Empathy and Interpersonal Relationships of College Students: A Case Study Adopting Social Skills as a Moderating Factor

BY

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Abstract
The study aimed to examine the relationship between empathy, social skills, and interpersonal relationships among college students, considering the influence of gender, grade level, family background, and major. Surveying 389 college students, the findings revealed that empathy positively impacted interpersonal relationships, emphasizing its crucial role in college students' social interactions and relationship formation. Cultivating empathy can promote healthy relationships and contribute to psychological well-being. Social skills were found to moderate the relationship between empathy and interpersonal relationships, indicating that developing social skills enhances empathy's positive impact. Good social skills enable effective expression, conflict resolution, and problem-solving, thereby enhancing the quality and stability of relationships. Gender, grade level, family background, and major were found to influence empathy, social skills, and interpersonal relationships, suggesting the need for targeted training and support strategies. Further research can explore additional factors to provide comprehensive guidance and support in fostering positive interpersonal relationships among college students.

Keywords: Empathy; Interpersonal Relationships; Social Skills; College Students

1. Introduction

The psychological resilience level of college students has a direct impact on their overall comprehensive qualities (Chen et al., 2022). In recent years, the overall mental health condition of college students has been worrying. Not every student entering college is highly satisfied with their school. Some students even feel disgusted with their school, lose confidence in their future, and feel lost (Hu, 2022). Poor interpersonal relationships are widespread (Su, 2022). Many college students are dissatisfied with their current state. They feel that they have not become the person they wanted to be. Their current state does not fulfill their desired accomplishments or meet their psychological goals. Such a state is extremely detrimental to the mental health development of college students.

As social beings, humans inevitably have interpersonal relationships that become an important part of our lives. If an individual's interaction with others in a group is good, it can satisfy many of their own needs (Huang, 2015). The emotional state of a person is closely related to the quality of their interpersonal relationships. When a person has good interpersonal relationships,

they are more able to withstand stress and negative emotions (He, 2017). Studies have shown that individuals with better cognitive abilities, higher understanding of multiple emotions, and higher emotional intelligence (EQ) experience fewer negative emotions (Zhang, 2021).

Good interpersonal relationships are an important means to shape oneself and improve one's personality. They serve as a carrier for eliminating psychological barriers and maintaining physical and mental health (Li & Sun, 2021). The interpersonal relationship status of college students is closely related to the development of their physical and mental health (Lin et al., 2020). If college students maintain good interpersonal relationships with their collective, classmates, teachers, and friends, they will feel understood, accepted, safe, warm, and valued. Gradually, they will develop good personal qualities, which will have profound and positive effects on their learning, life, and physical and mental health (Ran, 2018). With the expansion of enrollment in universities, a series of contradictions and problems have arisen in the personality development of university students, and a

significant portion of these factors are caused by problems in college students' interpersonal relationships (Ren et al., 2020). Many scholars have conducted in-depth research from sociological, psychological, and educational perspectives to explore and focus on the harmony and status of interpersonal relationships among college students, and they have had certain influences in their respective fields.

However, currently, it seems that many people in society are unable to effectively manage and control their emotions and cannot think from the perspective of others or empathize with others. Therefore, interpersonal relationships cannot be harmonious, resulting in conflicts (Zhang, 2021). Emotional maturity is not just about controlling one's own emotions but also about understanding and adapting to the emotions of others, using empathy to understand the needs of others, and achieving good interpersonal relationships (Zhang, 2021).

The contribution of "emotional communication" from team members can significantly enhance interpersonal relationships, interpersonal trust, and reduce relationship conflicts, thereby affecting the satisfaction of both parties' cooperation (Zhang et al., 2020). Implicit in people's hearts, empathy is the first step in emotional communication. After deep empathy, the ability to receive personal emotional infection is strengthened, thus affecting the interaction between people. We can observe that in the campus, students with different personalities have different levels of interpersonal relationships. For example, students who are more empathetic and willing to help others seem to have better interpersonal relationships compared to those who lack empathy. Therefore, the first research motivation of this study is to explore the impact of empathy on interpersonal relationships.

