



The Influence of Negative Emotion and Self-Acceptance on Suicidal Ideation of Disabled College Students: The Mediating Effect of Hopelessness

Liping Zhu¹, *Jiahao Lan²

1. International Exchange College, Ningbo University of Technology, Ningbo, China
2. School of Economics and Management, Ningbo University of Technology, Ningbo, China

*Corresponding Author: Email: ljiahao1009@163.com

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Abstract

Background: Disabled college students are facing special life pressures and social challenges due to physical and psychological obstacles. Given such difficulties, they may experience a high level of negative emotion (NE) that aggravates their risk of suicidal ideation. As a positive psychological trait, self-acceptance is very important to promote the mental health of disabled college students and reduce their risk of committing suicide. A state of high-intensity hopelessness easily mediates the influence of the NE and self-acceptance of disabled college students.

Methods: A group questionnaire survey was conducted among 663 college students with disabilities across 16 universities from Zhejiang Province, Jiangsu Province, Shanghai City and Anhui Province of China. These surveys involved the use of a self-acceptance questionnaire, NE questionnaire, suicidal ideation questionnaire, and the Beck hopelessness scale, and the mediating role of hopelessness in the influence of NE and self-acceptance on the suicidal ideation of disabled college students was tested.

Results: Self-acceptance had a significantly negative influence on suicidal ideation ($P < 0.01$), while NE exerted a significantly positive influence ($P < 0.01$). Hopelessness partially mediated the influence of NE on the suicidal ideation of disabled college students and exerted a masking effect on the influence of self-acceptance on suicidal ideation. Hopelessness was a key psychological mechanism that bonds NE and self-acceptance with suicidal ideation.

Conclusion: The mental health intervention measures for disabled college students should include self-acceptance strategies and skills for reducing these students' NE to relieve their hopelessness and further reduce their risk of committing suicide.

Keywords: Negative Emotion; Self-Acceptance; Disabled College Students

Introduction

The mental health of disabled college students is a multidimensional and complex public health problem (1) that is influenced by their individual differences, social environment, and institutional

support (2). These students are prone to high psychological stress, including anxiety, depression, and other emotional disorders (3), which may be directly related to their disabilities or the



social challenges induced by such disabilities. They may also encounter challenges in their process of forming their self-identity (4) and in finding their own value and meaning, which may affect their self-esteem and self-confidence. Therefore, disabled college students may need additional mental health services and support, including professional psychological counseling, psychotherapy, and crisis intervention. Suicidal ideation refers to the idea that an individual considers, plans, or intends to end his/her life (5). Due to physical barriers and the prevailing social attitudes, disabled college students may feel excluded or unable to participate in social activities, which may lead to their sense of isolation and lack of social support (6). Due to their physical or psychological barriers, these students may face unique challenges and pressures that may be associated with an increased risk of committing suicide (7).

Negative emotion (NE) refers to the negative emotional experiences of individuals in the face of certain stimuli or situations, such as anxiety, tension, anger, depression, sadness, and pain (8). NEs are usually associated with physical discomfort and may affect personal work and life and even lead to physical and mental injuries (9). According to the stress–vulnerability model, the suicidal behavior of disabled college students resulted from the interaction between external environmental stresses and individual internal vulnerability (10). NEs, such as hopelessness, depression, and anxiety, were considered internal vulnerability factors that may increase the risk of suicidal ideation among disabled college students in the face of life pressures (11) and served as important predictive factors for their suicidal ideation (12). This study therefore hypothesized that NE exerted a positive influence on the suicidal ideation of disabled college students (Hypothesis 1).

Self-acceptance refers to an individual's recognition and acceptance of his/her identity, ability, and value (13). According to self-consistency theory, individuals tend to maintain the consistency and stability of their self-concept. Therefore, self-acceptance, as a positive psychological

