
RELATIONSHIP BETWEEN DEPRESSION AND STUDENT ENGAGEMENT OF SENIOR HIGH SCHOOL STUDENTS AND THE MEDIATING ROLE OF RESILIENCE

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Abstract

Depression is a common mental illness among senior high school students. It is widely agreed that depression has a great impact on the student engagement. However, there is little report on the impact mechanism. This paper attempts to ascertain the relationship between depression and student engagement, and the mechanism of resilience in this relationship. For this purpose, 374 senior high school students were selected, and evaluated against The Zung Self-Rating Depression Scale, The Student Engagement in School Scale and The Connor-Davidson Resilience Scale (CD-RISC). Through data analysis, it is concluded that depression is negatively correlated with resilience and student engagement, and can be predicted based on the two factors; resilience mediates the relationship between depression and student engagement in three dimensions, namely, personal competence, tolerance of negative effect, and control of negative effect; depression affects student engagement through resilience.

Key words: Depression, Student Engagement, Resilience, Mediating Effect.

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INTRODUCTION

Depression is one of the most common psychological problems among adolescents. It is mainly manifested in bad mood, poor sleep and diet, slow thinking and inattention. In serious cases, it may cause suicidal thoughts and even suicidal behaviors. Adolescence is the key period for human. During this period, they have to face many pressures such as academic burden, family conflict and interpersonal coordination, which might lead to many psychological problems because of their relatively weak endurance to external pressure or changes (Eskin, Ertekin, Harlak et al., 2008). Under such stress, high school students are prone to depression and anxiety. And depression can seriously affect their individual development and academic quality.

Besides, the negative effects of depression on adolescents can even persist into adulthood, leading to severe diseases.

Student engagement refers to students' need, willingness, desire and compulsion to participate in the learning process of promoting higher thinking and achieve success (Bomia, Beluzo, Demeester et al., 1997). Student engagement includes emotional engagement, behavioral engagement and cognitive engagement (Fredricks, Blumenfeld, & Paris, (2004). Emotional engagement (affective engagement) refers to the positive emotional response to academic tasks or others (such as teachers and classmates) related to learning activities, and the attachment to schools. Behavioral engagement refers to an individual's continuous participation in academic or non-academic activities during school days. Cognitive engagement as a kind of thinking training includes cognitive strategies and psychological resources used by students in academic activities. As a possible solution to

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stimulating students' learning motivation and preventing performance decline, the concept of student engagement has aroused great interest of researchers. Previous studies have found that student engagement is closely related to academic achievement, self-esteem level and appropriate social behavior. Richard Miller and other scholars pointed out that the key influencing factors on engagement include perception of career relevance, cooperation between teachers and students, and emphasis and intensity of learning experience (Richard, Miller, & Rycek, (2011). Also, some scholars have focused more on the relationship between student engagement and negative behavior, e.g., students with high engagement are less likely to smoke, drink and drop out of school. Diseth & Samdal (2015) have found that there is a negative correlation between school engagement particularly motivational engagement and substance use.

Resilience means that individuals can't be affected by severe adversity they have experienced or are experiencing, or their abilities of adapting to the changing environment are accordingly improved in coping with stress, frustration and trauma. It plays an important role in cultivating positive attitude and shaping good behavior. Individuals' recognition of themselves, others and the environments are an important mechanism and process to trigger resilience. Personality tendency, knowledge and experience, skills and abilities, as well as their own needs, are of great significance. As a subjective factor individuals' recognition plays a more important role in effectively dealing with stress and adversity than other factors. The mediating, buffering and regulation role of other factors still need to be carried out at the individual level. Individuals' proper recognition, understanding and judgment of others can help them organize and allocate resources needed to cope with adversity more effectively (Cowen, & Work, 1988). Relevant studies have found that resilience plays a moderating role in the relationship between academic pressure and academic achievement of high school students. The main stress of senior high school students is academic pressure, including physical stimulation and psychological needs beyond the scope of students' coping ability. According to the relevant research, academic pressure of senior high school students is negatively correlated with academic

