The Impact of College Students' Social Anxiety on Interpersonal Communication Skills: A Moderated Mediation Model

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Abstract: This paper discusses the relationship between college students' social anxiety and the interpersonal communication ability, as well as the mediating effect of psychological resilience and the regulating effect of perceived organizational support; moderated mediation. Around 926 college students were enrolled in this study and the Social Anxiety Scale, Psychological Resilience Scale, Perceived Organizational Support Scale, and Communication Skills Scale were measured and analyzed in each student. This study showed that (1) College students' social anxiety has negative influence on their interpersonal communication skills; (2) Psychological resilience has a partial mediating effect between social anxiety and interpersonal communication skills of the college students; (3) Perceived organizational support negatively regulates the negative influence between social anxiety and psychological resilience of college students, where, when the students have higher perceived organizational support, it will weaken the influence of social anxiety on psychological resilience; and (4) Perceived organizational support further regulates the intermediary role of psychological resilience between social anxiety and interpersonal communication skills of college the students.

Keywords: College students' social anxiety; Interpersonal communication skills; Psychological resilience; Perceived organizational support; Moderated mediation

1. Introduction

Interpersonal communication is an effective way for individuals to adapt to their social life, and constantly improve their self-development. Continuous improvement of the student's interpersonal communication skill is essential to enhance the development of their personality. University education, is the stage where students undergo self-consciousness development and maturity, as well the stage of personality development and perfection. In addition, college students are believed to express their inner feelings and emotions through continuous interpersonal communication, however, in reality the social situation of college students is not optimistic [1], where due to the pressure from school, employment, and family college students are prone to develop anxiety symptoms [2]. In recent years, there are numerous psychological problems such as social anxiety, which has become one of the most common psychological problems among college students. Social anxiety often appears in college students, subsequently, affect their daily social, physical, and mental health [3]. Therefore, social anxiety has become one of the major diseases affecting students' life, especially college students that studying inside or outside the country. Additionally, relevant research shows that social anxiety may have an impact on the student's interpersonal problems,

social network site addiction, and emotional regulation flexibility of college students [4-6]. Therefore, the effects or development of social anxiety in college students is an important research field among the scholars.

When people participate in social life, one of the most important and efficient means is social communication with others, where people convey their own information to each other through language expression, thereby the other party knows their intention. Interpersonal communication is the basis for people's survival and development, and it is also the basic way for people to participate in social interaction and communicate with others. In contrast, without interpersonal communication, there is no chance for people to get along or contact with each other. Therefore, it is particularly important to explore interpersonal communication, and also on how to improve interpersonal communication skills. Relevant studies show that social anxiety when it develops to a certain extent, it may damage social interaction function [7,8]. In short, interpersonal communication skill is an important indicator of interpersonal communication and interaction, and whether social anxiety will have an important impact on college students' interpersonal communication skill is worthy of research.

At the same time, it is still unclear on how the college students' social anxiety affects their interpersonal communication skill, whether there is involvement of mediating or moderating variables is an urgent question to be explored. A work resource requirement model provides the possibility to answer the above questions. According to the work resource requirement model, when individuals perceive higher negative emotions, such as stress and anxiety, they will use work resources (including material, psychological, social or organizational aspects) to reduce their own requirements which is caused by the negative emotions and promote the realization of goals [9]. Further, based on the ecosystem theory, the behavior and attitude of an individual are affected by the interaction between the individual and the environment [10,11]. Therefore, when exploring the influence mechanism, some important regulatory variables at the level of organizational environment should be included, to study is the variable will further strengthen or weaken the mediating role.

