The Relationship Between Interpersonal Trust and Aloneliness among College Students: An Analysis of The Mediating Effect of Pain Self-Disclosure

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Abstract: This study aimed to elucidate the relationship between interpersonal trust and aloneliness by constructing a mediating model. The model sought to clarify the role of painful self-disclosure as a mediator between interpersonal trust and aloneliness. A questionnaire was used to evaluate the levels of interpersonal trust, painful self-disclosure, and aloneliness among 649 college students. The findings indicated that there was a negative correlation between painful self-disclosure and aloneliness. Additionally, there was a negative correlation between interpersonal trust and painful self-disclosure. A strong positive link existed between interpersonal trust and aloneliness. (2) Painful self-disclosure acts as a partial mediator in the connection between interpersonal trust and aloneliness among college students. This means that interpersonal trust not only has a direct impact on the aloneliness of college students, but also indirectly affects aloneliness through the process of painful self-disclosure. The findings not only alleviate the alone experienced by college students, but also have the potential to enhance the precision of mental health teaching.**Keywords:** distressed self-representation; interpersonal trust; aloneliness; college students.

1. Introduction

1.1 Concept of aloneliness

Aloneness is an individual's feelings about the quantity and quality of his social interactions [1]. "Aloneliness arises when a person's network of social relationships satisfies him less than he expects [2]".

1.2 The concept of interpersonal trust

Interpersonal interaction establishes a generalized expectation of the degree of reliability of an individual's words, promises, and written or verbal statements about the person with whom he or she is interacting [3].

1.3 Concepts of Painful Self-Disclosure

Painful self-disclosure refers to the process by which an individual expresses his or her deepest pain, distress, and negative feelings to others [4].

Numerous studies have demonstrated that aloneliness significantly impacts the mental health of contemporary individuals [5]. Individuals experiencing high levels of aloneliness frequently exhibit traits such as withdrawal, difficulty approaching others, and a propensity for communication conflicts, which can trigger negative emotions like irritability and depression [6]. Interpersonal trust and aloneliness are two important factors affecting mental health [7]. Multiple research consistently agree that there is a substantial inverse relationship between interpersonal trust and aloneliness. This implies that as an individual's level of interpersonal trust increases, their sense of aloneliness decreases[5]. This study will use aloneliness as an indicator of mental health.

Research indicates that distress self-disclosure is a sign of a healthy personality and effective self-regulation [8]. Distressed self-disclosure significantly predicts interpersonal trust, individuals that possess greater levels of self-disclosure have elevated levels of interpersonal trust [9]. Increasing the level of interpersonal trust among college students has positive implications for improving their mental health [10]. Pain self-disclosure is considered to be an effective emotion regulation strategy [11]. Individuals are able to reduce their emotional burden and increase their sense of social support through distress

self-disclosure [12], thereby alleviating aloneliness. Therefore, the present study hypothesized that interpersonal trust can negatively predict distress self-disclosure and that distress self-disclosure mediates the relationship between interpersonal trust and aloneliness.

In summary, the present study introduced the variable of pain self-disclosure (internal factor) to explore the mechanism of pain self-disclosure in the relationship between interpersonal trust and aloneliness. The study's results not only help to reduce college students' aloneliness, but they can also make mental health education more targeted.

2 Methods

2.1 Subjects

In this study, 4-year colleges and universities in Zhengzhou, Henan Province, Jinan, Shandong Province, Taiyuan, Shanxi Province, Chengdu, Sichuan Province and Liuzhou, Guangxi Province were selected to issue online questionnaires. After eliminating invalid questionnaires, 649 valid questionnaires were obtained. Among them, Zhengzhou students accounted for 55%, Jinan accounted for 10%, Taiyuan accounted for 15%, Liuzhou accounted for 10%, Chengdu accounted for 10%. The selection of a few cities in China's economic conditions are not too different, and the geographical location is far away, so the sample can more represent part of the situation of Chinese college students. There were 199 boys (30.7%) and 450 girls (69.3%); There were 174 freshmen (26.8%), 310 sophomores (47.8%), 104 juniors (16.0%) and 61 seniors (9.4%). The average age of the subjects ranged from 16 to 25 years old (22.46±40.403).

2.2 Instruments

2.2.1 Pain Self-Disclosure Scale

This scale, which Li Xinmin revised in 2009, is the Chinese version of the Pain Expression Questionnaire, used to assess individuals' degree of self-disclosure. The questionnaire consists of 12 items with a 5-point scale ranging from "strongly disagree" to "strongly agree." The questionnaire has only one dimension but contains two aspects: self-disclosure and self-concealment. The higher an individual's score on the questionnaire, the higher the level of self-disclosure.

