

The Influence of Self-Esteem on Sociocultural Adaptation of College Students of Hong Kong, Macao and Taiwan: The Chain Mediating Role of Social Support and School Belonging

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Purpose: Mainland universities have become one of the important choices for students from Hong Kong, Macao and Taiwan, but the maladaptation caused by environmental migration will have a negative impact on the mental health of them. Therefore, it is urgent to explore the psychological mechanism of sociocultural adaptation of Hong Kong, Macao and Taiwan students.

Methods: In order to explore the influence of self-esteem on the sociocultural adaptation of college students of Hong Kong, Macao and Taiwan studying in mainland universities, as well as the mechanism of social support and school belonging, a survey was conducted among 1108 college students from Hong Kong, Macao and Taiwan studying in mainland universities, with the help of Rosenberg Self-Esteem Scale, Sociocultural Adaptation Scale, Perceptive Social Support Scale and The Psychological Sense of School belonging Scale.

Results: The results show that (1) Different grades of college students of Hong Kong, Macao and Taiwan have differences in school belonging and sociocultural adaptation ($P < 0.05$); (2) Self-esteem, social support, school belonging and sociocultural adaptation were positively correlated ($P < 0.01$); (3) The mediation model test showed that self-esteem could directly and positively predict sociocultural adaptation with a direct effect size of 0.245; Social support and school belonging played a mediating role between self-esteem and sociocultural adaptation, and the mediating effect sizes were 0.094 and 0.085, respectively. The chain mediating effect of social support and school belonging was also significant, and the mediating effect size was 0.108.

Conclusion: Self-esteem can not only directly affect college students' sociocultural adaptation, but also indirectly affect college students' sociocultural adaptation through the chain mediating effect of social support and school belonging. This study further reveals the mechanism of self-esteem on sociocultural adaptation and provides psychological basis for universities to improve the sociocultural adaptation level of different groups of students.

Keywords: self-esteem, sociocultural adaptation, social support, school belonging, college students of Hong Kong, Macao and Taiwan

Introduction

According to the data of the Ministry of Education in 2021, there are 38,200 students from Hong Kong, Macao and Taiwan in Mainland universities, which has increased by 51% compared with 2012. Chinese mainland has become the first choice for Hong Kong and Macao students to pursue further studies outside.¹ The Regulations on Recruiting and Training Students from Hong Kong, Macao and Taiwan formulated by the Ministry of Education and other departments requires universities to help them adapt to the environment of Chinese mainland.² However, due to the differences in politics, economy and culture between Hong Kong, Macao, Taiwan and Chinese mainland, their troubles in studying and

living in mainland universities are more likely to lead to anxiety, loneliness, and other psychological problems, which render the difficult adaptation of these students.³

Sociocultural adaptation refers to the behavior changes made by individuals in order to adapt to the new environment in the dynamic process of rebuilding and maintaining a stable relationship with it after migrating to a strange environment.⁴ It is a kind of ability to adapt to the local society and culture and maintain an interactive relationship.⁵ Berry, a Canadian scholar, proposed an interactive theory of acculturation and psychological adaptation, ie, a two-tiered structure of sociocultural adaptation: the degree to which an individual is willing to maintain his or her original culture and identity, and the degree to which the individual is willing to engage and participate in the new society.⁶ Studies have pointed out that individuals with higher cultural adaptation have better mental health and are more willing to participate in social activities or organizations.⁷ The degree of sociocultural adaptation may vary by gender, with women being more willing to accept and integrate into a new environment, while men are the opposite.^{8,9} In addition, the level of acculturation stress may also change with the increase of grade, and high levels of acculturation stress are often accompanied by anxiety, depression and other problems.¹⁰ Therefore, exploring the psychological mechanisms of cultural adaptation of such students is an extremely important part of cultivating Hong Kong, Macao and Taiwan college students.

There are many influences on cultural adaptation, including external factors such as social support and life changes, and internal factors such as personality and gender.^{11,12} Among them, personality, as an endogenous trait, is related to and one of the key influencing factors of sociocultural adaptation.¹³ Self-esteem refers to the positive or negative evaluation and experience of individuals in the process of social comparison which is one of the stable personality traits.¹⁴ The level of self-esteem of individuals decreases during the first year of college and then levels off.¹⁵ However, women are more likely to have low self-esteem and need more support and counseling to enhance self-esteem.¹⁶ The affective model of self-esteem suggests that self-esteem helps individuals to buffer stress and reduce anxiety when facing external pressures.¹⁷ Individuals may deal with maladaptation by dropping out of school.¹⁸ Self-esteem, as an important psychological resource, can cultivate positive self-attitudes (such as self-compassion, etc.),¹⁹ help individuals use adaptive strategies to cope with pressure and adapt to changes, and thus promote the formation of good social adaptability.²⁰ Based on this, we hypothesize that self-esteem can positively predict sociocultural adaptation. Looking through the existing domestic and international studies, it can be found that current researches on the impact mechanism of self-esteem on sociocultural adaptation are limited, and there is a lack of literature on the process factors that exist between the two as mediating variables. Based on Searle and Ward's view that adaptation can be divided into internal psychological domain and external sociocultural domain,⁴ this paper combines the concepts of social support (external environmental factors) and school belonging (internal personal factors), which are closely related to self-esteem and sociocultural adaptation, to explore in depth the rationality of indirect paths under the interplay of the environmental and personal factors.