achievement, and negatively predicts academic achievement; resilience plays a mediating role in the relationship between academic pressure and academic achievement (Hystad, Laberg, Johnsen et al., 2009). Some other scholars proposed to make a comprehensive evaluation of the quantification of student engagement based on the system engineering decision theory. In addition, for the sample size of large data, the scholars adopted the Apriori algorithm and achieved relatively proper results (Yang, Yuan, Chen et al., 2017; Yang, Yuan, Sun et al., 2019).

Studies have shown that resilience has an impact on student engagement. Resilience is an individual's ability to cope well with stress in any situation. As a potential, resilience enables individuals to use external resources for their own needs while promoting the formation of individual characteristics, which constitute the internal resources of individuals. These resources protect individuals from danger and promote their good social, academic and health development. Thus, resilience can improve student engagement correspondingly. Individual self-efficacy, social resources and interpersonal support are protective factors of resilience to confront stress and other risk factors. When students encounter pressure in learning, they may seek the support from their classmates, teachers or parents, make use of the social resources they have, or improve their sense of self-efficacy to overcome the pressures and maintain a good state of engagement in learning. Some scholars stated that student engagement and gratitude have shown that there is a significantly positive correlation between resilience and student engagement; the results of correlation analysis shows that there is a positive correlation between each dimension of resilience and student engagement, and between the dimensions of student engagement and resilience; from the results of regression analysis, resilience can predict university student engagement. University students' resilience plays a partial mediating role between gratitude and learning (Zheng, Fan, Yu et al., 2011). Gratitude as a positive emotion, can increase the prosocial behavior of individuals, help individuals to have more social resources and social support which as protective factors of individual resilience have an impact on resilience, while resilience is the resistibility of individuals to setbacks or difficulties that they encounter. When individuals

face learning pressure and burnout, they can resist these negative factors through resilience, then have a good performance and increase their engagement in learning. Meanwhile, some studies have found that improving university students' resilience level is conducive to reducing the negative impact of stress events on engagement. Yin, Sun, & Liang (2016) have found that low resilience leads to a great negative effect on student engagement by stress events, while the high resilience results in a small negative effect, the results conform to the mediating model.

It has been found in the previous studies that there is a correlation between resilience and depression. Further studies have concluded a negative correlation between the two. Li, Cao, Kong et al. (2010) found that there were significant differences in the scores of resilience between anxiety group and non-anxiety group, depression group and non-depression group; there was a significant negative correlation between scores of each factor and total score of anxiety and those of the resilience, between scores of each factor and total score of depression and those of resilience, indicating that students with good resilience have mild anxiety and depression symptoms. Wang & Li (2015) believed that university freshmen with high scores of depressions had low levels of resilience, and vice versa. Resilience mainly refers to the willpower, optimism and the ability to recover and grow in the face of adversity or pressure. Individuals with clear goals, positive cognition and optimistic attitude towards life show good social adaptability, which can significantly reduce the occurrence and development of depression.

The purpose of this study is to explore the relationship between depression, resilience and student engagement, especially to investigate the mediating role of resilience between the depression and student engagement. Based on previous studies, it proposes two hypotheses: (1) Depression has an impact on resilience and student engagement; depression is negatively correlated with the resilience and student engagement; (2) resilience plays a mediating role between depression and student engagement.

METHODS

Samples

A total of 378 students from 8 classes of grade

one in a high school were selected as subjects. 374 valid questionnaires were obtained, from 157 boys and 217 girls.