attitude, helps disabled college students maintain the consistency of their self-concept when facing the reality of their own disabilities and reduces their psychological conflicts and pressures caused by self-negation. When disabled college students are capable of self-acceptance and recognize and affirm their abilities and values, including their limitations and challenges, they tend to show excellent psychological adaptation and low suicidal ideation (14). Self-acceptance also helps reduce the psychological conflict and pressure caused by self-negation or identity, thus reducing the risk of suicide related to these NEs (15). Promoting self-acceptance can thus serve as a protective factor for disabled college students that alleviates their mental health challenges, including suicidal ideation and behavior (16). We thus hypothesized that self-acceptance could relieve the suicidal ideation of disabled college students (Hypothesis 2). According to cognitive escape theory, individuals may cope with unbearable emotional or cognitive pain by escaping (17). When feeling hopeless, individuals may feel unable to escape from their predicaments and thus consider suicide as a means of solving their problems (18). On this basis, this study proposes that hopelessness may play a mediating role in the influence of NE and self-acceptance on the suicidal ideation of disabled college students. On the one hand, the effect of physiological pain (including emotional and cognitive pain) on suicidal behavior has been highlighted by theory of psychological pain (19), while hopelessness is an important constituent part of cognitive pain. When experiencing such affects, disabled college students may feel hopeless about their future and fail to see any chances of improvement. This sense of hopelessness may further aggravate their suicidal ideation. On the other hand, disabled college students with a high level of self-acceptance may show positivity when facing hopelessness, thus reducing their sense of hopelessness (20). However, those with a relatively low level of self-acceptance are prone to feeling hopeless when faced with difficulties, thus increasing their risk of committing suicide (21). We therefore hypothesized that hopelessness played a mediating role in the influence of NE

and self-acceptance on the suicidal ideation of disabled college students (Hypothesis 3).

Methods

Respondents

This study had fully complied with the Ethical Code of Clinical and Counseling Psychology issued by the Chinese Psychological Association before the start of the study. All the participants had understood the purpose and method of the experiment before the experiment, participated voluntarily, and completed 6 experiments, which were approved by the Ethics Committee of the International Exchange College of Ningbo Institute of Technology. In the course of the investigation, the ethical standards were strictly observed, the anonymity of the participants and the confidentiality of the data were ensured, and the informed consent of all participants was obtained.

To facilitate sampling, group surveys were conducted among disabled students in 16 universities and colleges from Zhejiang Province, Jiangsu Province, Shanghai City and Anhui Province of China. The purpose and content of these surveys were introduced beforehand to the participating students, and issues about confidentiality were clarified. After signing the informed consent, the disabled college students filled in the questionnaires anonymously under the one-to-one guidance of the interviewer. A total of 720 questionnaires were distributed, of which 663 valid responses were recovered, yielding an effective response rate of 92.08%.

Research tools

Self-acceptance was assessed using 20 test items scored on a 7-point Richter scale, with 1 indicating strong disagreement and 7 indicating strong agreement (22). A higher score corresponds to a deeper self-acceptance. The Cronbach' α coefficient of this scale was 0.842.

NE was measured using the self-reported symptoms scale that contained 90 items (23). Each

dimension was measured using a 5-point scoring method (1 = no, 2 = very light, 3 = medium, 4 = relatively serious, 5 = serious). The total score of the scale was computed by taking the sum of the scores of all items, and the total score of each dimension was computed as the sum of the scores of items within the same dimension. A higher score indicates a more serious symptom. The Cronbach's α coefficient of this scale was 0.912.

Suicidal ideation was assessed using two test questions (24). Each item was scored on a 3-point scale, with 0 indicating no suicidal ideation, 1 indicating occasional suicidal ideation, and 2 indicating frequent suicidal ideation. A higher score indicates a higher degree of suicidal ideation. The Cronbach's α coefficient of this scale was 0.887.

Hopelessness was measured using 20 items, which evaluated the severity of individual depression (25). Each item was scored on a 5-point scale, with 1 indicating "no" and 5 indicating "extremely serious". A higher score corresponds to a more serious depression. The Cronbach's α of this scale was 0.848.

All survey data were processed using SPSS22.0 (IBM Corp., Armonk, NY, USA) and PROCESS macro-program.

Results

Suicidal ideation analysis of disabled college students

Among the respondents, 13.8%, 33.94%, and 52.19% scored their suicidal ideation as 0 (no suicidal ideation), 1 (occasional suicidal ideation), and 2 (frequent suicidal ideation), respectively.

Table 1 showed that in terms of gender distribution, most of the respondents (344 respondents or 51.89%) were male, while in terms of grade, the majority of the respondents (36.20%) were sophomores. Only a few senior students participated in the survey because most of them were out doing their internships.