Social support refers to the spiritual and material support that an individual receives from social relationships, which includes emotional, cognitive, and other important support provided by his or her family members, friends, and other social members.²¹ Current research show that due to different needs, men and women perceive different sources of social support.²² For example, women feel more support from friends and others (such as leaders and colleagues), while men feel more support from family.²³ According to self-verification theory, an individual's level of self-esteem influences the effectiveness of social support, ie, individuals with low self-esteem perceive less acceptance than those with high self-esteem at the same level of social support, which affects their social efficacy.^{24–26} As adolescents grow, their perceived social support enhances their ability to eliminate negative emotional stress in time.²⁷ Norris et al²⁸ proposed the social support deterioration deterrence model arguing that adequate social support will greatly diminish an individual's negative emotions in face of unfamiliar environments, thus helping him or her to successfully complete sociocultural adaptation.²⁹ Therefore, this study speculates that social support plays a mediating role in self-esteem and sociocultural adaptation.

School belonging is the subjective feeling where students receive positive feedback from their teachers and peers in school, and students with a high school belonging will identify with and be committed to their school in terms of ideological and psychological aspects.^{30,31} With the increase of school enrollment time, individuals' sense of belonging to school may change, which is mainly caused by learning pressure, interpersonal relationship, social identity, etc.³² At the same time, there are obvious gender differences, that is, men's sense of belonging to school is significantly lower than that of women.³³ Studies have shown that self-esteem is significantly and positively correlated with school belonging,

and people with high levels of self-esteem will perceive the importance and sense of value of the group to which they belong, have more positive evaluations of other members, and subsequently engage in close relationships, and the exchange of ideas and emotions.³⁴ Social control theory proposes that the main reason for students' delinquent behaviors is the lack of connection with school, and school belonging is a specific indicator of psychological connection degree between him or her and the school, which is his or her positive emotional experience of school.^{35,36} School belonging can positively affect various adaptive activities in college, both academically and interpersonally, and it has been found that the implementation of interventions that promote an individual's school belonging can help him or her to establish positive relationships with others and enhance the individual's adaptation.³⁷ To sum up, it can be inferred that school belonging plays a mediating role in self-esteem and sociocultural adaptation.

Combined with the above analysis, the study hypothesizes that there are two mediating variables of social support and school belonging in self-esteem and sociocultural adaptation, but what is the connection between them? According to the ecological systems theory, the innermost layer of the environmental hierarchy is the micro system, which is the direct environment for individual activities and interactions, and school is the most important environmental place for individuals to learn and live, while the positive feelings that individuals get from interacting with their teachers and classmates at school are the school belonging.^{38,39} Some studies have shown that social support positively predicts school belonging.⁴⁰ Individuals with higher levels of social support feel more support from teachers and peers, which helps them to quickly integrate into school.⁴¹ Based on this, this study speculated that social support and school belonging play a role of chain mediation between self-esteem and sociocultural adaptation.

Therefore, this study is based on external and internal perspectives, including environmental factors (social support) and personal factors (school belonging) into the mechanism of self-esteem's influence on sociocultural adaptation, hoping to reveal the promotion mechanism of social cultural adaptation and provide evidence for improving the mental health and sociocultural adaptation of college students in different groups.

Hypothesis 1: There are gender differences exist in self-esteem, social support, school belonging, and sociocultural adaptation.

Hypothesis 2: There are grade differences in self-esteem, social support, school belonging, and sociocultural adaptation.

Hypothesis 3: Self-esteem can positively predict sociocultural adaptation.

Hypothesis 4: Social support plays a mediating role in self-esteem and sociocultural adaptation.

Hypothesis 5: School belonging plays a mediating role in self-esteem and sociocultural adaptation.

Hypothesis 6: Social support and school belonging play a chain-mediated role between self-esteem and sociocultural adaptation.

Methods

Participants

Stratified sampling method was used to collect data from a questionnaire survey of three universities in Guangdong Province, a total of 1200 people from freshmen to seniors were sampled for the questionnaire survey, and finally 1,108 valid questionnaires were retrieved, with a valid response rate of 96.35%. Among the participants of the survey, 610 were female students, accounting for 55.1%, and 498 were male students, accounting for 44.9%; the grade distribution was 261 freshmen, accounting for 23.6%, 302 sophomores, accounting for 27.3%, 286 juniors, accounting for 25.8%, and 256 seniors, accounting for 23.1%. The average age of the college students participating in this survey was 20.37 years old (SD=1.61), and more than 60% of them originated from Hong Kong. There were 908, or 81.9%, who had studied in the mainland for more than one year before university. There were 866, or 78.2%, who had ever studied in the birthplace for more than 1 year.

Study Measures

Sociocultural Adaptation Scale

The sociocultural adaptation scale developed Sociocultural Adaptation Scale developed by Ward and Kennedy and revised by Yuan et al⁴² was used, with 28 items (such as “getting used to the current pace of life”) rated on a scale of 1 to 5, with 1 being “very easy” and 5 being “very difficult”. The score of the scale was to accumulate 28 scores, and then divide by 28. The higher the score, the better the sociocultural adaptation. The questionnaire included three dimensions: material life, interpersonal behavior and cognitive value. The α coefficient of the scale in this measurement was 0.929.

Self-Esteem Scale

The Self-Esteem Scale developed by Rosenberg and revised by Wang Xiangdong et al was used,^{43,44} which is the most widely used unidimensional scale for measuring self-esteem. There were a total of 10 items (for example, “I feel that I am a valuable person, at least on the same level as other people”) on a 4-point scale, with 1 indicating a very high level of conformity, 2 indicating conformity, 3 indicating non-conformity, and 4 indicating a high level of non-conformity. In this study, the α coefficient of the scale was 0.929.