Moeller and Seehuus (2019) found that individuals who are shy inhibited, and extremely socially withdrawn and are rejected by classmates, friends, and colleagues exhibit characteristics such as anxiety, lack of security, and withdrawal. These individuals face significant difficulties in establishing and maintaining interpersonal relationships, indicating a lack of social skills. Musitu-Ferrer et al. (2019) pointed out that students transitioning from withdrawal to rejection lack positive affirmation and positive social abilities, such as cooperation and empathy. Bessa et al. (2019) and Indriyani et al. (2021) indicated that students with poor interpersonal relationships may lack skills and strategies to cope with social situations, so their training goal is to acquire the necessary social skills. Therefore, enabling individuals with poor interpersonal relationships to acquire social skills through learning can help improve their interpersonal relationships. Hence, the second research motivation of this study is to explore the moderating effect of social skills on the relationship between empathy and interpersonal relationships.

Henan Province has a unique cultural background and social environment. Therefore, studying the interpersonal relationships of college students in a certain university in Henan Province can explore the influence of cultural factors on interpersonal relationships, further enriching the field of cross-cultural research (Zhang Bingliang et al., 2021). College students in a certain university in Henan Province, as a group with higher education, may be influenced by the learning environment, social activities, and school culture in their interpersonal relationships. Therefore, this research is of great significance for a deeper understanding of the characteristics and issues of college students' interpersonal relationships (Wang Lei et al., 2022). Although research on interpersonal relationships has covered a wide range of populations, studies on interpersonal relationships among college students in Henan Province are still relatively limited. Therefore, selecting college students from a certain university in Henan Province as the research subjects can fill this research gap and provide a more in-depth insight into the characteristics and issues of interpersonal relationships among college students in this region.

In summary, this study proposes the following two research questions:

Research Question 1: How does empathy among college students in Henan Province influence interpersonal relationships?

Research Question 2: Can social skills among college students in Henan Province moderate the relationship between empathy and interpersonal relationships?

2. Literature Review

Empathy is a unique ability in humans, and it plays a significant role in the quality of social interactions. Improving empathy not only enhances people's social interactions but also reduces their deviant behavior in interpersonal interactions (Hunt et al., 2019). Empathy plays an important role in forming good interpersonal relationships and moral qualities in individuals. Sha (2019) found through research that being understood by others is the most influential factor in interpersonal relationships. This indicates that understanding the emotions and feelings of others is of significant importance in maintaining good interpersonal relationships. Therefore, it can be said that empathy is an important socio-motivational factor for maintaining positive and healthy interpersonal relationships. From the literature, it can be inferred that emotional contagion is the initial emotional response that triggers empathy (Guo, 2019). The key difference between empathy and emotional contagion is that empathy not only receives the emotional response of others but also understands the underlying reasons behind their emotions. Empathy is our social radar (He, 2007), and the level of empathy can affect an individual's social skills and interpersonal relationships. Individuals with high levels of empathy can keenly perceive the needs and desires of others through subtle social signals. They can stand in the position of others to perceive, understand, and protect their personality, dignity, and interests (Israelashvili et al., 2020). Therefore, this study hypothesizes that the quality of interpersonal relationships is influenced by empathy, meaning that the higher the level of empathy, the better the interpersonal relationships. In summary, this study proposes the following research hypothesis:

H1: The empathy of college students has a positive impact on interpersonal relationships.

In interpersonal interactions, students transition from family life to school life, where they have fewer opportunities for peer

interaction in the family. As a result, peer relationships rapidly expand upon entering school, and in such a transition, college students engage in frequent interpersonal interactions with their peers. However, due to a lack of social skills, these interactions can easily lead to misunderstandings and conflicts (Lv, 2018). During interactions with others, having good social-emotional abilities can help students cope with challenging situations, but a lack of these skills may result in social-emotional and behavioral problems (Johns et al., 2019). Yi (2018) stated that about 56% of college students are vulnerable to bullying by their classmates due to a lack of social skills. Therefore, in various interpersonal situations, students' insufficient social skills hinder the establishment of good interpersonal relationships necessary for adapting to the group society. Students lacking social skills often feel lonely without close friends to confide in, leading to increased psychological stress and poor academic performance. Moeller and Seehuus (2019) and Han and Guo (2021) also suggested that students experiencing social interaction issues tend to struggle in interpersonal interactions, which in turn negatively impacts their overall performance. Therefore, having high social skills is a crucial factor in improving interpersonal relationships among college students. Based on the above, this study proposes the following research hypothesis:

H2: The social skills of college students have a positive moderating effect on the relationship between empathy and interpersonal relationships.

