use of participants were evaluated during the intervention in order to verify the effect of the manipulation on character strengths. Strengths knowledge and strength use refer to the recognition

Table 1. Analysis of Variance for the Baseline Variables.

Variable	Sum of Squares	*df*	Mean Square	*F*	*p*	η^2
Thriving						
Between groups	0.25	1	0.25	1.16	.29	.03
Within groups	7.73	36	0.22			
Total	7.97	37				
Anxiety						
Between groups	0.31	1	0.31	1.59	.22	.04
Within groups	7.08	36	0.20			
Total	7.39	37				
Depression						
Between groups	0.20	1	0.20	1.73	.20	.05
Within groups	4.20	36	0.12			
Total	4.40	37				
Stress						
Between groups	<0.01	1	<0.01	0.01	.94	<.01
Within groups	8.58	36	0.24			
Total	8.58	37				
Strength knowledge						
Between groups	1.35	1	1.35	2.62	.12	.07
Within groups	18.57	36	0.52			
Total	19.92	37				
Strength use						
Between groups	0.57	1	0.57	1.95	.17	.23
Within groups	10.58	36	0.29			
Total	11.15	37				

Note. N = 38.

and use of individual character strengths. Developed by Govindji and Linley (2007), Strengths Knowledge Scale (SKS) and the Strengths Use Scale (SUS) were used as instruments of manipulation checks to measure the extent to which the participants recognized and used character strengths. Responses were made on a 7-point Likert-type scale ranging from strongly disagree to strongly agree. The 8-item SKS (Cronbach's $\alpha = .89$) and the 14-item SUS (Cronbach's $\alpha = .95$) show good psychometric characteristics (Govindji & Linley, 2007). The Chinese version also has high internal consistency reliability for the SKS (Cronbach's $\alpha = .92$) and SUS (Cronbach's $\alpha = .96$; Duan, Li, & Mu, 2017) and good validity. High mean scores indicate high level of the acquisition of character strengths knowledge high utilization of strength use. In the current study, the Cronbach's α of the two scales was more than .83.

Results

Baseline

The results of analysis of variance showed no significant difference in the preassessment variables between the two groups (Table 1).

Manipulation Checks

Means and standard deviations for strength knowledge and strength use are listed in Table 2. To verify the effect of manipulation, *t* test on independent samples was carried out at three time points. The significance level was set at $p < .05$.

For *strength knowledge*, the postintervention results revealed that the intervention group acquired more knowledge of character strength than the control group, $M = 5.53$, $SD = .74$, and $M = 4.89$, $SD = .58$, respectively; $t(36) = 2.97$, $p = .01$. The follow-up results, however, didn't show significant difference between the two groups, $M = 5.35$, $SD = .72$, and $M = 4.96$, $SD = .90$, respectively; $t(36) = 1.49$, $p = .14$. For *strength use*, the postintervention results didn't show significant differences between the intervention group and the control group on the level of strength use, $M = 5.09$, $SD = .72$, and $M = 4.86$, $SD = .58$, respectively; $t(36) = 1.08$, $p = .29$. The follow-up results indicated the level of strengths use was higher than that of the control group and there was a significant difference between the two groups, $M = 5.21$, $SD = .76$, and $M = 4.54$, $SD = .98$, respectively; $t(36) = 2.35$, $p = .02$. These results suggested that the intervention helped participants gain more strength knowledge but the awareness declined soon after the intervention; however, their daily use of character strengths was gradually increased. Thus, the effect can be attributable to the intervention.

Postintervention and Follow-Up

Means and standard deviations for all outcome variables are listed in Table 2 as well as the effect size (Cohen's *d*). Repeated-measures analyses were performed to estimate the effectiveness of the intervention; in the analyses, well-being, anxiety, depression, and stress were used as dependent variables at three time points (with-subject factor) and two groups as the between-subject factor (Table 3). Post hoc tests were performed to estimate specific between-group differences. The significance level was set at $p < .05$. The measure of effect size was partial η_p^2.