Perceived Social Support Scale

The perceived social support scale developed by Zimet et al and revised by Jiang Qianjin was selected,^{45,46} with a total of 12 items (for example, “I can get emotional help and support from my family when I need it”), including 3 dimensions of family support, friend support, and other support. A 7-point scale was used, with higher scores indicating a higher level of social support felt by the individual. The α coefficient of this scale in this study was 0.938.

Psychological Sense of School Belonging Scale

The study used the psychological sense of school belonging scale developed by Goodenow and revised by Cheung and Hui,⁴⁷ which consisted of 18 items (such as “students get along well”) and was scored on a 6-point scale, with 1 being “completely disagree” and 6 being “completely agree”. Higher scores indicate a stronger school belonging. The α coefficient of this scale in this study was 0.995.

Measurement Process and Data Processing

The survey materials and study procedures were approved by the Ethics in Human Research Committee of the School of Education, South China Normal University. The informed consent of the undergraduate participants was obtained and the study was conducted in strict compliance with the guidelines outlined in the Declaration of Helsinki. The online questionnaire platform was used to investigate and collect data, and the questionnaire test process took about 15 minutes. It was anonymized, and the entire data collection and analysis process adhered to the principle of confidentiality. SPSS 24.0 was used for difference analysis, descriptive statistics and correlation analysis, and Mplus7.4 was used for structural equation model construction and mediation effect test.

Results

Common Method Bias

Harman’s single factor test was used to test for common method bias, and it was found that the variance explained by the first factor of self-esteem, school belonging, social support, and sociocultural adaptation was 28.45%, which was less than the critical criterion of 40%, suggesting that there was no serious common method bias in this study.

Analysis of the Differences of Each Variable Under Demographic Variables

In order to investigate whether there are differences in self-esteem, social support, school belonging and sociocultural adaptation among Hong Kong, Macao and Taiwan college students of different genders and grades, this study treated gender and grade as independent variables, self-esteem, social support, school belonging and sociocultural adaptation as dependent variables, and conducted a multivariate analysis of variance. As shown in Tables 1 and 2, different genders of college students of Hong Kong, Macao and Taiwan have no differences in school belonging and sociocultural adaptation

Table 1 Analysis of the Differences of Each Variable in Different Genders

Variables	Male (n=498)	Female (n=610)	t	P
Self-esteem	2.40±0.65	2.45±0.71	1.212	0.226
Social support	2.05±4.32	2.07±4.76	0.543	0.587
School belonging	3.65±0.67	3.60±0.60	1.310	0.191
Sociocultural adaptation	3.92±0.80	3.85±0.73	1.524	0.129

Table 2 Analysis of the Differences of Each Variable in Different Grades

Variables	Senior (n=256)	Junior (n=286)	Sophomore (n=302)	Freshman (n=261)	F	P
Self-esteem	2.52±0.74	2.50±0.70	2.49±0.68	2.41±0.65	1.476	0.207
Social support	2.07±4.38	2.07±4.53	2.03±4.14	2.00±4.03	1.663	0.156
School belonging	3.88±0.69	3.74±0.64	3.64±0.63	3.52±0.59	16.075	0.000
Sociocultural adaptation	4.12±0.93	3.92±0.87	3.78±0.79	3.63±0.65	17.142	0.000

($P > 0.05$), and there are differences in the sense of school belonging and sociocultural adaptation among the students from Hong Kong, Macao and Taiwan in different grades ($P < 0.05$), which is manifested in the gradual increase of school belonging and sociocultural adaptation as the grades increase.

Descriptive Statistics and Correlation Analysis of the Variables

The results of descriptive statistics and correlation analysis of each variable are shown in detail in Table 3. As shown in Table 3, self-esteem was positively correlated with social support, school belonging, and sociocultural adaptation ($r = 0.260, 0.306, 0.315$; $P < 0.01$), ie, it was manifested that the higher the score of self-esteem, the stronger the self-esteem was related to social support, school belonging, and sociocultural adaptation; social support was positively correlated with sense of school belonging and sociocultural adaptation ($r = 0.568, 0.468$; $P < 0.01$), showing that the stronger the social support is, the stronger the school belonging and sociocultural adaptation will be; and the positive correlation between the school belonging and sociocultural adaptation ($r=0.425$; $P<0.01$), showing that the stronger the sense of school belonging, the stronger the sociocultural adaptation.

Mediation Model Testing

As shown in Table 4, mediation effects were analyzed by Model 6 of the SPSS macro program Process prepared by Hayes to analyze the chain mediation of social support and school belonging between the relationship of self-esteem and sociocultural adaptation, while controlling for gender and grade, regression analyses showed that self-esteem was a direct positive predictor of social support ($\beta = 0.234$, $P < 0.001$) and sense of school belonging ($\beta = 0.258$, $P < 0.001$), and that self-esteem was a significant positive predictor of sociocultural adaptation when self-esteem, social support, and school belonging were

Table 3 Descriptive Statistics and Correlation Analysis of Variables

Variables	M±SD	Self-Esteem	Social Support	School Belonging	Sociocultural Adaptation
1 Self-esteem	2.43±0.69	I			
2 Social support	2.06±4.46	0.260**	I		
3 School belonging	3.61±0.63	0.306**	0.568**	I	
4 Sociocultural adaptation	3.89±0.77	0.315**	0.468**	0.425**	I

Note: ** $P < 0.01$ same below.