Based on the above analysis, this study includes college students as the research object, and the relationship between social anxiety and interpersonal communication skill of college students, and the mediating role of psychological resilience between them will be explored. Additionally, the moderating role of perceived organizational support between social anxiety and psychological resilience of college students, and whether perceived organizational support can regulate the mediating role of psychological resilience will be further discussed in this paper. Lastly, this paper provides some recommendation and suggestion to the education and management of college students on how to tackle the social anxiety among the college students. The theoretical model of this study is shown in **Figure 1**.
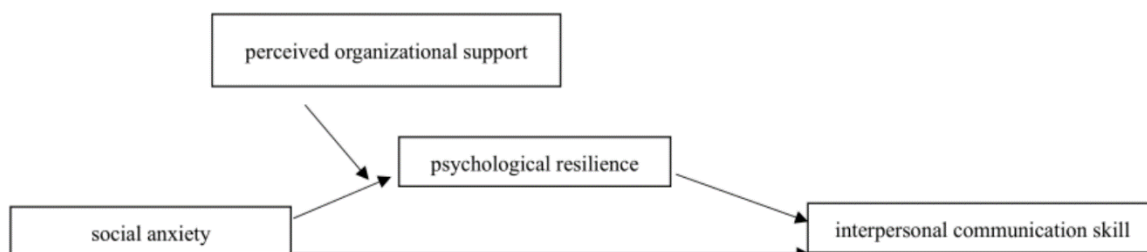
Figure 1. Theoretical model

2. Materials and methods

2.1. Study subjects

By using a simple random sampling method, this paper included college students who are willing to participate in the survey. A total of 1044 questionnaires were sent out and 100% of the questionnaires were returned back. However, after eliminating some questionnaires which contained invalid, missing, and mismatched data, around 926 valid questionnaires were included in the subsequent statistical analysis, with an effective recovery rate of 88.7%.

2.2. Research tools

2.2.1. Social anxiety scale

The social anxiety subscale of Scheier and Carver's self-awareness scale was used [12]. The scale consists of six items with a single dimension structure by using the Likert 5-point score; 1: Stands for very inconsistent; and 5: Stands for very consistent, the higher score indicates a higher degree of social anxiety. The Cronbach's α coefficient in this study is 0.709, which can be used for general theoretical research and analysis.

2.2.2. Psychological resilience scale

The short form of Resilience Scale compiled by Wang et al [13]. The scale contains 10 items, including three dimensions of tenacity, optimism, and strength. Using the Likert 5-point score; 1: Stands for very inconsistent; and 5: Stands for very consistent, the higher score indicates a higher level of resilience. In this study, Cronbach's α coefficient is 0.875, which has a high level of reliability, therefore can be used for general theoretical research and analysis.

2.2.3. Perceived organizational support scale

The organizational support scale developed by Eisenberger has six items and a single dimension structure [14]. The Likert 5-point score; 1: Stands for very inconsistent; and 5: Stands for very consistent, the higher score indicates a higher degree of organizational support. In this study, Cronbach's α coefficient is 0.725, which can be used for general measurement.

2.2.4. Interpersonal communication skill scale

Using the supportive communication scale developed by Whetten and Cameron in 1998, and learning from the research of Chen Wenhuan [15], a total of 20 items was included. The Likert 5-point score was used; 1: Stands for very inconsistent; and 5: Stands for very consistent. The higher the score, the better the interpersonal communication level and the stronger the skill. In this study, Cronbach's α coefficient is 0.890, which has a high level of reliability, therefore can be used for general measurement.

3. Results

3.1. Common method deviation test

According to Zhou Hao's and Long Lirong's research suggests, the common method deviation test was conducted for all the items in the questionnaire [16]. The results showed that among 42 items, 9 common factors with eigenvalues greater than 1 were extracted, and the first common factor explained 22.46% of the total variance, which was less than the standard critical value of 40%, indicating that there was no serious common method deviation in the data.

3.2. Mean, standard deviation and correlation matrix of each variable

As shown in **Table 1**, the college students' social anxiety was negatively correlated with resilience ($r = -0.186$, $P < 0.01$), organizational support ($r = -0.222$, $P < 0.01$), and interpersonal communication skill ($r = -0.239$, $P < 0.01$). Meanwhile, resilience was positively correlated with organizational support ($r = 0.394$, $P < 0.01$), and interpersonal communication skill ($r = 0.422$, $P < 0.01$).

Table 1. The mean, standard deviation, and correlation coefficient of each variable

Variables	M	SD	SA	PR	POS	ICS
SA	2.28	0.548	1			
PR	3.50	0.558	-0.186**	1		
POS	3.22	0.550	-0.222**	0.394**	1	
ICS	3.39	0.470	-0.239**	0.422**	0.353**	1

Notes: SA stands for social anxiety; PR stands for psychological resilience; POS stands for perceived organizational support; ICS stands for interpersonal communication skill. * for $P < 0.05$, ** for $P < 0.01$, *** for $P < 0.001$ (two tailed test), similar all the results.