For *thriving* (Figure 2), the descriptive statistics shown in Table 2 revealed that the main trend of the intervention group was that its thriving continuously grew from the pretreatment assessment ($M = 3.72$, $SD = .48$) to 1 week after the 90-min strength lesson ($M = 3.99$, $SD = .51$). Meanwhile, the thriving of the control group increased slightly from the pretreatment ($M = 3.56$, $SD = .44$) to the peak ($M = 3.57$, $SD = .44$) and thereafter showed a downward trend. A substantial effect was found for group, $F(1, 36) = 6.23$, $p = .02$, $\eta_p^2 = .15$, suggesting that the thriving of the intervention group increased more significantly than that of the control group. However, no effect was found for time, $F(2, 72) = .73$, $p = .48$, $\eta_p^2 = .02$, and the interaction between time and group, $F(2, 27) = 2.86$, $p = .06$, $\eta_p^2 = .07$, was marginally significant. Moreover, the post hoc test indicated a significant difference between the experimental conditions in postintervention test, $F(1, 36) = 5.84$, $p = .02$, $\eta_p^2 = .14$, and follow-up test, $F(1, 36) = 6.87$, $p = .01$, $\eta_p^2 = .16$. The thriving level of the intervention group (postintervention: $M = 3.90$, $SD = .41$; follow-up: $M = 3.99$, $SD = .51$) was higher than that of control group (postintervention: $M = 3.57$, $SD = .44$; follow-up: $M = 3.43$, $SD = .77$).

Table 2. Descriptive Statistics of the Variables and Effect Size in Experimental Groups.

	Baseline		Postintervention		Follow-Up	
Variable	*M* (*SD*)	*d*	*M* (*SD*)	*d*	*M* (*SD*)	*d*
Thriving						
Intervention group	3.72 (0.48)	0.35	3.90 (0.41)	0.78	3.99 (0.51)	0.86
Control group	3.56 (0.44)		3.57 (0.44)		3.43 (0.77)	
Anxiety						
Intervention group	1.53 (0.31)	−0.41	1.35 (0.25)	−0.72	1.23 (0.22)	−1.23
Control group	1.71 (0.54)		1.68 (0.60)		1.73 (0.53)	
Depression						
Intervention group	1.33 (0.30)	−0.42	1.24 (0.26)	−0.83	1.19 (0.27)	−0.88
Control group	1.47 (0.37)		1.52 (0.40)		1.64 (0.67)	
Stress						
Intervention group	1.84 (0.51)	0.02	1.69 (0.47)	−0.20	1.42 (0.50)	−0.75
Control group	1.83 (0.46)		1.78 (0.42)		1.82 (0.57)	
Strength knowledge						
Intervention group	5.43 (0.66)	0.52	5.53 (0.74)	1.29	5.35 (0.72)	0.49
Control group	5.06 (0.77)		4.67 (0.59)		4.96 (0.90)	
Strength use						
Intervention group	4.92 (0.58)	0.44	5.09 (0.72)	0.35	5.21 (0.76)	0.76
Control group	4.68 (0.50)		4.86 (0.58)		4.54 (0.98)	

Note. N = 38.

Table 3. Repeated-Measures Analyses of the Variables in Intervention and Control Group.

Variable	Type IV Sum of Squares	*df*	Mean Square	*F*	*p*	η_p^2	Statistical Power
Thriving							
Time	0.19	2	0.10	0.73	.48	.02	.14
Group	3.51	1	3.51	6.23	.02	.15	.69
Time × Group	0.75	2	0.37	2.86	.06	.07	.27
Anxiety							
Time	0.39	2	0.19	3.39	.04	.09	.60
Group	3.30	1	3.30	7.17	.01	.17	.75
Time × Group	0.50	2	0.25	4.35	.02	.11	.70
Depression							
Time	0.03	2	0.01	0.13	.88	.00	.06
Group	2.42	1	2.42	8.32	.01	.19	.81
Time × Group	0.45	2	0.22	2.22	.12	.06	.41
Stress							
Time	0.87	2	0.44	4.18	.02	.10	.68
Group	0.74	1	0.74	1.43	.24	.04	.22
Time × Group	0.88	2	0.44	4.24	.02	.11	.72

Note. *N* = 38. Time = tests of within-subjects effects; Group = tests of between-subjects effects; Time × Group = the interaction effects between time and group.

For *anxiety* (Figure 3), the descriptive statistics showed continuous reduction in the anxiety level of the intervention group from pretreatment ($M = 1.53, SD = .31$) to 1 week after the lesson ($M = 1.23$, $SD = .22$). Meanwhile, the means of anxiety of the control group remained stable at a high level ($M > 1.68$). Effects for group, $F(1, 36) = 7.17$, $p = .01$, $\eta_p^2 = .17$, time, $F(2, 72) = 3.39$, $p = .04$, $\eta_p^2 = .09$, and interaction between time and group, $F(2, 72) = 4.35$, $p = .02$, $\eta_p^2 = .11$, were significant, such that the anxiety level of the intervention group was alleviated. The results of post hoc test showed a significant difference between the experimental conditions in postintervention test, $F(1, 36) = 5.06$, $p = .03$, $\eta_p^2 = .12$, and follow-up test, $F(1, 36) = 14.54$, $p = .001$, $\eta_p^2 = .29$. The anxiety level of the intervention group (postintervention: $M = 1.35$, $SD = .25$; follow-up: $M = 1.23$, $SD = .22$) was lower than that of control group (postintervention: $M = 1.68$, $SD = .60$; follow-up: $M = 1.73$, $SD = .53$).