Table 4 Regression Analysis of Variables in the Model

Regression Equation		Overall Fit Index			Significance of Regression Coefficients	
Result Variable	Predictive Variable	R	R ²	F	β	t
Social support	Self-esteem	0.234	0.452	6.128***	0.234	7.981***
	School belonging	0.783	0.654	157.615***	0.258	8.217***
Sociocultural adaptation	Social support				0.361	9.934***
	Self-esteem	0.809	0.668	171.154***	0.239	7.864***
	School belonging				0.405	12.147***
					0.397	10.434***

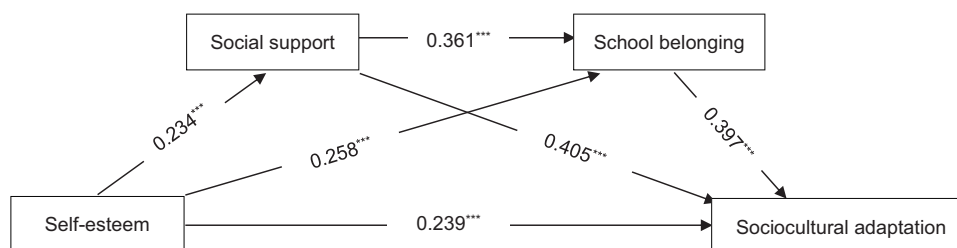
Note: ***P<0.001.

Table 5 Mediation Effect Analysis

Path	Effect Value	Standard Error	95% Confidence Interval	
			Lower Limit	Upper Limit
Total indirect effect	0.287	0.037	0.084	0.322
Indirect effect 1	0.094	0.021	0.027	0.185
Indirect effect 2	0.085	0.016	0.037	0.123
Indirect effect 3	0.108	0.025	0.049	0.208
Total effect	0.532	0.044	0.401	0.699
Direct effect	0.245	0.032	0.184	0.307

included in the regression model simultaneously ($\beta = 0.239$, $P < 0.001$). Social support ($\beta = 0.405$, $P < 0.001$) and school belonging ($\beta = 0.397$, $P < 0.001$) were significant positive predictors of sociocultural adaptation.

The mediation effect was further tested using the bias-calibrated nonparametric percentile Bootstrap method (5000 times).⁴⁸ As shown in Table 5, the mediation between social support and school belonging was significant, with a mediation effect value of 0.287. Specifically, the mediation effect arose through three intermediate chains: first, “self-esteem → social support → sociocultural adaptation” formed indirect effect 1, Bootstrap 95% confidence interval [0.027, 0.185] did not contain 0, which indicated that the mediation effect of social support is significant; Second, “self-esteem → sense of school belonging → sociocultural adaptation” comprised indirect effect 2, and the Bootstrap 95% confidence interval [0.037, 0.123] did not contain 0, indicating that the mediating role of the school belonging was significant; Third, self-esteem → social support → school belonging → sociocultural adaptation comprised the indirect effect.3 The Bootstrap 95% confidence interval [0.049, 0.208] did not contain 0, indicating that social support and school belonging had a significant role as chain mediators of self-esteem and sociocultural adaptation. The direct effect accounted for 46.05% of the total effect, and the total indirect effect accounted for 53.95% of the total effect. The results of the specific path coefficients of self-esteem on sociocultural adaptation were shown in Figure 1.

**Figure 1** Chain mediation model diagram of social support and school belonging.

Note: ***P<0.001.

Discussion

This study constructs a chain mediation model to explore the influence of personality factors (self-esteem), environmental factors (social support) and personal factors (school belonging) on sociocultural adaptation process of mainland students from Hong Kong, Macao and Taiwan. Adopting the chain mediation model, this study reveals the social cultural adaptation process of students from Hong Kong, Macao and Taiwan more comprehensively, and the results are of great theoretical and practical significance on promoting the cultural adaptation as well as improving mental health state of such students.

Gender and Grade Differences in Self-Esteem, Social Support, School Belonging, and Sociocultural Adaptation

This study found that self-esteem, social support, school belonging and sociocultural adaptation were not significant in gender differences ($P > 0.05$), rejecting Hypothesis H1, which was consistent with previous studies.^{49–52} In addition, the data showed that school belonging and sociocultural adaptation were different at grade level ($P < 0.05$), partially consistent with Hypothesis 2. First of all, there are significant grade differences in school belonging, mainly as the grade increases, so does the school belonging. The sense of belonging to school is generally low among freshmen mainly because they are in the transition period from high school to university, and it is difficult for them to change their identity.⁵³ However, with the gradual deepening of their understanding of school, the progress of academic performance and the establishment of positive interpersonal relationships, their sense of belonging to school is gradually increased.^{54,55} Secondly, there are significant grade differences in sociocultural adaptation, which mainly shows that with the improvement of grade, sociocultural adaptation also increases. Language, religious belief and cultural differences will bring many inconveniences in interpersonal communication, thus affecting the acculturation process of college students of different groups.⁵⁶ Positive support strategies (such as the support of teachers, parents and peers, active social and extracurricular activities, etc.) can help them gradually adapt and integrate into the culture.⁵⁷