Instruments

Self-rating Depression Scale (SDS) was compiled by William Zung in 1965. As a one-dimension scale, it was proved by William Zung et al., to have good reliability and validity, with the internal consistency coefficient of 0.92. The scale contains 20 items reflecting subjective feelings of depression. The items can be summarized into four aspects: affective symptoms, somatic symptoms, psychomotor disorders and psychological disorders. Each item was scored 4 points according to the frequency of depressive symptoms ranging from 1 to 4: no/few, sometimes, most of the time, the vast majority of the time/all of the time. The total score of 20 items is the raw score, which is multiplied by the integer part of 1.25 to obtain the standard score. According to the Chinese norm, the standard score of SDS scale is 53. Then, 53 points and above indicate the existence of depression.

Student Engagement in Schools Questionnaire (SESQ) is a self-rating scale developed by Shui-fong Lam and other 18 researchers from 12 countries (including China) in 2014, including 33 items in the questionnaire, and reflecting the engagement of middle school students in school. The scale was scored by 5 points (1-5), including three-dimensions subscales, namely affective engagement, behavioral engagement and cognitive engagement. The subscale of affective engagement focuses on measuring students' emotional attitudes towards school and learning; that of behavioral engagement pays more attention to measuring students' academic-related behavioral performance; that of cognitive engagement focuses the frequency of students adopting meaningful information processing strategies in learning. The main statistical indicators are subscale scores and total scores. The scale has been tested on middle school students from 12 countries including China. The results have shown that the internal consistency reliability of the subscale or the total scale ranged from 0.78 to 0.89, and the test-retest reliability was 0.60 to 0.74, and it has significant correlation with students' academic performance, school behavior, teacher evaluation and other indicators.

Connor-Davidson Resilience Scale (CD-RISC)

Table 1. Correlation analysis of depression, student engagement and resilience

	Depression	Student Engagement	Resilience
Depression	1	-.486**	-.626**
Student Engagement	-.486**	1	.632**
Resilience	-.626**	.632**	1

was developed by Kathryn Connor and Jonathan Davidson in 2003 to assess individual resilience. It originated from the study of posttraumatic stress disorder. There were 25 items in the scale, which were scored on a 5 points scale (0-4): 0= not true at all, 1= rarely true, 2= sometimes true, 3= often true, 4=true nearly all the time. The higher score means a better resilience. The scale includes five dimensions: personal competence, tolerance of negative affect, positive acceptance of change, control and spiritual influences. It has been proved to have good reliability and validity in China, ensuring being effectively used to measure the individual's resilience.

Data processing

The questionnaire data collected in this study were all processed with SPSS20.0. Mplus 7 was used to test the mediating effect of the resilience and establish structural equation model.

RESULTS

Correlation analysis of depression, student engagement and resilience

The correlation analysis of depression, student engagement and resilience showed that there is a significantly negative correlation between depression and student engagement/resilience; there is a significantly positive correlation between student engagement and resilience (see Table 1).

Regression analysis of student engagement, depression and resilience

Taking student engagement as dependent variable, and resilience and depression as independent variables, the linear regression analysis was conducted. The results have shown that both depression and resilience could predict student engagement well, $P < 0.01$ (see Table 2).

Table 2. Regression analysis of student engagement, depression and resilience

	B	SE	β	t	p
(Constant)	93.105	7.260		12.825	.000
Resilience	.640	.061	.539	10.566	.000
Depression	-.340	.116	-.149	-2.917	.004

Mediating effect of resilience

In this study, the Process plug-in in SPSS was used to analyze the mediating effect. A sequence is obtained by Bootstrap method. In the sequence, LLCI and ULCI represent the lowest and highest values of confidence interval, generally 95% confidence interval. If there is no zero in this interval, the mediating effect is significant; otherwise, the mediating effect is not significant.

As shown in Table 3, the test results didn't contain zero, indicating that mediating effect exists, and resilience plays a mediating effect between depression and student engagement. The path coefficients in the mediating effect model were also calculated by using Mplus software. Figure 1 shows that the mediating effect of resilience is greater than the direct effect of depression on student engagement, which indicates that depression mostly affects student engagement through resilience.