For *depression* (Figure 4), the depression level of the intervention group declined from baseline ($M = 1.33$, $SD = .30$) to 1 week after the lesson ($M = 1.19$, $SD = .27$). Meanwhile, the depression scores of the control group ascended from pretreatment ($M = 1.47$, $SD = .37$) to 1 week after the intervention ($M = 1.64$, $SD = .67$). Effect for group, $F(1, 36) = 8.32$, $p = .01$, $\eta_p^2 = .19$, was substantial. However, no effect was found for time, $F(2, 72) = .13$, $p = .88$, $\eta_p^2 < .01$, and no statistical

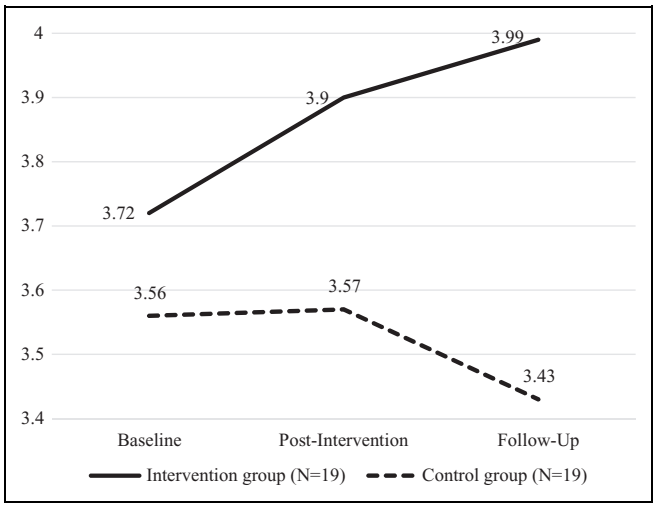

Figure 2. Levels of thriving in the experimental conditions at three time points.

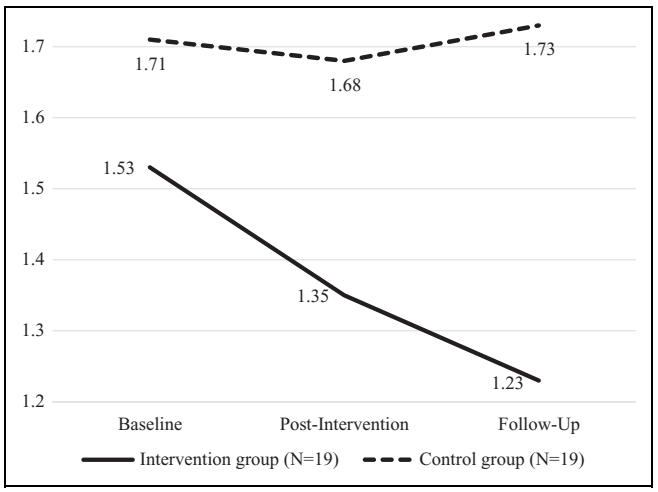

Figure 3. Levels of anxiety in the experimental conditions at three time points.

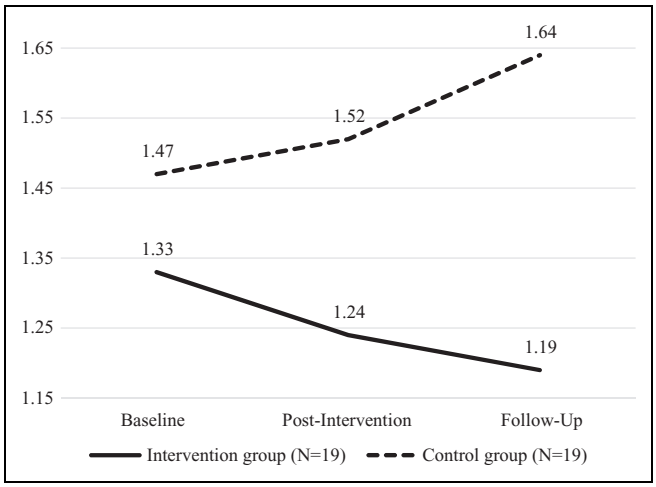

Figure 4. Levels of depression in the experimental conditions at three time points.