2.2.2 Interpersonal Trust Scale (ITS)

In 1967, psychologist Julian B. Rotter developed the Interpersonal Trust Scale (ITS). The main purpose of the scale is to assess individuals' general level of trust in the reliability of others' behaviors, commitments, and statements. The ITS scale contains 25 entries that cover the extent to which individuals trust various roles in different social situations. The Likert scale used in this study is a five-point scale, spanning from one to five, where each entry is rated from "completely agree" to "completely disagree." Hence, the overall score of the scale varies between 25 (low) to 125 (high).

2.2.3 Aloneliness Scale

This scale evaluates aloneliness due to the gap between the desire for social interaction and the actual level of such aloneliness, which is defined here as one-dimensional. The aloneliness scale (UCLA) was developed by Russell et al. and consists of 20 entries, Each item is evaluated using a 4-point frequency scale, ranging from "never" to "all the time"., with scores of 1-4, respectively. Higher scores indicate higher levels of aloneliness.

3 Results

3.1Control and test for common method bias

In this work, we employed Harman's one-way test to assess the presence of common method bias in the independent and dependent variables. The analysis shows that there are four factors with eigenvalues greater than 1. The largest component accounts for 33.64% of the variance, which is below the crucial requirement of 40%. This suggests that there is no significant common technique bias in this study.

3.2 The table presents the averages, variations, and associations of the variables.

Analysed were the variables using descriptive and correlation analyses. The results, found in Table 1, indicate that both painful self-disclosure and interpersonal trust are significantly and negatively correlated with aloneliness (r=-.250, p<0.01; r=-.524, p<0.01). Additionally, interpersonal trust is significantly and positively correlated with aloneliness (r=-.324, p<0.01).

	I	D	ainful self-disclosure	iterpersonal trust	loneliness
ainful self-disclosure	.053	.265			
iterpersonal trust	3.316	.586	250**		
loneliness	5.410	.357	524**	.24**	

Note: ** denotes P < 0.01.

Table 1 Results of descriptive statistics, correlation analysis

3.3 The mediation model test examines the relationship between interpersonal trust and aloneliness.

To examine the mediating role of painful self-disclosure in the association between interpersonal trust and aloneliness, we employed the Bootstrap method suggested by Hayes. We utilised the Process plug-in in the SPSS 26.0 statistical software and conducted a simple mediation modelling test (Model 4). Control variables included gender, grade, and age. The results are presented in Table 2. The results demonstrate that interpersonal trust is a significant and powerful predictor of aloneness, with a beta coefficient of 9.967, a t-value of 8.420, and a p-value less than 0.001. Interpersonal trust has a significant and robust impact on aloneness, even when painful self-disclosure is taken into account (β = 6.301, t = 5.912, p < 0.001). Interpersonal trust strongly predicted painful self-disclosure (β = -5.986, t = -6.342, p < 0.001), as did painful self-disclosure of aloneliness (β = -0.612, t = -14.134, p < 0.001).The β value and t value of gender were 2.082 and 3.841, and the significance level was *** (p < 0.001), indicating that gender had a significant effect on painful self-disclosure. Women are more likely to self-disclose their pain. The β value of age was -0.017, the T-value was -2.506, and the significance level was ** (p < 0.01), indicating that age had a significant effect on aloneliness, and the older the age, the lower the aloneliness.

	ainful self-disclosure		loneliness		loneliness	
ender	.082	.841***	.236	.393	.039	.529
rade	.021	.076	).003	).011	).016	).047
ge	).003	).533	017	2.506**	).015	.929
iterpersonal trust	5.986	5.342***	.301	.912***	.967	.420***
ainful self-disclosure			).612	4.134***		
Square	.086		.324		.112	
	5.092***		1.060***		).122***	

Note: ** denotes P 0.01, and *** denotes P 0.001.

Table 2: Mediation model test for pain self-disclosure

Furthermore, Table 3 presents the data indicating that the Bootstrap 95% confidence intervals for both the direct effect of interpersonal trust on aloneness and the mediation effect of painful self-disclosure do not include the value of 0. This demonstrates that interpersonal trust has a direct impact on aloneness, as well as an indirect impact through the mediating influence of painful self-disclosure. The direct effect, with a value of 6.301, accounted for 63.22% of the total effect, which

	ffect	ootSE	ootLLCI	ootULCI	效应占比
lediating Effects of Painful Self-Disclosure	.666	.839	.164	.459	5.78%
irect effect	.301	.264	.86	.764	3.22%
otal effect	.967	.446	.084	2.776	

had a value of 9.967. The mediating effect, with a value of 3.666, accounted for the remaining 36.78% of the total effect.