3.3. Main effect and intermediary effect test

Firstly, the direct effect of college students' social anxiety on interpersonal communication skill is tested, and M_2 model is established. The M_2 model showed that, the social anxiety had a significant negative impact on interpersonal communication skill of college students ($\beta = -0.18$, $P < 0.001$).

Secondly, the mediating role of resilience between social anxiety and interpersonal communication skill is tested. It is confirmed that, the college students' social anxiety has a significant negative impact on interpersonal communication skill ($\beta = -0.18$, $P < 0.001$). In order to test the mediating role of resilience between college students' social anxiety and interpersonal communication skill, M_1 and M_3 models were established. M_1 model showed that college students' social anxiety could negatively affect their resilience ($\beta = -0.23$, $P < 0.001$), while the M_3 model shows that when college students' social anxiety and resilience are added to the equation at the same time, it has a significant positive effect on interpersonal communication skill ($\beta = 0.39$, $P < 0.001$). Additionally, college students' social anxiety has a significant negative effect on interpersonal communication skill, however the effect is weak ($\beta = -0.09$, $P < 0.01$). This shows that resilience plays a partial mediating role between social anxiety and interpersonal communication skill. The results of the main effect test and the mediating effect test are shown in **Table 2**.

Table 2. Main effect and intermediary effect test results

Variables	M_1 Outcome variable：PR			M_2 Outcome variable：ICS			M_3 Outcome variable：ICS		
	β	t	95%CI	β	t	95%CI	β	t	95%CI
SA	-0.23	-7.19***	[-0.30, -0.17]	-0.18	-5.48***	[-0.21, -0.10]	-0.09	-2.84**	[-0.13, -0.02]
PR							0.39	12.74***	[0.28,0.38]
R		0.27			0.23			0.44	
R²		0.07			0.05			0.20	
F		10.24***			7.51***			28.01***	

3.4. The moderating effect of perceived organizational support

Thirdly, the moderating effect of perceived organizational support was tested. As shown in **Table 3**, when social anxiety, organizational support, social anxiety and organizational support, and psychological resilience included into the equation at the same time to establish the M_4 model. The results show that the interaction between social anxiety and organizational support has a significant negative impact on the level of resilience ($\beta = -0.57$, $P < 0.01$), which indicates that organizational support can weaken the negative relationship between social anxiety and resilience, while the moderating effect of organizational support is tenable.

Finally, using similar method the moderating mediating effect was tested. According to the research of Wen Zhonglin and others, a moderated mediation model is established to test whether the mediating effect of mediating variable on the outcome variable is affected by moderating variable through antecedent variable. As shown in **Table 3**, through the M_4 model, social anxiety has a significant effect on the level of resilience ($a_1 = 0.36$, $P < 0.05$), and the interaction has a significant effect on resilience ($a_3 = -0.57$, $P < 0.01$). According to the M_5 model, the effect of resilience on interpersonal communication skill is significant ($b_1 = 0.34$, $P < 0.05$), and the effect of interaction item on interpersonal communication skill is not significant ($b_2 = -0.05$, $P > 0.05$). Based on the suggestion by Wen Zhonglin et al., if the test coefficients a_1 and b_2, a_3 and b_1, a_3 and b_2 are all significant, then the mediating effect is regulated [17]. Through the test, it is found that a_3 and b_1 groups are significant, and the moderating variables further regulate the first half of the mediating path. In summary, perceived organizational support will play a further moderating role in mediating the level of resilience between college students' social anxiety and interpersonal communication skill.