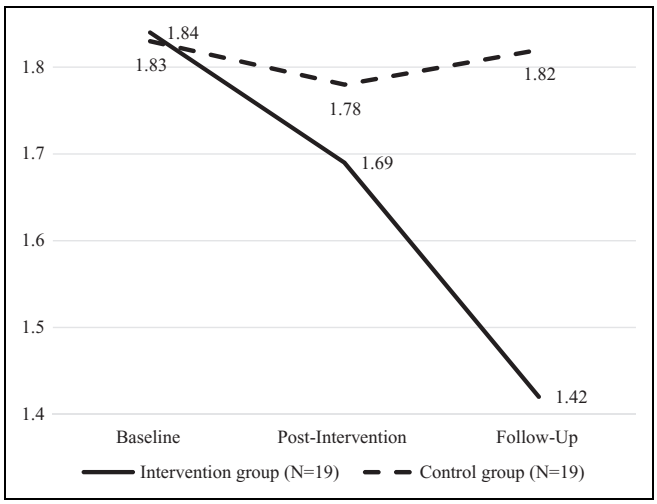

Figure 5. Levels of stress in the experimental conditions at three time points.

interaction was observed between time and group, $F(2, 72) = 2.22$, $p = .12$, $\eta_p^2 = .06$. The *post hoc* test revealed a significant difference between the experimental conditions in postintervention test, $F(1, 36) = 6.50$, $p = .02$, $\eta_p^2 = .15$, and follow-up test, $F(1, 36) = 7.36$, $p = .01$, $\eta_p^2 = .17$. The depression level of the intervention group (postintervention: $M = 1.24$, $SD = .26$; follow-up: $M = 1.19$, $SD = .27$) was lower than that of control group (postintervention: $M = 1.52$, $SD = .40$; follow-up: $M = 1.64$, $SD = .67$).

For *stress* (Figure 5), the means showed continuous reductions of the stress level of the intervention group from pretreatment ($M = 1.84$, $SD = .51$) to 1 week after the lesson ($M = 1.42$, $SD = .50$). Meanwhile, the means of stress of the control group remained stable at a high level ($M > 1.78$). Effect for group, $F(1, 36) = 1.43$, $p = .24$, $\eta_p^2 = .04$, was not substantial, probably because students can gradually adapt themselves to the new environment, notwithstanding that the waiting-list group did not receive any intervention. Significant effect was found for time, $F(2, 72) = 4.18$, $p = .02$,$\eta_p^2 = .10$, and interaction between time and group, $F(2, 72) = 4.24$, $p = .02$, $\eta_p^2 = .11$. The post hoc test showed a significant difference between the experimental conditions in follow-up test, $F(1, 36) = 5.37$, $p = .03$, $\eta_p^2 = .13$, and the stress level of intervention group ($M = 1.69$, $SD = .47$) was lower than that of control group ($M = 1.78$, $SD = .42$).

Discussion and Application to Practice

This study aimed to integrate PPI, CBT-related components, and a single-session intervention model to increase well-being and reduce anxiety, depression, and stress for freshmen in a short time. Students who participated in such a character-strength-based intervention had a significant change in the levels of anxiety, depression, and thriving. The analysis results indicated that the single-session character-strength-based cognitive intervention can quickly promote thriving and ameliorate depression and anxiety. The manipulation checks verified that the effect can be attributed to the intervention.

The findings are consistent with those of previous studies, which demonstrate that using signature character strengths can increase happiness and decrease depressive symptoms (Seligman, Steen, Park, & Peterson, 2005). Furthermore, our study showed that CBT techniques, such as cognitive restructuring, group communication, and setting goals and daily activities, can be inserted into PPIs. This finding is in line with considerable previous research in the area of other PPIs (Carr & Finnegan, 2015; Padesky & Mooney, 2012). Fusing CBT with positive psychology may lessen psychological symptoms (e.g., anxiety, depression, and stress); however, establishing an intervention under traditional clinical judgment and treatment routine needs a long intervention duration. The lengthy intervention duration may not provide a timely treatment for students (Gee et al., 2015). Emerging evidence indicated that the single-session model has been used as an effective alternative to the lengthier interventions (Campbell, 2012). It has short-term and medium-term efficacy (Bloom, 2001; Campbell, 1999) as well. Moreover, the single-session model emphasizes the goals and the strategies chosen by clients themselves. This advantage satisfies young people's ideas on dealing with problems by themselves (Birleson, Sawyer, & Storm, 2000) and using self-management strategies for common mental disorders (Olesen, Butterworth, & Leach, 2010). Hence, compared with other methods, the single-session model is more accessible and flexible for using, and more available and attractive to young people.