The Relationship Between Self-Esteem and Sociocultural Adaptation

The research data showed that there was a significant positive correlation between self-esteem and sociocultural adaptation of college students in Hong Kong, Macao and Taiwan ($\beta = 0.239$, $P < 0.001$), and the direct effect value was 0.245, which verified Hypothesis 3, which was consistent with previous research, that is, the higher the level of self-esteem, the higher the level of sociocultural adaptation.⁵⁸ The affective model of self-esteem points out that self-esteem can help individuals buffer external pressure and reduce anxiety to a certain extent.¹⁷ Individuals with high self-esteem have a good sense of self-worth and social status, can better tolerate and accept themselves in the face of failure,¹⁹ and will be more proactive in the face of pressure and difficulties, and will work harder to adapt to school life.⁵⁹ It is worth noting that although introducing the two mediating variables of social support and school belonging, self-esteem level still has a positive predictive effect on the sociocultural adaptation of the students. This result indicates that self-esteem level will affect sociocultural adaptation of college students from Hong Kong, Macao and Taiwan.

The Mediating Role of Social Support

The data of this study show that social support plays a mediating role in the influence of self-esteem on social cultural adaptation of Hong Kong, Macao and Taiwan college students, and the mediating effect value is 0.094, which verifies Hypothesis 4. Firstly, the research shows that the level of self-esteem positively predicts social support, which is consistent with the results of previous studies.⁶⁰ The deterioration barrier model of social support holds that sufficient social support will greatly weaken the negative emotions of individuals in the face of unfamiliar environments, thus helping individuals to successfully complete social and cultural adaptation.^{28,29} Self-esteem is an important factor for individuals to perceive social support. Individuals with high self-esteem are inclined to view and accept the support of others optimistically in relationships, and they will have more positive social behaviors in social situations. Therefore, such individuals will perceive more social support.⁶¹ Meanwhile, social support can positively predict sociocultural adaptation, that is to say, sufficient social support, as a protective factor, can facilitate the formation of positive emotional experience, enable them to face difficulties in life and academic with an optimistic attitude, communicate more deeply with others in the school environment, and thus develop better adaptation ability.^{62,63}

The Mediating Role of School Belonging

The research data show that self-esteem can indirectly affect the sociocultural adaptation level of Hong Kong, Macao and Taiwan college students through school belonging, and the intermediary effect value is 0.085, which verifies the Hypothesis 5, which is consistent with the results of previous studies.³⁴ Individuals with low self-esteem tend to be more prone to burnout during the schooling process; conversely, those with high self-esteem perceive themselves as valuable and are satisfied with themselves and their environment as a whole, and such individuals often have higher evaluations of their school and a greater sense of belonging.⁶⁴ Research supports Hirschi's theory of social control, which states that when individuals feel a sense of belonging to friends or social public institutions (such as school), they reduce behaviors that harm or destroy that attachment.³⁵ Thus, an individual's perceived sense of belonging affects his or her perceptions of the school in the new environment and motivation to participate in school activities, as well as the individual's ability to establish stable, close relationships with others (peers, teachers).⁶⁵ When college students experience a sense of belonging to the school, they will participate more actively in learning and activities, take the initiative to establish good relationships with teachers and peers, and gradually develop a sense of identification with the school and the culture in the process, which will better promote their acculturation.⁶⁶

Chain Mediation of Social Support and School Belonging

Finally, this study also found an important pathway of chain mediation composed of social support and school belonging, with an effect value of 0.108, and Hypothesis 6 was verified. This also provides a possible explanation for how self-esteem affects the social and cultural adaptation of college students from Hong Kong, Macao, and Taiwan. Social support affects students' sense of school belonging, and individuals with a strong social support system have a better sense of school belonging, ie, the more sources of social support (parents, peers, and teachers), the higher the individual's sense of school belonging, which also strengthens the individual's connection with the school as well as the degree of the individual's commitment to academics.^{40,67} Overall, the chain mediating effect of social support and school belonging links self-esteem with college students' socio-cultural adaptation, indicating that students with high self-esteem levels have stronger socio-cultural adaptation abilities. A high level of self-esteem can allow them to feel more positive social support and form a better sense of belonging to the school, thereby better eliminating the pressure during the adaptation process and establishing better social and cultural adaptability. The chain mediating effect emphasizes the impact of social support and school belonging on the social and cultural adaptation of Hong Kong, Macao, and Taiwan university students, that is, sufficient social support and high school belonging can effectively promote better social and cultural adaptation of them.

Conclusion

This study found that there are grade differences in school belonging and sociocultural adaptation, which are specifically reflected in the increase of school belonging and sociocultural adaptation with the increase of grade level. In addition, the study found that self-esteem has a significant positive predictive effect on sociocultural adaptation; Social support and school belonging play a chain mediating role between self-esteem and sociocultural adaptation. This study confirmed the positive influence of self-esteem on social cultural adaptation, revealed the mechanism of self-esteem on social cultural adaptation, and provided a theoretical basis for promoting sociocultural adaptation of college students in different groups.

Research Significance and Limitation

This study reveals the relationship between self-esteem and sociocultural adaptation of college students of Hong Kong, Macao and Taiwan, and constructs a chain mediation model. The study of the chain model is helpful to more comprehensively reveal the formation of social cultural adaptation of mainland students from Hong Kong, Macao and Taiwan, and the research results have certain theoretical and practical significance on how to improve the cultural adaptation and mental health of such students. First of all, this study explores the influence of personality factors (self-esteem) on sociocultural adaptation, and incorporates environmental factors (social support) and personal factors (school belonging) into the mechanism of the influence of self-esteem on sociocultural adaptation from both external and internal perspectives, providing an example of psychological research on the promotion of sociocultural adaptation. Secondly, the

study will help raise the attention of universities to the acculturation of Hong Kong, Macao and Taiwan college students, promote their adaptation to campus life and study, and provide certain guidance for universities to improve the mental health of these college students.