Table 3. Test results of moderating effect and moderated mediation

Variables	M_4 Outcome variable：PR			M_5 Outcome variable：ICS		
	β	t	95%CI	β	t	95%CI
SA	0.36	2.02*	[0.01,0.72]	-0.05	-1.72	[-0.10,0.10]
PR				0.34	2.48*	[0.06,0.51]
POS	0.64	5.48***	[0.42,0.89]	0.29	1.95	[-0.004,0.51]
POS×SA	-0.57	-3.01**	[-0.27, -0.06]			
POS×PR				-0.05	-0.19	[-0.07,0.06]
R		0.41			0.51	
R^2		0.17			0.26	
F		20.17***			31.41***	

4. Discussion

4.1. Psychological resilience partially mediates the relationship between social anxiety and interpersonal communication skill

During the process of interpersonal communication, college students are often afraid that the other party points out their own shortcomings and faults, and also, they are afraid of mistakes in interpersonal communication, therefore they will produce a variety of negative emotions and behaviors, such as nervousness, excessive anxiety, avoidance of communication, which subsequently affect the interaction with others, and then affect the ability of college students' individual interpersonal communication level. However, if the students have a good psychological level, optimistic, tough or self-improvement personality characteristics, then they have good psychological resilience. College students with high resilience are more

optimistic, confident, and stronger compared to students with low resilience, where they can face and deal better with all kinds of events from social life. Further, they will not avoid the problems which are developed during the communication or interaction process, but they will be very confident in their ability to solve the problems. In social life, this positive personality will help college students reduce their anxiety, thereby lighten a series of negative effects produced by social anxiety [18]. Related studies also show that the decrease of resilience will aggravate the generation of anxiety, on the contrary, the increase of resilience will reduce the negative consequences which are caused by anxiety. When students are willing to communicate with others, their interpersonal anxiety will be reduced. In summary, the conclusion of this paper is similar to Huang Jie study, where there is a negative correlation between social anxiety and resilience. Poor resilience is not conducive to better regulation of negative emotions and behaviors [19,20].

4.2. The moderating effect of perceived organizational support

Resilience belongs to individual level variable, while support from school belongs to an organization level variable. This conclusion is a good explanation of the ecosystem theory, individual behavior, and attitude will be affected by the interaction of individual and environment at the same time. The influence of social anxiety on interpersonal communication ability of college students not only depends on their own psychological resilience level, but also related to the degree of school support for students. In this study, the sense of organizational support is used as the evaluation standard of school support for students. The sense of organizational support conveys the signal of whether the student's focus on themselves and whether the school can meet their emotional and attitudinal demands. Individuals with a higher sense of organizational support often have more material and spiritual resources. They can get a sense of belonging and satisfaction from the school, which will enhance the students' confidence in achieving their goals. On the one hand, students can make use of these resources to help them to reduce the anxiety which is developed from social interaction, additionally, it can also help to improve one's resilience. In short, these findings concluded that perceived organizational support plays a moderating role between social anxiety and resilience, and further moderates the mediating effect of resilience.

5. Conclusion

To sum up, improving the sense of organizational support and the level of students' psychological resilience plays an important role in reducing college students' social anxiety, subsequently improve their interpersonal communication ability. The higher a perceived sense of organizational support, the more material and psychological resources the students will obtain, where it is more favorable for the students to use these psychological resources, reduce the tension and anxiety which are developed from social interaction. Therefore, the school should attach great importance to the sense of organizational support of students. In the ordinary teaching and management process, one should always pay attention to the psychological feelings of the students, and provide guidance and convenience for students' study, life, and work. At the same time, schools and teachers should also take measures to improve the students' psychological resilience, and psychological endurance by providing training and preaching mental health, and offering courses of mental health, and help them become more optimistic, confident and tough. These measures are conducive to the school to help students to reduce social anxiety and improve interpersonal communication ability, thereby help students to achieve comprehensive development.

Disclosure statement

The authors declare no conflict of interest.

Author contributions

J. M. analyzed the data and wrote the paper. B. L. conceived the idea of the study and designed questionnaire.

References

[1] Wang WW, 2018, A Review of Research on College Students' Social Anxiety. Yangtze River Series, 2018(15): 205.

[2] Hu YT, 2019, Study of Correlation between Self-Acceptance, Social Anxiety, and Self-Esteem among Kazakh College Students. China Journal of Health Psychology, 28(7): 1081-1085. http://doi.org/10.13342/j.cnki.cjhp.2020.07.028

[3] Cao CX, Qi SS, Lin TL, 2021, Social Self-Efficacy and Social Anxiety: The Mediating Effect of Negative Evaluation Fear in Undergraduates. Journal of Neijiang Normal University, 36(12): 21-24. http://doi.org/10.13603/j.cnki.51-1621/z.2021.12.004

[4] Liu CR, 2021, The Chain Mediating Role of Public Self-Consciousness and Social Self-Efficacy in College Students' Social Anxiety and Interpersonal Relationship Distress. Journal of Campus Life & Mental Health, 19(6): 528-531.