Not all results showed statistical significance, such as the group effect of stress, probably because students can cope with their emotions using preexistent self-management strategies (Olesen et al., 2010) and overcome this potentially difficult transition period (Blimling & Miltenberger, 1995). Our intervention was aimed to help them reduce negative emotions (e.g., anxiety, depression, and stress) and promote well-being within a short period of time, given that freshmen may be particularly vulnerable to psychological stress (Dyson & Renk, 2006). For freshmen, entering university for the first time can bring a variety of difficult experiences within a short time; these experiences may induce physical illness (Cohen, Tyrrell, & Smith, 1993; Dohrenwend, Dodson, & Shrout, 1984) and have a sustained influence on the student's future development (Dyson & Renk, 2006; Margolis, 1981). Therefore, freshmen become severely in need of an immediate assistance and the single-session intervention may be a helpful option. The time and therapeutic sufficiency of the brief interventions are still unclear; in particular, determining when and whether the intervention has been sufficient is difficult (Bloom, 2001), which causes a challenge for therapists.

The limitations of this study should be considered. First, the accuracy of the questionnaires may be influenced by recall bias given the short time period between test administrations. This study also suffered from a small sample size and the exclusive use of self-report data. Second, researchers cannot guarantee that all participants in the intervention group engaged in the suggested activities (the issue of treatment fidelity) and realized the goals they nominated. Future studies should employ larger samples and more objective measures than those in the present study to replicate these findings. Third, another major limitation of this study is the lack of a placebo control group. Placebo effect is achieved by establishing an expectancy for improvement and the initial expectancy for improvement is established by treatment description and rationale (Kirsch, 1978). Although the intervention description was not delivered to students until the intervention was completed in order to avoid the influence of participants' expectancy, the potentially strong social demand characteristics for the students to report their improvement to please the instructors could also influence the results. It will be important for future studies to have a placebo group to address these issues. Forth, we followed participants for only 1 week after the intervention. Thus, it is unclear whether changes can be maintained for a long time. Future researches can test the long-term efficacy of the intervention. The results of the long-term assessment help researchers provide maintenance strategies at specific time point after the initial intervention. Fifth, the dropout rate was 27% because the data were collected by means of online questionnaire and a few students forgot to complete the measures in time. For future study, researchers can send e-mail or message to remind participants to complete the questionnaires in time.

Although limitations exist, it is still evident that the single-session character-strength-based cognitive intervention has made some achievements. It contributed to the literature on strength-based intervention using a single-session model in the field of school social work; it provided an alternative brief intervention for freshmen, which can quickly reduce their negative affect and elevate their well-being; it demonstrated that single-session character strength-based cognitive intervention could be delivered in the context of Chinese university by properly trained social work students. Moreover, the manipulation checks also showed that this brief intervention was useful to help freshmen increase both strengths knowledge and strengths use. It could be a development of previous similar intervention programs, such as the intervention carried out by Dubreuil et al. (2016) which only demonstrated a significant increase in strengths use.

The single-session character-strength-based cognitive intervention expanded social worker's pivotal roles to involve in preventing college population's mental health problems (e.g., anxiety, depression, and stress). Our study highlights the value of adopting a strength-based intervention on campuses, especially for freshmen who suffer from anxiety, depression, and various stresses during the first few weeks of college (Dyson & Renk, 2006; Qian & Wang, 2001; Sherry, Notman, Nadelson, Kanter, & Salt, 1988). School social workers can stress to their faculty the value of this intervention. Perhaps, the current study could spark interest of the faculty to incorporate this intervention into the routine course for freshmen. One thing to note is that school social workers who intend to provide this intervention to freshmen should be well-informed in character strengths and CBT techniques. Moreover, introducing this intervention to social work students helped them learn CBT techniques, strength-based approaches, and evaluation practices. However,

the results of this pilot study should be interpreted in caution because of the small sample size. The use of a large sample, additional objective measures, and placebo group will allow better understanding of the effectiveness of the intervention.