Table 1: Descriptive statistics of the respondents

<i>Name</i>	<i>Option</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Gender	Female	319	48.11
	Male	344	51.89
Grade	Freshman	189	28.51
	Sophomore	240	36.2
	Junior	198	29.86
	Senior	36	5.43
Total		663	100

Correlation analysis

The Pearson correlation coefficients among the four variables, self-acceptance, NE, suicidal ideation, and hopelessness, were calculated (Table 2). Table 2 showed that self-acceptance was significantly correlated with NE, suicidal ideation, and

hopelessness, with correlation coefficients of -0.597, -0.483, and -0.598. Therefore, self-acceptance was significantly negatively correlated with these variables ($P < 0.01$).

Table 2: Pearson correlation coefficient

<i>Pearson correlation coefficient</i>	<i>Self-acceptance</i>	<i>NE</i>	<i>Suicidal ideation</i>	<i>Hopelessness</i>
Self-acceptance	1.000	-	-	-
NE	-0.597**	1.000	-	-
Suicidal ideation	-0.483**	0.505**	1.000	-
Hopelessness	-0.598**	0.596**	0.474**	1.000

(** indicates $P < 0.01$)

Linear regression analysis

The following can be deduced from Table 3:

1) The adjusted R² of the regression model was 0.824, meaning that the two variables—self-acceptance and NE, could explain 82.4% of the changes in the dependent variable, suicidal ideation. The model also passed the F test ($F = 1549.159$, $P < 0.01$), indicating that at least one

of the two independent variables, self-acceptance and NE, would affect suicidal ideation. The multicollinearity test of the model revealed that the D-W value was 0.176, which was close to 2, thereby indicating that the model was not collinear.

Table 3: Linear regression results

<i>Variable</i>	<i>Standardized coefficient</i>	<i>T value</i>	<i>P value</i>
Constant	-	-10.157	0.001**
NE	1.083	30.47	0.001**
Self-acceptance	-0.202	-5.688	0.001**
F		1549	0.001**
		.159	
Adjusted R ²			0.824
D-W value			0.176

(** indicates $P < 0.01$)

- 2) The regression coefficient of self-acceptance was -0.202 ($t=-5.688, P<0.01$), meaning that self-acceptance had a significantly negative impact on suicidal ideation.
- 3) The regression coefficient of NEs was 1.083 ($t=30.470, P<0.01$), indicating that NEs had a significantly positive influence on suicidal ideation.

Mediating effect analysis

From Tables 4 and 5, it's shown that:

- (1) Hopelessness partially mediated the relationship between NE and suicidal ideation ($t=6.607, P=0.001$), playing an important role in this relationship among disabled college students.
- (2) Hopelessness masked the influence of self-acceptance on suicidal ideation ($t=-3.266, P=0.001$), playing a masking role in this relationship among disabled college students.

Table 4: Mediating effect model test

Variable	Suicidal ideation	Hopelessness	Suicidal ideation
Constant	-12.052** (-19.254)	4.811** (28.134)	-2.842** (-3.589)
NE	1.366** (18.703)	-0.588** (-29.441)	0.241* (2.548)
Self-acceptance	2.567** (23.904)	0.152** (5.186)	2.858** (30.587)
Hopelessness	-	-	-1.914** (-15.752)
Adjusted R2	0.881	0.997	0.914
F value	F (2,660)=2454.497, p=0.001	F (2,660)=98790.927, p=0.001	F (3,659)=2331.700, p=0.001

(Notes: * indicates $P<0.05$, ** indicates $P<0.01$, in the brackets are T values, bootstrap type: percentile bootstrap method)

Table 5: Mediating effect test results

Analysis item	Effect value	95% CI		T value	P value	Conclusion
		Lower limit	Upper limit			
NE=>hopelessness=>suicidal ideation	1.125	2.318	3.003	6.607	0.001	Partial mediating effect
NE=>hopelessness	-0.588	-0.627	-0.548	-29.441	0.001	
Hopelessness=>suicidal ideation	-1.914	-2.153	-1.676	-15.752	0.001	
NE=>suicidal ideation	0.241	0.056	0.427	2.548	0.011	
NE=>suicidal ideation	1.366	1.223	1.509	18.703	0.001	
Self-acceptance=>hopelessness=>suicidal ideation	-0.291	-0.65	-0.294	-3.266	0.001	Masking effect
Self-acceptance =>hopelessness	0.152	0.095	0.21	5.186	0.001	
Hopelessness=>suicidal ideation	-1.914	-2.153	-1.676	-15.752	0.001	
Self-acceptance =>suicidal ideation	2.858	2.675	3.041	30.587	0.001	
Self-acceptance =>suicidal ideation	2.567	2.357	2.778	23.904	0.001	