[5] Teng XC, Lei H, Li JX, et al., 2021, The Influence of Social Anxiety on Social Network Site Addiction of College Students: The Moderator of Intentional Self-Regulation. Chinese Journal of Clinical Psychology, 29(3): 514-517. http://doi.org/10.16128/j.cnki.1005-3611.2021.03.014

[6] Zhang SH, Sang B, Jiang K, et al., 2021, Emotion Regulation Flexibility in Social Anxiety Adults: Considering Emotion Content as a Contextual Factor. Journal of Psychological Science, 44(3): 633-641. http://doi.org/10.16719/j.cnki.1671-6981.20210317

[7] Pan ZX, Zhang DJ, Pan YG, et al., 2018, Mediating Effect of Self-Esteem and Fear of Evaluation on Relationship between Psychological Suzhi and Social Anxiety in Middle School Students. Chinese Mental Health Journal, 32(8): 676-681.

[8] Zhu LJ, Ye BJ, Ni LY, 2020, Social Exclusion on College Students' Online Deviant Behavior: The Mediating Effect of Social Anxiety and Moderating Effect of Negative Online Emotion Experience. Chinese Journal of Special Education, 2020(1): 79-83+96.

[9] Zheng JH, 2022, Emotional Labor in College Teachers' Teaching: A Qualitative Study Based on Job Demands-resource Model. Heilongjiang Researches on Higher Education, 40(01): 77-86. http://doi.org/10.19903/j.cnki.cn23-1074/g.2022.01.003

[10] Liu HJ, Song XS, Deng H, 2022, On Psychological Education in Higher Vocational Colleges from the Perspective of Ecosystem Theory. Education and Vocation, 2022(06): 94-99. http://doi.org/10.13615/j.cnki.1004-3985.2022.06.002

[11] Ye BJ, Yang Q, Hu ZJ, 2013, Effect of Gratitude on Adolescents' Academic Achievement: Moderated Mediating Effect. Psychological Development and Education, 29(02): 192-199. http://doi.org/10.16187/j.cnki.issn1001-4918.2013.02.009

[12] Wang XD, Wang XL, Ma H, 1999, Handbook of Mental Health Assessment Scale, Beijing: Chinese Journal of mental health.

[13] Wang L, Shi ZB, Zhang YQ, 2010, Psychometric Properties of the 10-Item Connor-Davidson Resilience Scale in Chinese Earthquake Victims. Psychiat Clin Neuros, 64(5): 499-504.

https://doi.org/10.1111/j.1440-1819.2010.02130.x

[14] Eisenberger R, 1986, Huntington. Perceived Organizational Support. Journal of Applied Psychology, 71(3): 500-507. https://doi.org/10.1037/0021-9010.71.3.500

[15] Chen WH, 2016, The Influence and Intervention of Forgiveness and Communication Skill on Cooperation of Junior Middle School Students, Shanghai: Shanghai Normal University.

[16] Zhou H, Long LR, 2004, Statistical Remedies for Common Method Biases. Advances in Psychological Science, 2004(6): 942-950.

[17] Wen ZL, Ye BJ, 2014, Different Methods for Testing Moderated Mediation Models: Competitors or Backups? Acta Psychologica Sinica, 46(5): 714-726. https://doi.org/10.3724/SP.J.1041.2014.00714

[18] Zhang SS, Song L, 2016, Relationship between the Mental Resilience and Anxiety in Socializing of College Students. Journal of Anhui University of Science and Technology, 18(5): 70-74.

[19] Huang J, Zhang HY, Shang SJ, 2014, The Mediating Effect of Resilience between Mental Stress and Mental Health on College Students. Studies of Psychology and Behavior, 12(6): 813-818.

[20] Hou XL, Wang HZ, Hu TQ, et al., 2019, The Relationship between Perceived Stress and Problematic Social Networking Site Use among Chinese College Students. Journal of Behavioral Addictions, 8(2): 306-317. https://doi.org/10.1556/2006.8.2019.26