Social cognitive theory focuses on how individuals understand and process social information, including their own and others' psychological states, behavioral motivations, and interpersonal relationships. In the model presented in this paper, the independent variable is empathy, which refers to an individual's ability to understand and resonate with the emotions and experiences of others. The moderating variable is social skills, which are the skills and strategies individuals flexibly employ in social interactions. The dependent variable is interpersonal relationships, which involve the interaction and quality of relationships between individuals and others. According to social cognitive theory, an individual's social skills can moderate and mediate the relationship between the independent variable (empathy) and the dependent variable (interpersonal relationships). The level of social skills influences how individuals express and demonstrate their empathy, as well as how they handle and respond to the emotions and needs of others. Therefore, social skills play a moderating role in this model.
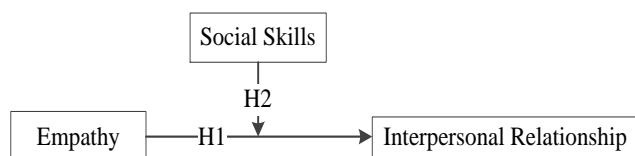

Figure 1: Research Framework

3. Research Methodology

3.1. Empathy of College Students

In this study, the Empathy Scale developed by Mehrabian and Epstein (1972) was used as a reference. The questionnaire primarily measures the level of empathy in participants and consists of four dimensions: emotional resonance, emotional disturbance, emotional coldness, and emotional involvement. In this study, the focus was on emotional involvement and emotional resonance as the main dimensions of empathy. Therefore, the original scale was modified, and only the items related to emotional involvement and emotional resonance were selected to assess the participants' level of empathy. The reliability of the scale, measured by Cronbach's α, was 0.884. The χ^2/df ratio was 2.499, CFI was 0.934, and GFI was 0.915, indicating good reliability and validity. The scale used a 5-point Likert scale, where higher scores indicate a higher level of empathy.

3.2. Interpersonal Relationships

In this study, the factors related to social relationships from the Self-Perception Profile for College Students, developed by Neemann and Harter (1986), were used to measure the extent of interpersonal relationships among college students. The scale includes three dimensions: social acceptance, intimate friendship, and peer relationships. The reliability of the scale, measured by Cronbach's α, was 0.911. The χ^2/df ratio was 2.284, CFI was 0.979, and GFI was 0.943, indicating good reliability and validity. The scale used a 5-point Likert scale, where higher scores indicate better interpersonal relationships.

3.3. Social Skills

The social skills scale used in this study was adapted from the work "Youth Development and Counseling" by Huang (2019), which focuses on the content and emphasis of social skills training. It includes four levels: social cognitive skills, communication and expression skills, problem-solving skills, and self-control skills. The scale consists of 16 measurement items, and the reliability measured by Cronbach's α was 0.752. The χ^2/df ratio was 2.272, CFI was 0.932, and GFI was 0.901, indicating good reliability and validity. The scale used a 5-point Likert scale, where higher scores indicate better social skills.

4. Results

4.1. Research Sample

This study focuses on college students from a university in Henan Province, China. Data for this study were collected from May 8th to May 13th, 2023, resulting in a total of 405 completed questionnaires. After excluding 16 invalid questionnaires, a total of 389 valid questionnaires were obtained, yielding a valid response rate of 96.05%. As shown in Table 4.1, female students accounted for the majority (55.53%), and the first-year students were the largest group (31.88%) in terms of grade level. Most participants came from dual-parent families (89.97%), and there was no significant difference in the distribution of undergraduate majors, with the highest percentage being in the science field (24.94%). In summary, the sample structure of this survey closely matches the demographic structure of the target population, indicating that the

389 questionnaires collected in this study are representative and can effectively represent the research subjects of this survey.