Table 3. Mediating effect analysis of resilience

	R	R Square	F	P	LLCI	ULCI
M→X	0.6258	0.3916	239.46	<0.01	-1.3566	-1.0507
Y→M	0.6426	0.4129	130.46	<0.01	0.5209	0.7591
Direct effect	-0.3398	0.1165			-0.5689	-0.1108
Mediator	-0.7703	0.0959			-0.9648	-0.5923

Table 4. Regression analysis between student engagement and resilience sub-dimensions

	B	SE	B	t	p
(Constant)	95.236	7.306		13.035	.000
Depression	-.362	.116	-.157	-3.124	.002
Personal Competence	1.053	.189	.339	5.580	.000
Tolerance of Negative Affect	.482	.237	.123	2.034	.043
Positive Acceptance of Change	.046	.352	.009	.129	.897
Control	1.385	.367	.195	3.773	.000
Spiritual Influences	-.293	.451	-.026	-.649	.517

Figure 1. Mediating model of resilience



Structural equation model of student engagement, depression and resilience

Regression analysis between student engagement and sub-dimensions of resilience

In order to construct structural equation model of student engagement, depression and resilience, it is necessary to analyze whether each

Construction of structural equation model

Based on the above results of regression analysis and mediating effect analysis, a structural equation model of depression, resilience and student engagement was constructed. The fit index of the model was RMSEA = 0.05 < 0.08, CFI = 0.99 > 0.90, SRMR = 0.02 < 0.05 (Table 5), indicating that the model has a good fitting degree and is acceptable.

Table 5. Fit index of structural equation model

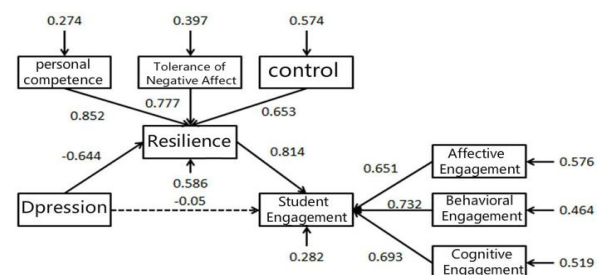
χ	df	RMSEA	CFI	TLI	SRMR
23.38	12.00	0.05	0.99	0.98	0.02

The structural equation model in Figure 2 above shows that depression had indirect effects on student engagement through resilience; the path coefficient from depression to resilience was -0.644, and from resilience to student engagement was 0.814, indicating that the higher the degree of depression, the lower the level of resilience, and the lower the student engagement; the direct path from depression to student engagement was not significant with the path

sub-dimension of resilience has an effect on student engagement. Linear regression was conducted with student engagement as dependent variable and each sub-dimension of resilience and depression as independent variables. The results showed that depression and the two sub-dimensions of resilience such as personal competence and control were good predictors of student engagement, with a strong predictive ability, $P < 0.01$. In addition, the sub-dimension of resilience, the tolerance of negative affect, can also predict student engagement. However, the positive acceptance of change and spiritual influences of resilience can't predict student engagement, so these two sub-dimensions can't be incorporated into the structural equation model (see Table 4).

coefficient of -0.05, which indicates that depression has little direct effect on student engagement; the mediating effect of resilience between depression and student engagement was mainly reflected in three sub-dimensions: personal competence, tolerance of negative affect and control, while the other two sub-dimensions of positive acceptance of change and spiritual influences didn't play mediating effects between depression and student engagement.