Discussion

NE is closely correlated with the suicidal ideation of disabled college students, which coincides with

the results of previous studies (26). This result is also consistent with the viewpoint of the psychological stress model, that is, NE, which is an individual variable, has an important impact on sui-

cidal ideation. Psychodynamic theory also reveals that disabled college students with high NEs may suffer from a hidden psychological depression state because of their lack of emotional expression and recognition. NEs, such as depression, anxiety, anger, and hopelessness, are important components of mental health problems. These affects, including catastrophic thinking, self-denial, and pessimism, may distort the individual thinking mode and cognitive function of disabled college students. These NEs may be particularly intense among disabled college students because they may face additional challenges brought by their physical disabilities, thus increasing their risk of suicidal ideation. These students may also encounter special difficulties in their process of social interaction and identity. They may feel prejudice, discrimination, or neglect from society, which will aggravate their NEs. Their inability to fully participate in certain activities or meet certain social expectations due to their disabilities may also damage their self-esteem and reduce their self-worth. In this state, disabled college students tend to adopt extreme behaviors, such as suicide, to relieve their psychological depression and seek a balanced state of mind. Individuals with high NEs may also face difficulties in emotional adjustment that prevent them from seeking appropriate coping strategies when faced with interpersonal conflicts or life pressures, thus making them susceptible to suicidal ideation. NE is also referred to as a “psychological shadow.” Individuals with high levels of this trait may neglect the feelings of others in their process of interpersonal communication and may hardly detect the real needs behind their affects, thus increasing their possibility of self-harm (27). When encountering difficulties, disabled college students may not consider the consequences of their extreme behaviors on themselves and others and do not feel any fear, thus increasing their risk of suicidal ideation. Evidence from neuroscience shows that abnormal activity in some brain regions is a common neurobiological feature of NEs and suicidal ideation. In addition, Social support is an important way to relieve the stress and NEs of disabled college students. However,

these students also face difficulties in receiving enough social support because of their physical limitations and social barriers. Loneliness and social isolation increase their psychological pressure and hinder their NE management, thus leading to suicidal ideation. Therefore, NEs are closely related to the suicidal ideation of disabled college students.

Self-acceptance is evidently correlated with the suicidal ideation of disabled college students, which conforms to the viewpoint of the psychological stress model (28). Individuals with a high level of self-acceptance can maintain positive self-awareness and emotional adjustment ability when facing their own defects and challenges, thus enabling them to maintain their mental health and reduce their risk of committing suicide when coping with life pressures. When disabled college students can accept themselves entirely, they feel satisfied with their lives and existence, which constitutes an important psychological defense against suicidal ideation. On the contrary, when disabled college students fail to accept themselves in terms of their external achievements and conditions or their internal character and ability, they tend to feel frustrated, ashamed, and inferior. These NEs are all important causes of suicidal ideation. Meanwhile, self-acceptance is closely related to self-esteem, self-confidence, and positive self-concept. Disabled college students with high self-acceptance tend to show great self-confidence and self-esteem and believe that they are valuable and can bring positive meanings to life. This positive self-concept helps these students remain happy and maintain their firm will to live in the face of setbacks. Therefore, they are protected from self-abandoning and self-destructing thoughts. Disabled college students with high self-acceptance are also highly tolerant and are able to recover from setbacks and pains. In the face of life pressures and crises, disabled college students with high self-acceptance tend to adopt a positive coping style instead of negative response or self-abandonment. This good psychological resilience can help these students resolve their inner pain and avoid engaging in extreme self-destructive behavior on impulse.