4.2. Discriminant Validity and Correlation Analysis

This study employed the Average Variance Extracted (AVE) method to test the discriminant validity. According to Fornell and Larcker (1981), the square root of the average variance extracted (AVE) for each variable should be greater than the correlation coefficients between that variable and other variables, indicating discriminant validity. In Table 1, the diagonal elements, indicated in bold, represent the square root of AVE values. The square root of AVE for each variable is larger than the correlation coefficients both horizontally and vertically, indicating that the variables used in this study have discriminant validity. Correlation analysis examines the linear relationship between variables. As shown in Table 1, all variables exhibit significant positive correlations, providing initial support for the hypotheses proposed in this study.

Table 1: Discriminant Validity and Correlation Analysis

Variables	M	SD	1	2	3
1 Empathy	3.667	1.047	**0.754**		
2 Social skills	3.400	0.941	0.413^{**}	**0.778**	
3 Interpersonal relationships	3.917	1.165	0.399^{**}	0.362^{**}	**0.794**

Note: $^{**}p < 0.01$

4.3. Hypothesis Testing

This section aims to examine the direct impact of empathy on interpersonal relationships and the moderating effect of social skills on the relationship between empathy and interpersonal relationships. Hierarchical regression analysis was conducted in this study.

The formula for the moderation effect is $Y=i+aX+bZ+cXZ+\varepsilon$, where the regression model includes standardized independent variables, standardized moderating variables, the interaction term of the independent variable and moderating variable, and tests the significance of the interaction term. If the interaction term is significant, it indicates a moderating effect between the variables.

As shown in Table 2, a three-level model was established with interpersonal relationships as the dependent variable. In Model 1, empathy was included as the independent variable. The model results showed an R^2 of 0.289 and an adjusted R^2 of 0.251, indicating that empathy accounts for 25.1% of the variance in interpersonal relationships. The F-value was 19.414, significant at a p-value < 0.001, indicating that Model 1 is statistically significant. In terms of the impact coefficients, empathy had a positive effect on interpersonal relationships (β=0.399, $p<0.001$), providing support for Hypothesis 1, which suggests that college students' empathy has a positive impact on interpersonal relationships.

Model 2 added the moderating variable, social skills, on top of Model 1. Model 3 further included the interaction term (empathy × social skills) in addition to Model 2. Model 3 showed an R^2 of 0.322 and an adjusted R^2 of 0.295, indicating that the explanatory variables account for 29.5% of the variance in interpersonal relationships. The F-value was 24.307, significant at a p-value < 0.001, indicating that Model 3 is statistically significant. In terms of the impact coefficients, the interaction term (empathy × social skills) had a positive effect on interpersonal relationships (β=0.241, $p<0.001$), providing support for Hypothesis 2, which suggests that college students' social skills have a positive moderating effect on the relationship between empathy and interpersonal relationships.

Table 2: Summary of Regression Analysis

	Model 1	Model 2	Model 3
Empathy	0.399***	0.285***	0.223***
Social skills		0.172**	0.135*
Empathy×Social skills			0.241***
R^2	0.289	0.309	0.322
Adj R^2	0.251	0.276	0.295
F	19.414***	21.625***	24.307***

Note: The dependent variable is Interpersonal Relationships; $** p < 0.01$, $*** p < 0.001$.