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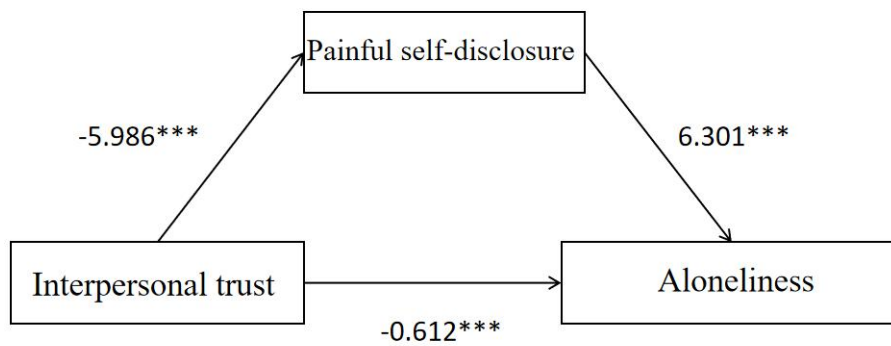Table 3: Decomposition of Total, Direct, and Mediating Effects

Figure 1: Diagram of the Mediating Role Model of Pain Self-Disclosure

4 Discussion

The findings of this study indicate a strong inverse relationship between the expression of distress and feelings of aloneliness, a strong inverse relationship between trust in interpersonal relationships and the expression of distress, and a strong positive relationship between trust in interpersonal relationships and feelings of aloneliness. This suggests that the more an individual expresses their distress to others, the less likely they are to feel lonely, and that the higher an individual's level of trust in others, the less likely they are to express their distress. This could be because high-trust individuals are less likely to seek understanding and support through self-disclosure, or they may be more inclined to deal with their emotional problems in other ways. Individuals with higher levels of interpersonal trust also have higher levels of aloneliness [13]. The results suggest that interpersonal trust and painful self-disclosure have positive effects on reducing college students' aloneliness.

Furthermore, interpersonal trust predicts aloneliness not only directly [14], but also through the mediating role of distress self-disclosure. High levels of trust may promote distressing self-disclosure, thereby reducing aloneliness [15]. Lack of interpersonal trust, on the other hand, may hinder distress self-disclosure, leading to increased aloneliness [16]. The relationship model between aloneliness and interpersonal trust posits that the dynamic process of social interaction and trust construction facilitates the development of interpersonal trust, which evolves over time and in response to changing circumstances [17]. Ests that the trust factor moderates or reduces the effects of aloneliness and promotes positive social adaptation in individuals as they establish and maintain trusting relationships [18]. When people feel lonely, interpersonal trust, along with social support systems [19], plays a role in resisting the negative effects of aloneliness, thus enhancing individuals' psychological well-being. Thus, interpersonal trust affects aloneliness by influencing distressed self-disclosure.

The results of this study have certain theoretical and practical value for deepening the research on the relationship between interpersonal trust, pain self-disclosure, and aloneliness and guiding college students to reduce aloneliness.

5.Conclusion

(1)Painful self-disclosure and aloneness have a strong negative link, whereas interpersonal trust and aloneness demonstrate a strong positive correlation.

(2) The relationship between interpersonal trust and college students' aloneness was partially mediated by painful self-disclosure, suggesting that interpersonal trust not only directly influences college students' aloneness, but also indirectly influences it through painful self-disclosure. The study's results not only help to reduce college students' aloneness, but they can also make mental health education more targeted.

6. Recommendations for intervention measures

(1) Carry out team activities and social activities: organize team projects, collective sports, cultural activities, etc., to help students establish and strengthen interpersonal relationships.

(2) Set up support groups and psychological counseling services: provide professional psychological support and encourage students to express their feelings and troubles; Set up support groups so students have a safe environment to share and support each other.

(3) Interpersonal skills training: provide training courses on communication skills and interpersonal communication to help students improve their interpersonal skills.

(4) Establish a tutor system: let senior students or faculty members act as tutors to provide academic and life guidance and support; Enhance trust and a sense of belonging among freshmen through one-on-one communication.

Promote a social environment on campus: create an inclusive and supportive campus culture where students feel accepted and respected; Organize orientation activities and social gatherings to help new students quickly integrate into campus life.

(6) Online and offline social platforms: Using the school's online platform and social media to create virtual communities and discussion groups to provide a platform for students to communicate and share; Organize online and offline communication activities to promote interaction and contact between students.

(7) Promote volunteer services and community activities: Encourage students to participate in volunteer services and community activities to enhance their sense of social responsibility and belonging.

(8) Provide mental health education: carry out mental health education courses to help students recognize and understand loneliness and provide effective coping strategies; Improve students' mental health awareness through education to reduce the misunderstanding and negative impact on loneliness.

(9) Establish a regular feedback mechanism: Establish a regular feedback mechanism so that students can express their needs and suggestions, and make timely adjustments and improvements.

(10) Personalized support: Individualized support and services tailored to the needs of different students, especially those with special needs or facing difficulties.

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