There are some shortcomings in this study, which need to be improved in future research. First, this study mainly adopts cross-sectional research, which has certain limitations on the causal relationship between inferential variables. In the future, longitudinal or experimental studies can be conducted to further explore the influence mechanism of self-esteem on sociocultural adaptation. Second, this study mainly adopts self-reported questionnaire survey, and the research results may be affected by subjects' subjectivity. Future research should adopt multiple methods as far as possible to collect data (such as teacher reports, peer reports, etc.). Third, the research participants of this study are university students of Hong Kong, Macao and Taiwan in Guangdong Province. The sample sources are limited, and the sampling scope should be expanded as far as possible in the future to enhance the representativeness of the samples.

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Disclosure

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References

1. Xinhua [homepage on the Internet]. The number of Hong Kong, Macao and Taiwan students enrolled in Mainland (China) universities has increased by 51% in 10 years; 2022. Available from: https://www.gov.cn/xinwen/2022-09/20/content_5710810.htm. Accessed October 25, 2022.
2. Ministry of Education of the People's Republic of China [homepage on the Internet]. The ministry of education and other six departments on the issuance of the regulations on recruiting and training students from Hong Kong, Macao and Taiwan formulated; 2016 Available from: http://www.moe.gov.cn/srcsite/A20/s3117/s6583/201701/t20170109_294338.html. Accessed October 25, 2022.
3. Zhang YM, Zheng L. The cognition of appreciative moral education environment of college students from Hong Kong, Macao, Taiwan, and Overseas Chinese and Its Influencing Factors. *Educ Res Month*. 2023;40(01):28–35. doi:10.16477/j.cnki.issn1674-2311.2023.01.008
4. Searle W, Ward C. The prediction of psychological and sociocultural adaptation during cross-cultural transitions. *Int J Intercultural Relations*. 1990;14(4):449–464. doi:10.1016/0147-1767(90)90030-Z
5. Kim YY. *Becoming Intercultural: An Integrative Theory of Communication and Cross-Cultural Adaptation*. Sage; 2001.
6. Berry JW. Mutual attitudes among immigrants and ethnocultural groups in Canada. *Int J Intercultural Relations*. 2006;30(6):719–734. doi:10.1016/j.ijintrel.2006.06.004
7. Ren Q, Jiang S. Acculturation stress, satisfaction, and frustration of basic psychological needs and mental health of Chinese migrant children: perspective from basic psychological needs theory. *Int J Environ Res Public Health*. 2021;18(9):4751. doi:10.3390/ijerph18094751
8. Klein EM, Müller KW, Wölfling K, Dreier M, Ernst M, Beutel ME. The relationship between acculturation and mental health of 1st generation immigrant youth in a representative school survey: does gender matter? *Child and Adolescent Psychiatry and Mental Health*. 2020;14(1):1–10. doi:10.1186/s13034-020-00334-6
9. Luo M, Zhang XF, Peng F, Zhao J, Deng HJ. Predictors of acculturation attitude of international students in China. *PLoS One*. 2021;16(11):e0260616. doi:10.1371/journal.pone.0260616
10. Caqueo-Urizar A, Urzúa A, Escobar-Soler C, Flores J, Mena-Chamorro P, Villalonga-Olives E. Effects of resilience and acculturation stress on integration and social competence of migrant children and adolescents in Northern Chile. *Int J Environ Res Public Health*. 2021;18(4):2156. doi:10.3390/ijerph18042156
11. Wang Q, Hannes K. Academic and socio-cultural adjustment among Asian international students in the Flemish community of Belgium: a photovoice project. *Int J Intercultural Relations*. 2014;39(1):66–81. doi:10.1016/j.ijintrel.2013.09.013
12. Mischel W, Shoda Y. A cognitive-affective system theory of personality: reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychol Rev*. 1995;102(2):246–268. doi:10.1037/0033-295X.102.2.246
13. Wilson J, Ward C, Fischer R. Beyond culture learning theory: what can personality tell us about cultural competence? *J Cross-Cult Psychol*. 2013;44(6):900–927. doi:10.1177/0022022113492889
14. Dolczewski M. Semi-structured interview for self-esteem regulation research. *Acta psychol*. 2022;228:103642. doi:10.1016/j.actpsy.2022.103642
15. Reitz AK. Self-esteem development and life events: a review and integrative process framework. *Soc Personal Psychol Compass*. 2022;16(11):e12709. doi:10.1111/spc3.12709
16. Holopainen L, Waltzer K, Hoang N, Lappalainen K. The relationship between students' self-esteem, schoolwork difficulties and subjective school well-being in Finnish upper-secondary education. *Int J Educ Res*. 2020;104:101688. doi:10.1016/j.ijer.2020.101688
17. Brown J. *The Self*. New York: Psychology Press; 2007.
18. Wong CA, Eccles JS, Sameroff A. The influence of ethnic discrimination and ethnic identification on African American adolescents' school and socioemotional adjustment. *J Person*. 2003;71(6):1197–1232. doi:10.1111/1467-6494.7106012