Based on the regression analysis coefficients presented in the regression analysis table, this study created a moderation interaction plot using EXCEL, as shown in Figure 2. The plot displays two lines: one represents the relationship between empathy and interpersonal relationships under high social skills, showing a positive relationship where interpersonal relationships increase with the growth of empathy. On the other hand, under low social skills, the relationship between empathy and interpersonal relationships appears to be relatively flat, indicating that low social skills do not facilitate the relationship between empathy and interpersonal relationships. Therefore, social skills have a positive moderating effect on the relationship between empathy and interpersonal relationships, where college students with high social skills exhibit a stronger positive relationship between empathy and interpersonal relationships.
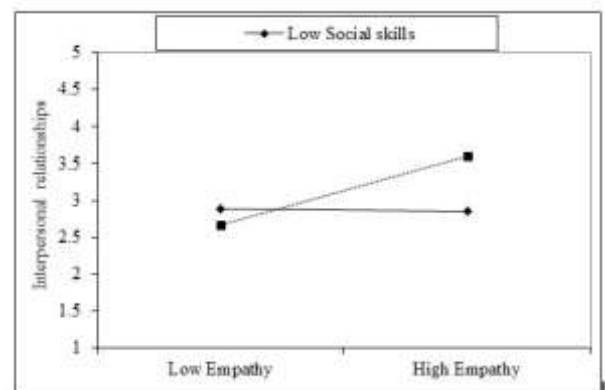
5. Conclusion

Addressing the research question proposed in this study, "How does empathy influence interpersonal relationships among college students in Henan province?" the empirical analysis revealed a positive influence of empathy on interpersonal relationships among college students in Henan province. Empathy enables college students to understand and respond to others' emotions, fostering deep connections and trust, facilitating positive relationships (Hunt et al., 2019). It promotes attentiveness to others' interests, cooperation, and conflict resolution, reducing conflicts and establishing harmonious relationships (Sha, 2019; Israelashvili et al., 2020). Empathy helps students manage emotions, providing support to others, and maintaining emotional stability (Guo, 2019). Proactively helping and meeting others' needs establishes reciprocal relationships, fostering friendliness and cooperation among individuals (He, 2007).

Addressing the research question proposed in this study, "Can the social skills of college students in Henan province moderate the relationship between empathy and interpersonal relationships?" the empirical analysis revealed a positive moderating effect of social skills on the relationship between empathy and interpersonal relationships among college students in Henan province. Social skills facilitate college students in effectively expressing their empathy through verbal and non-verbal communication (Lv, 2018). Their communication abilities enhance the perception and understanding of their empathy by others, contributing to the establishment and maintenance of interpersonal relationships (Han & Guo, 2021). Adaptable social skills enable students to adjust their communication styles based on others' needs, enhancing the effectiveness of empathy (Johns et al., 2019). These skills promote positive social interactions and deepen interpersonal relationships. Additionally, social skills empower students to resolve conflicts and handle problems (Yi, 2018). They utilize effective communication skills to manage interpersonal conflicts, maintaining relationship stability and harmony. Through positive influence, students can guide and influence others' behaviors and emotions, fostering positive and mutually beneficial interpersonal relationships (Moeller & Seehuus, 2019).

6. Significance of the Study

6.1. Theoretical Significance

Empathy and interpersonal relationships are hot topics in the field of social psychology, and they have significant impacts on individuals' health and well-being (Han & Guo, 2021). This study contributes to further exploring the causal relationship between these two concepts, providing a more detailed and comprehensive theoretical support for research in the field of social psychology.

As the moderating variable in this study, social skills pose an important question regarding their role in regulating interpersonal relationships (Lv, 2018). By investigating social skills, this study further explores the moderating relationship between the independent and dependent variables in interpersonal relationships, offering insightful implications for theories and practical applications related to moderating variables in social psychology research.

6.2. Practical Significance

The study of interpersonal relationships among Chinese college students is highly relevant and significant today. As college students undergo a transitional period, they face multiple challenges related to identity shifts and transformations in interpersonal relationships, making research on their interpersonal relationships crucial (Zhang et al., 2020). By investigating interpersonal relationships among Chinese college students and exploring the impact of empathy and social skills, this study holds practical significance for improving their interpersonal relationships and enhancing their social adaptation skills.

This study can provide valuable insights for relevant organizations and government departments. In contemporary society, interpersonal relationship skills have become essential requirements for employment and social participation. The findings of this study can serve as useful references for career planning and talent development programs for college students, offering guidance for cultivating college students with strong interpersonal relationships and social skills.

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