Self-acceptance can reduce their suicidal ideation by enhancing their self-esteem and self-confidence, improving their psychological resilience, and expanding their social support. Self-acceptors often show an introverted cognitive style and can deeply experience and understand their emotions (29). Therefore, they tend to perceive their life challenges as opportunities for growth and experience a strong sense of accomplishment and meaning. Disabled college students with a high level of self-acceptance experience many positive emotions (PEs) that last for a long time. These PEs reflect a happy and satisfied psychological state that improves the life satisfaction of disabled college students and possibly reduce their experiences of hopelessness and suicidal behavior. In sum, self-acceptance plays a key role in the formation of suicidal ideation among disabled college students.

Hopelessness partially mediates the influence of NEs on the suicidal ideation of disabled college students. This group often encounters special challenges in education, social interaction, and career planning due to their physical or psychological disorders. These challenges may not only limit their activities but also affect their expectations for their future and their possibility of self-realization, thus inducing a deep sense of hopelessness. Generally, hopelessness does not exist in isolation but is closely related to the overall emotional state of individuals. Given their long-term NEs, such as depression, anxiety, and inferiority, these students may question their abilities and values and feel unable to escape from their current predicament. When this emotional state continues and intensifies, these students may gradually lose their positive outlook for the future and feel helpless and hopeless, eventually leading to the formation of suicidal ideation. Disabled college students may also face many difficulties in emotional management, which may be ascribed to their weak psychological resources or lack of appropriate emotional support and education. Therefore, these students are hardly able to alleviate and control persistent NEs, thus aggravating their sense of hopelessness, further impairing their mental health, and stimulating their suicidal

ideation. Hopelessness may also affect individuals' willingness and ability to seek for help. Disabled college students may think that they cannot find help to improve their situation, or they may be unwilling to seek support because of shame and isolation. This attitude of self-isolation can further deepen their sense of hopelessness, thus forming a vicious circle and aggravating their risk of committing suicide. Due to NEs, disabled college students may feel hopeless, thus aggravating their risk of committing suicide. As a cognitive state (30), hopelessness reflects individuals' feelings about their lack of a positive outlook for the future, which may turn NEs into concrete suicidal ideation and behaviors. Therefore, hopelessness is an important bridge between NEs and suicidal ideation that conveys part of the transition process from emotional disturbance to suicidal ideation.

Hopelessness also masks the influence of self-acceptance on the suicidal ideation of disabled college students. Given their unique social environment and pressures caused by disabilities, disabled college students not only have to cope with the daily challenges being faced by ordinary people but also need to overcome the extra burden brought by their physical or psychological disorders. These students may also feel deeply inferior and marginalized due to the negative social cognition and personal emotional experience brought by their disabilities. Consequently, they may question their own value and doubt whether they can be accepted and supported by others. When becoming dominant, questioning of self-worth not only reduces the level of self-acceptance of individuals but also intensifies their sense of hopelessness, thus promoting the formation and strengthening their suicidal ideation. However, as a key positive psychological trait, self-acceptance can provide a psychological buffer for disabled college students. A high level of self-acceptance helps these students build a strong psychological resilience, thus allowing them to maintain a positive attitude and resilience in the face of adversity. This inner strength can help them reduce their sense of hopelessness, effectively offset part of their suicidal ideation, and maintain their mental

health even in the face of major difficulties and challenges. Therefore, when disabled college students with high self-acceptance form a strong psychological resilience, their ability to maintain a positive attitude and resilience in the face of adversity is strengthened, thus offsetting part of their suicidal ideation. Self-acceptance usually helps individuals maintain a positive self-view in the face of stress and adversity and reduce their formation of suicidal ideation.

Conclusion

The suicidal ideation of disabled college students not only has a profound impact on their lives and families but also poses a burden on public health. Research has revealed a significant correlation between self-acceptance and non-adaptive behaviors (NEs) with the suicidal ideation of disabled college students, and despair has been identified as a key psychological mechanism linking NEs and self-acceptance to suicidal ideation. These findings enhance the current understanding of the formation mechanism of suicidal ideation among disabled college students and provide robust evidence for developing effective prevention strategies in the future. By reducing NEs and despair and enhancing self-acceptance, a safe and supportive environment can be created for disabled college students, thereby mitigating their risk of suicide.

Journalism Ethics considerations

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

Conflict of interest

The authors declare that they have no conflict of interest.

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