19. Pandey R, Tiwari GK, Parihar P, Rai PK. Positive, not negative, self-compassion mediates the relationship between self-esteem and well-being. *Psychol Psychother.* 2021;94(1):1–15. doi:10.1111/papt.12259
20. Orth U, Robins RW. Is high self-esteem beneficial? Revisiting a classic question. *Am Psychologist.* 2022;77(1):5–17. doi:10.1037/amp0000922
21. Liu X, Huang XT. Social support and its mechanism for mental health. *Psychol Res.* 2010;3(1):3–8+15.
22. McLean L, Gaul D, Penco R. Perceived social support and stress: a study of 1st year students in Ireland. *Int J Ment Health Addict.* 2023;21(4):2101–2121. doi:10.1007/s11469-021-00710-z
23. Casapulla S, Rodriguez J, Nandyal S, Chavan B. Toward resilience: medical students' perception of social support. *J Am Osteopa Assoc.* 2020;120(12):844–854. doi:10.7556/jaoa.2020.158
24. Swann WB, Pelham B. Who wants out when the going gets good? Psychological investment and preference for self-verifying college roommates. *Self Identity.* 2002;1(3):219–233. doi:10.1080/152988602760124856
25. Zhang F, Shen MW, He YY. The effects of self-esteem on the tendency towards self-verification: evidences from choosing interaction partners. *J Psychol Sci.* 2006;43(6):1376–1381+1339. doi:10.16719/j.cnki.1671-6981.2006.06.021
26. Sun XJ, Zhao J, Zhou ZK, Xie XC, Tong YT. The relationship between online social support and online interpersonal trust of college students': a moderated mediation model. *Psychol Develop Educ.* 2015;31(02):129–136. doi:10.16187/j.cnki.issn1001-4918.2015.02.01
27. Xu SQ, Zhang BL, Ni SG. The effect of justice perception of City and social support on life stress and depression of floating population in Shenzhen. *Med Soc.* 2021;34(06):74–78. doi:10.13723/j.xysh.2021.06.015
28. Norris FH, Kaniasty K. Received and perceived social support in times of stress: a test of the social support deterioration deterrence model. *Journal of Personality and Social Psychology.* 1996;71(3):498–511. doi:10.1037/0022-3514.71.3.498
29. Yang L, Fu N, Wang MN. Influencing factors of Chinese overseas students' socio-cultural adaptation. *J Educ Stud.* 2019;15(06):93–101. doi:10.14082/j.cnki.1673-1298.2019.06.011
30. Goodenow C, Grady KE. The relationship of school belonging and friends' values to academic motivation among urban adolescent students. *J Exp Educ.* 1993;62(1):60–71. doi:10.1080/00220973.1993.9943831
31. Bao KB, Xu QM. Preliminary study on school belonging of school students. *Psychol Expl.* 2006;26(02):51–54.
32. Ruedas-Gracia N, Jiang G, Maghsoodi AH. Is belonging stable over time?: A four-year longitudinal examination of university belonging differences among students. *Emerging Adulthood.* 2023;11(4):1022–1038. doi:10.1177/21676968231181720
33. Watson PWSJ, Alansari M, Worrell FC, Rubie-Davies CM. Ethnic-racial identity, relatedness, and school belonging for adolescent New Zealanders: does student gender make a difference? *Soc Psychol Educ.* 2020;23(4):979–1002. doi:10.1007/s11218-020-09563-1
34. Chen W, Lin Y, Yu X, et al. The relationship between bicultural identity integration, self-esteem, academic resilience, interaction anxiousness, and school belonging among university students with vocational qualifications. *Int J Environ Res Public Health.* 2022;19(6):3632. doi:10.3390/ijerph19063632
35. Hirschi T. *Causes of Delinquency.* New York: Routledge; 2017.
36. Li W, Zhang CK, Jiang XD, Bikorimana E. The impact of academic adaptation to learning engagement among international postgraduates in China. *Jiangsu Higher Educ.* 2022;38(04):67–74. doi:10.13236/j.cnki.jshe.2022.04.010
37. Yildirim HH, Zimmermann J, Jonkmann K. The importance of a sense of university belonging for the psychological and academic adaptation of international students in Germany. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie.* 2021;53(1–2):15–26. doi:10.1026/0049-8637/a000234
38. Liu J, Meng HM. Understanding on the ecological system theory of bronfenbrenner developmental psychology. *China J Health Psychol.* 2009;17(02):250–252. doi:10.13342/j.cnki.cjhp.2009.02.045
39. Zhang HJ, Zhang J. The present situation, causes and countermeasures of the lack of school belonging for college students in china from the perspective of Chinese and foreign contrast. *Mod Educ Sci.* 2019;5:40–45. doi:10.13980/j.cnki.xdjyxx.2019.05.008
40. Vargas-Madriz LF, Konishi C. The relationship between social support and student academic involvement: the mediating role of school belonging. *Can J School Psychol.* 2021;36(4):290–303. doi:10.1177/08295735211034713
41. Yuan WP, Li XQ, Ma L. Influence of positive mental characters on higher vocational students' subjective well-being: the chain mediating role of perceived social support and school belonging. *China J Health Psychol.* 2021;29(4):615–619. doi:10.13342/j.cnki.cjhp.2021.04.029
42. Yuan XJ, Fang XY, Liu Y, Li ZR. Educational settings and city adaptation of migrant children. *J Beijing Normal Univ.* 2009;54(05):25–32.
43. Rosenberg M. *Society and the Adolescent Self-Image.* Princeton, NJ: Princeton University Press; 1965.
44. Wang XD, Wang XL, Ma H. *Rating Scales for Mental Health.* Beijing: Chinese Mental Health Journal; 1999.
45. Jiang QJ. Perceived social support scale. *Chin J Behav Med Sci.* 2001;10(10):41–43.
46. Zimet GD, Powell SS, Farley GK, Werkman S, Berkoff KA. Psychometric characteristics of the multidimensional scale of perceived social support. *J Personal Assess.* 1990;55(3–4):610–617. doi:10.1080/00223891.1990.9674095
47. Cheung HY, Hui SKF. Mainland immigrant and Hong Kong local students' psychological sense of school belonging. *Asia Pacific Educa Rev.* 2003;4(1):67–74. doi:10.1007/BF03025553
48. Wu Y, Wen ZL. Item parceling strategies in structural equation modeling. *Adv Psychol Sci.* 2011;19(12):1859–1867.
49. He XH. Relationship between self-esteem, interpersonal trust, and social anxiety of college students. *Occupat Ther Int.* 2022;2022:8088754. doi:10.1155/2022/8088754
50. Ponsoda JM, Beleña MÁ, Díaz A. Psychological distress in alzheimer's disease family caregivers: gender differences and the moderated mediation of resilience. *Healthcare.* 2023;11(23):3084.
51. Sánchez B, Colón Y, Esparza P. The role of sense of school belonging and gender in the academic adjustment of Latino adolescents. *Journal of Youth and Adolescence.* 2005;34(6):619–628. doi:10.1007/s10964-005-8950-4
52. Güler A, Yıldırım M. Associations between acculturation, perceived discrimination and subjective well-being among Syrian adolescents living in Turkey. *International J Psychol.* 2022;57(2):171–180. doi:10.1002/ijop.12795
53. Gopalan M, Brady ST. College students' sense of belonging: a national perspective. *Educ Researcher.* 2020;49(2):134–137. doi:10.3102/0013189X19897622
54. Marksteiner T, Janke S, Dickhäuser O. Effects of a brief psychological intervention on students' sense of belonging and educational outcomes: the role of students' migration and educational background. *Journal of School Psychology.* 2019;75:41–57. doi:10.1016/j.jsp.2019.06.002