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References

Birleson, P., Sawyer, M., & Storm, V. (2000). The mental health of young people in Australia: Child and adolescent component of the national survey—A commentary. *Australasian Psychiatry*, *8*, 358–362. doi:10.1046/j.1440-1665.2000.00276.x

Blimling, G. S., & Miltenberger, L. J. (1995). *The resident assistant: Working with college students in residence halls*. Dubuque, IA: Kendall.

Bloom, B. L. (2001). Focused single-session psychotherapy: A review of the clinical and research literature. *Brief Treatment & Crisis Intervention*, *1*, 75–86. doi:10.1093/brief-treatment/1.1.75

Boyce, J. A., & Kuijer, R. G. (2015). Perceived stress and freshman weight change: The moderating role of baseline body mass index. *Physiology & Behavior*, *139*, 491–496. doi:10.1016/j.physbeh.2014.12.011

Brown, L. M. (1984). A single-consultation assessment clinic. *British Journal of Psychiatry the Journal of Mental Science*, *145*, 585–596. doi:10.1192/bjp.145.5.558a

Campbell, A. (1999). Single session interventions: An example of clinical research in practice. *Australian and New Zealand Journal of Family Therapy*, *20*, 183–194. doi:10.1111/j.0814-723X.1999.00128.x

Campbell, A. (2012). Single-session approaches to therapy: Time to review. *Australian and New Zealand Journal of Family Therapy*, *33*, 15–26. doi:10.1177/1745691610393527

Carr, A., & Finnegan, L. (2015). The Say "yes" to life (SYTL) program: A positive psychology group intervention for depression. *Journal of Contemporary Psychotherapy*, *45*, 109–118. doi:10.1007/s10879-014-9269-9

Chaves, C., Lopez-Gomez, I., Hervas, G., & Vazquez, C. (2016). A comparative study on the efficacy of a positive psychology intervention and a cognitive behavioral therapy for clinical depression. *Cognitive Therapy and Research*. Advance online publication. doi:10.1007/s10608-016-9778-9

Cohen, S., Tyrrell, D. A., & Smith, A. P. (1993). Negative life events, perceived stress, negative affect, and susceptibility to the common cold. *Journal of Personality & Social Psychology*, *64*, 131. doi:10.1037/0022-3514.64.1.131

Cooper, S., & Archer, J. (1999). Brief therapy in college counseling and mental health. *Journal of American College Health*, *48*, 21–28. doi:10.1080/07448489909595668

Currie, S. L., McGrath, P. J., & Day, V. (2010). Development and usability of an online CBT program for symptoms of moderate depression, anxiety, and stress in post-secondary students. *Computers in Human Behavior*, *26*, 1419–1426. doi:10.1016/j.chb.2010.04.020

Delle Fave, A., & Fava, G. A. (2011). Positive psychotherapy and social change. In R. Biswas-Diener (Ed.), *Positive Psychology as Social Change* (pp. 267–291). doi:10.1007/978-90-481-9938-9_15

Dohrenwend, B. P., Dodson, M., & Shrout, P. E. (1984). Symptoms, hassles, social supports, and life events: Problem of confounded measures. *Journal of Abnormal Psychology*, *93*, 222–230. doi:10.1037//0021-843X.93.2.222

Duan, W. (2016). The benefits of personal strengths in mental health of stressed students: A longitudinal investigation. *Quality of Life Research*, *25*, 2879–2888. doi:10.1007/s11136-016-1320-8

Duan, W., Guan, Y., & Gan, F. (2016). Brief Inventory of Thriving. *Chinese Sociological Dialogue*, *1*, 15–31. doi:10.1177/2397200916665230

Duan, W., & Ho, S. M. Y. (2017). Three-dimensional model of strengths: Examination of invariance across gender, age, education levels, and marriage status. *Community Mental Health Journal*, *53*, 233–240. doi:10.1007/s10597-016-0038-y

Duan, W., Ho, S. M. Y., Bai, Y., & Tang, X. (2013). Psychometric evaluation of the Chinese virtues questionnaire. *Research on Social Work Practice*, *23*, 336–345. doi: 10.1177/1049731513477214

Duan, W., Ho, S. M. Y., Siu, B. P. Y., Li, T., & Zhang, Y. (2015). Role of virtues and perceived life stress in affecting psychological symptoms among Chinese college students. *Journal of American College Health*, *63*, 32–39. doi:10.1080/07448481.2014.963109

Duan, W., Ho, S. M. Y., Tang, X., Li, T., & Zhang, Y. (2014). Character strength-based intervention to promote satisfaction with life in the Chinese university context. *Journal of Happiness Studies*, *15*, 1347–1361. doi:10.1007/s10902-013-9479-y

Duan, W., Ho, S. M. Y., Yu, B., Tang, X., Zhang, Y., Li, T., & Yuen, T. (2012). Factor Structure of the Chinese Virtues Questionnaire. *Research on Social Work Practice*, *22*, 680–688. doi:10.1177/1049731512450074

Duan, W., Li, J., & Mu, W. (2017). Psychometric characteristics of strengths knowledge scale and strengths use scale among adolescents. *Journal of Psychoeducational Assessment*. Advance online publication.