Figure 2. Structural equation model of depression, resilience and student engagement



CONCLUSION

(1) Depression has a negative impact on resilience and student engagement. There is a negative correlation between the depression and resilience/student engagement. Depression can lead to the decline of high school students' ability to cope with adversity and frustration, so that they are unable to cope well with the problems they encounter in their study and life, and then are unable to participate in learning activities well. With the depressive symptoms decreasing, the students can control their emotions when facing stress or negative events, positively look at problems, and seek help from others in a better manner;

(2) Resilience plays a mediating role between student engagement and depression. Depression can reduce the student engagement by the changes of resilience. In the face of stress and adversity, resilience can help individuals to quickly recover, adapt to the existing environment, resist the impact of adverse conditions, successfully cope with crises and achieve their own growth through a series of dynamic interactions of competences and traits. Therefore, the students with severe depression can be improved through the resilience intervention. The psychological education of senior high school students can start with improving their resilience and then reducing the influence of negative emotions on their studies. These results are consistent with previous studies on the relationship between resilience and student engagement;

(3) According to the structural equation model, it's found that the mediating role of resilience between depression and student engagement is mainly reflected in its three sub-dimensions, namely, personal competence, tolerance of negative affect and control. These sub-dimensions are all related to coping with setbacks and dealing with negative emotions, so they are more likely to be affected by depression, and further affect student engagement. Therefore, we should focus on the above three sub-dimensions for well solving the high school students' depression problem.

SUGGESTION

(1) Depression of senior high school students needs great attention.

Depression is characterized by abnormal changes in mood or emotion. It's an intensified

manifestation of negative emotions such as low mood, mental retardation and activity reduction, accompanied by cognitive, behavioral and interpersonal changes or disorders corresponding to abnormal mood. Depression is caused by the interaction of individual quality factors and stress. Under the same stress condition, individuals with different qualities show different severity of depression (Liu, Wang, & Lü, 2013).

This study found that depression has a significant correlation with student engagement, and can better predict student engagement. The high school stage is a high incidence period of depression, while at this time, students are in a critical period of physical and psychological development. The asynchrony of development can easily lead to emotional fragility, impulsiveness, and interpersonal sensitivity etc. Especially in the face of trauma and predicament, high school students will produce more negative behaviors. Therefore, schools, families and society need to attach great importance to this problem, and actively provide relevant help for students' mental health. A stable and effective platform and communication mechanism should be established between schools and families, and the psychological files for students should be made, for understanding their growth status and solving their psychological distress in time.

(2) Resilience of senior high school students should be strengthened.

The strengthened resilience can help to cultivate their positive and optimistic attitude, maintain good emotional state, enhance self-adjustment ability, build harmonious interpersonal relationships, and actively utilize the support of various social resources.

School should pay more attention to the establishment and implementation of the psychological education curriculum system so as to provide more systematic and professional counseling for students. On the one hand, school should further promote the counseling course of psychological groups and improve its quality; on the other hand, it should strengthen individual counseling, starting with improving students' resilience and self-adjustment, to reduce the impact of negative emotions. The family should pay attention to puberty education and create a good atmosphere for students' psychological development. Parents should attach importance to good communication with their children and enhance the cohesion of family environment.

Society should also strengthen relevant

publicity to guide students to cultivate good psychological quality, especially the vulnerable groups. Thus, all parties shall form a comprehensive support system to promote the stable development of students' resilience, helping them actively participate in learning activities and improve their engagement.

(3) Psychological health education should be more targeted.

This study also found that the three sub-dimensions, namely, personal competence, tolerance of negative affect and control, play a mediating role between depression and student engagement. Accordingly, psychological health education for senior high school students should focus on these aspects, which as a buffer between negative psychology and behavioral reactions when they encounter setbacks and stimulating situations, and can help students form positive psychological characteristics. The negative impact of depression on student engagement should be weakened, and a healthy psychological quality should be formed.

The psychological health education can help the individuals improve their problem-solving ability, strengthen cognitive processing, and learn to get help from the outside world; exercise their own tough will, correctly examine the stress environment and make the reasonable judgments; enhance their sense of self-identity and self-control, be confident to overcome difficulties and achieve goals. Thus, students won't be afraid of setbacks, actively cope with problems and strive to adapt to environmental requirements, and then increase their affective, behavioral and cognitive engagement.

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