55. Zhu XW, Han H. Family Background and College Students' Sense of School Belonging; A Multiple-Mediation Analysis Based on Social Network. *Fudan Educ Forum*. 2018;16(3):80–88. doi:10.13397/j.cnki.fef.2018.03.013
56. Sirin SR, Sin EJ. Meta-analysis on the relation between acculturation and academic performance: testing the immigrant paradox. *Educational Research Review*. 2023;39:100526. doi:10.1016/j.edurev.2023.100526
57. Kumi-Yeboah A, Brobbey G, Smith P. Exploring factors that facilitate acculturation strategies and academic success of West African immigrant youth in urban schools. *Educ Urban Soc*. 2020;52(1):21–50. doi:10.1177/0013124519846279
58. Yang M. Characteristic of self-esteem, healthy psychological and sociocultural adaptation and their correlation among migrant children. *Chin J Health Educ*. 2018;34(07):636–639. doi:10.16168/j.cnki.issn.1002-9982.2018.07.014
59. Li B, Chen LT, Zhang XY, Hu X, Yu XX. The influence and mediating mechanism of self-esteem on school adjustment of junior middle school students. *J Neijiang Normal Univ*. 2021;36(12):25–30. doi:10.13603/j.cnki.51-1621/z.2021.12.005
60. Ye S. Trust, social support and adaptation: a study of international students in Japan. *Int J Cul His*. 2018;4(2):13–18.
61. Surzykiewicz J, Skalski SB, Solbut A, Rutkowski S, Konaszewski K. Resilience and regulation of emotions in adolescents: serial mediation analysis through self-esteem and the perceived social support. *Int J Environ Res Public Health*. 2022;19(13):8007. doi:10.3390/ijerph19138007
62. Zhang XZ, Luo T, Luo J, Hong S. The impact of gratitude on school belonging in rural middle school students: the chain mediating effect of perceived social support and self-esteem. *Chin J Spec Edu*. 2020;27(5):76–83.
63. Zhang DJ, Li KM, Zhu ZG, Wu LL. The relationship between psychological suzhi and prosocial behaviors of college students: the serial mediating effect of perceived social support and gratitude. *J Southwest Univ*. 2021;43(10):29–36. doi:10.13718/j.cnki.xdzk.2021.10.004
64. Dai WW, Li ZL, Jia N. Relationship between perceived social support and learning engagement among high school students: The chain mediating effect of self-esteem and future education planning. *J Bingt Educa Instit*. 2022;32(01):26–31.
65. Kayama M, Yamakawa N. Acculturation and a sense of belonging of children in US Schools and communities: the case of Japanese families. *Child Youth Services Rev*. 2020;119:105612. doi:10.1016/j.childyouth.2020.105612
66. Kunyu DK, Schachner MK, Juang LP, Schwarzenhal M, Aral T. Acculturation hassles and adjustment of adolescents of immigrant descent: testing mediation with a self-determination theory approach. *New Directions for Child and Adolescent Development*. 2021;2021(177):101–121. doi:10.1002/cad.20408
67. Gillen-O'Neel C. Sense of belonging and student engagement: a daily study of first-and continuing-generation college students. *Res Higher Educ*. 2021;62(1):45–71. doi:10.1007/s11162-019-09570-y

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