Dubreuil, P., Forest, J., Gillet, N., Fernet, C., Thibault-Landry, A., Crevier-Braud, L., & Girouard, S. (2016). Facilitating well-being and performance through the development of strengths at work: Results from an intervention program. *International Journal of Applied Positive Psychology*, 1–19. Advance online publication. doi:10.1007/s41042-016-0001-8

Dunn, B. D. (2012). Helping depressed clients reconnect to positive emotion experience: Current insights and future directions. *Clinical Psychology & Psychotherapy*, *19*, 326–340. doi:10.1002/cpp.1799

Dyson, R., & Renk, K. (2006). Freshmen adaptation to university life: Depressive symptoms, stress, and coping. *Journal of Clinical Psychology*, *62*, 1231–1244.

Feldman, D. B., & Dreher, D. E. (2012). Can hope be changed in 90 minutes? Testing the efficacy of a single-session goal-pursuit intervention for college students. *Journal of Happiness Studies*, *13*, 745–759. doi:10.1007/s10902-011-9292-4

Fisher, S., & Hood, B. (1987). The stress of the transition to university: A longitudinal study of psychological disturbance, absent-mindedness and vulnerability to homesickness. *British journal of psychology*, *78*, 425–441. doi:10.1111/j.2044-8295.1987.tb02260.x

Gee, D., Mildred, H., Brann, P., & Taylor, M. (2015). Brief intervention: A promising framework for child and youth mental health? *Administration and Policy in Mental Health and Mental Health Services Research*, *42*, 121–125. doi:10.1007/s10488-014-0563-3

Govindji, R., & Linley, P. A. (2007). Strengths use, self-concordance and well-being: Implications for strengths coaching and coaching psychologists. *International Coaching Psychology Review*, *2*, 143–153.

Healy, M. (2012). How to help your college student stay healthy away from home. Retrieved from http://usatoday30.usatoday.com/news/health/backtoschool/story/2012-08-22/healthy-start-college/57192080/1

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Psychology*, *44*, 227–239. doi:10.1348/014466505X29657

Hoying, J. (2013). *The COPE On-line Program for the Prevention of Depression and Anxiety in College Freshmen: Post-Intervention Findings*. Paper presented at the 42nd Biennial Convention, Indianapolis, Indiana, USA. Abstract retrieved from http://hdl.handle.net/10755/308225

Jackson, M. B. (2016). *Addressing mental health needs on college campuses: Utilizing recovery principles that encourage a holistic approach, selfresponsibility, strengths-based practice, cultural sensitivity, and family support* (Doctoral dissertation). Retrieved from ProQuest. (10038735)

Karwoski, L., Garratt, G. M., & Ilardi, S. S. (2006). On the integration of cognitive-behavioral therapy for depression and positive psychology. *Journal of Cognitive Psychotherapy*, *20*, 159–170. doi:10.1891/088983906780639763

Kirsch, I. (1978). The placebo effect and the cognitive-behavioral revolution. *Cognitive Therapy and Research*, *2*, 255–264. doi:10.1007/bf01185787

Kunik, M. E., Braun, U., Stanley, M. A., Wristers, K., Molinari, V., Stoebner, D., & Orengo, C. A. (2001). One session cognitive behavioural therapy for elderly patients with chronic obstructive pulmonary disease. *Psychological Medicine*, *31*, 717–723. doi:10.1017/S0033291701003890

Linkins, M., Niemiec, R. M., Gillham, J., & Mayerson, D. (2015). Through the lens of strength: A framework for educating the heart. *The Journal of Positive Psychology*, *10*, 64–68. doi:10.1080/17439760.2014.888581

Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the depression anxiety stress scales*. Sydney, UK: Psychology Foundation.

Mak, V. W. M., Ho, S. M. Y., Kwong, R. W. Y., & Li, W. L. (2016). A gender-responsive treatment facility in correctional services: The development of psychological gymnasium for women offenders. *International journal of offender therapy and comparative criminology*. Advance online publication. doi:10.1177/0306624X16667572

Marcus, J. D. (1999). An Ericksonian approach to crack cocaine addiction: A single-session intervention. *Contemporary Hypnosis*, *16*, 95–102. doi:10.1002/ch.157

Margolis, G. (1981). Moving away: Perspectives on counseling anxious freshmen. *Adolescence*, *16*, 633–640.

Olesen, S. C., Butterworth, P., & Leach, L. (2010). Prevalence of self-management versus formal service use for common mental disorders in Australia: Findings from the 2007 national survey of mental health and wellbeing. *Australian and New Zealand Journal of Psychiatry*, *44*, 823–830. doi:10.3109/00048674.2010.483680

Padesky, C. A., & Mooney, K. A. (2012). Strengths-based cognitive-behavioural therapy: A four-step model to build resilience. *Clinical Psychology & Psychotherapy*, *19*, 283–290. doi:10.1002/cpp.1795

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. New York, NY: Oxford University Press.

Proyer, R. T., Gander, F., Wellenzohn, S., & Ruch, W. (2015). Strengths-based positive psychology interventions: A randomized placebo-controlled online trial on long-term effects for a signature strengths vs. a lesser strengths-intervention. *Frontiers in psychology*, *6*, 456. doi:10.3389/fpsyg.2015.00456

Qian, L. Y., & Wang, K. P. (2001). A survey on freshmen's mental health in Xiamen university. *Chinese Journal of Clinical Psychology*, *9*, 36–39. doi:10.16128/j.cnki.1005-3611.2001.01.011

Samaranayake, C. B., Arroll, B., & Fernando, A. T. (2014). Sleep disorders, depression, anxiety and satisfaction with life among young adults: A survey of university students in Auckland, New Zealand. *The New Zealand Medical Journal*, *127*, 13–22. Retrieved from http://www.nzma.org.nz/__data/assets/pdf_file/0018/33228/Samaranayake.pdf

Sebena, R., El, A. W., Stock, C., Orosova, O., & Mikolajczyk, R. T. (2012). Are perceived stress, depressive symptoms and religiosity associated with alcohol consumption? A survey of freshmen university students across five European countries. *Substance Abuse Treatment, Prevention, and Policy*, *7*, 1–10. doi:10.1186/1747-597X-7-21

Seligman, M. E., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist*, *60*, 410–421. doi:10.1037/0003-066X.60.5.410

Shankland, R., & Rosset, E. (2016). Review of brief school-based positive psychological interventions: A taster for teachers and educators. *Educational Psychology Review*, *27*, 1–30. doi:10.1007/s10648-016-9357-3

Sherry, S., Notman, M. T., Nadelson, C. C., Kanter, F., & Salt, P. (1988). Anxiety, depression, and menstrual symptoms among freshman medical students. *The Journal of Clinical Psychiatry*, *49*, 490–493.

Su, R., Tay, L., & Diener, E. (2014). The development and validation of the Comprehensive Inventory of Thriving (CIT) and the Brief Inventory of Thriving (BIT). *Applied Psychology. Health and Well-Being*, *6*, 251–279. doi:10.1111/aphw.12027

Thurber, C. A., & Walton, E. A. (2012). Homesickness and adjustment in university students. *Journal of American College Health*, *60*, 415–419. doi:10.1080/07448481.2012.673520

Trockel, M., Manber, R., Chang, V., Thurston, A., & Taylor, C. B. (2011). An e-mail delivered CBT for sleep-health program for college students: Effects on sleep quality and depression symptoms. *Journal of Clinical Sleep Medicine*, *7*, 276–281. doi:10.5664/JCSM.1072

U.S. National Institute on Alcohol Abuse and Alcoholism (NIAAA), National Institutes of Health (2015). *College Drinking*. Retrieved from https://www.collegedrinkingprevention.gov/media/collegedrinkingFactSheet.pdf

Wang, K., Shi, H. S., Geng, F. L., Zou, L. Q., Tan, S. P., Wang, Y., . . . Chan, R. C. (2015). Cross-cultural validation of the depression anxiety stress scale-21 in China. *Psychological Assessment*, *28*, 88–100. doi:10.1037/pas0000207

Zhang, Y., Luo, X., Chen, X., & Duan, W. (2016). Protective effect of self-compassion to emotional response among students with chronic academic stress. *Frontiers in Psychology*, *7*, 1802. doi:10.3389/fpsyg.2016.01802