Research on the Cross-cultural Adaptation of International Students under the COVID-19 Pandemic: Based on Ward's Theory of Cultural Adaptation

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Abstract

Amid China's sustained open-door policy, international student enrollment has surged. The 2020 COVID-19 outbreak profoundly affected incoming international students, impacting their psychological, sociocultural, and academic adaptation. Drawing on Ward's Cultural Adaptation Theory, this study examines international students' intercultural adaptation during the pandemic in various Chinese universities. Findings reveal minimal psychological and sociocultural challenges but mild academic issues. Gender and Chinese proficiency showed no significant impact on psychological, sociocultural and academic adaptation. However, the length of stay in China significantly influenced psychological adaptation but not sociocultural or academic adaptation. Notably, significant correlations emerged among psychological, sociocultural, and academic adaptation. In conclusion, we recommend universities improve their administrative systems, students engage in cross-cultural competency training, and educators innovate teaching methods to support international students during challenging circumstances like the COVID-19 pandemic.

Keywords

Cross-cultural adaptation, International students in China, Influence of COVID-19, Suggestions.

1. Introduction

1.1. Research Background

In light of the escalating forces of globalization, the internationalization of education stands as an inexorable imperative in the realm of educational development—a pivotal conduit for the dissemination of multicultural and global perspectives. By the year 2021, the number of international students in China had surged to over 440,000, cementing China's status as the leading destination for overseas study in Asia and ranking third globally[1].

However, the unforeseen emergence of the COVID-19 pandemic in 2020 prompted nations to enact stringent measures governing international mobility. This resulted in restricted cross-border travel and a precipitous decline in international flights. Prospective international students bound for China were compelled to remain in their home countries, engaging in online learning. Concurrently, students who had already arrived in China before the pandemic found themselves unable to return home for an extended period, experiencing homesickness and accumulating stressors that culminated in psychological distress. In order to proactively address these issues, an investigation into the acculturation challenges faced by international students during the COVID-19 pandemic was conducted. This research not only endeavors to comprehend the cross-cultural adaptation of international students but also seeks to enhance

the quality of management and support services available to them within Chinese institutions of higher education.

1.2. Research Significance and Research Questions

The study on cross-cultural adaptation of international students during the COVID-19 pandemic holds both theoretical and practical significance. Theoretically, Ward's theory has seen extensive application in various research domains, including investigations into international students from the Belt and Road regions[2]. Nevertheless, its utilization in the context of an epidemic has remained relatively limited. A search for "COVID-19" and "cultural adaptation" in google scholar yielded limited research, particularly in the eastern landscape. This underscores a conspicuous research gap in applying Ward's theory of cultural adaptation in the Chinese contexts.

Furthermore, Ward's theory primarily emphasizes two dimensions—psychological adaptation and sociocultural adaptation. However, prior research indicates that additional factors, notably academic adaptation, can exert significant influence on students' cross-cultural adaptation[3, 4]. Consequently, supplementing Ward's theory with an examination of international students' academic adaptation can offer a more holistic understanding, shedding light on their adaptability in terms of learning.

Meanwhile, this study extends the applicability of Ward's theory into diverse fields, enhancing the depth of cross-cultural adaptation by introducing a new dimension. In practical terms, the findings not only equip university administrators with multifaceted insights to better cater to international students but also offer essential strategies for education and management in the event of unforeseen emergencies[5].

Accordingly, based on Ward's theory, this study aims to answer the following questions.

(1)   Do international students in China have some problems in psychological adaptation, sociocultural adaptation and academic adaptation during the period of COVID-19 pandemic?

(2)   Do gender and length of stay in China affect psychological adaptation, sociocultural adaptation and academic adaptation of international students during the epidemic?

(3)   What's the relationship between psychological adaptation, sociocultural adaptation and academic adaptation?

2. Literature Review

The concept of "cross-cultural adaptation" was first put forward by American anthropologists Redfield, Linton and Herskovits. In 1936, they published Memorandum for the study of acculturation and pointed out that "Acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original cultural patterns of either or both groups[6]." The earliest study on cross-cultural adaptation was conducted in the United States, which mainly explored the psychological adaptation of immigrants in America. In the middle of 1980s, the study of cross-cultural adaptation in foreign countries became prosperous, and it began to research on the cross-cultural adaptation of international students, refugees, businessmen, tourists, etc. A host of scholars have conducted discussions on such issues as research scope, theoretical system, research methods, and interdisciplinary perspectives, such as Lysgaard (1955), Gullahorns (1963), Oberg (1960) and Berry(1992). In 1955, Lysgaard started to take adjustment as a process, and then proposed U-curve hypothesis, which explained the three stages when they started to adjust to American life, namely initial adjustment stage, crisis stage and regained adjustment stage[7]. Noticing that sojourners would also recur with varying intensities when they return to their home environment, Gullahorns extended the U-curve hypothesis to W-curve, which correlated with factors of interaction and sentiment[8]. Also

enlightened by Lysgaard, the anthropologist Dr. Oberg brought forward the concept and the model of culture shock, which made him the first one to define the word. In 1960, based on individual's physical and psychological feelings, Oberg described the culture shock as four phases: honeymoon stage, adjustment stage, crisis stage and recovery stage[9]. He also claimed that the attitude of others to a person suffering from culture shock can also affect his adaptation, but finally the fellow countrymen can help to get over his culture shock[9]. Berry's theory of acculturation explained the process and results of acculturation, analyzed the attitude and orientation of acculturation and clarified the group of acculturation. The "cross-cultural model of acculturation" proposed by him is a two-dimensional acculturation model applicable to a multicultural society[10]. According to the attitude of different individuals, Berry divided the acculturation strategies into the following four types: integration, assimilation, separation and marginalization[10]. Presently, it is still one of the most widely applied cross-cultural adaptation models.

Influenced by Berry's theoretical framework, Colleen Ward and her colleague Searle divided cross-cultural adaptation into two dimensions: Sociocultural adaptation and Psychological adaptation[11], and then they put forward a two-dimension theoretical model. Psychological adaptation, which was related to stress and coping framework, referred to the emotional response of overseas students. Their emotional response reflected their mental health and life satisfaction in cross-cultural communication to a certain extent, and it could be reflected in variables such as personality, life changes and social support received[11]. Sociocultural adaptation, on the other hand, referred to the abilities of overseas students adjusting to local sociocultural environment, including the ability of establishing and maintaining interpersonal relationship with local people, communicating effectively and dealing with problems, which is composed of cognitive factors and social skill acquisition such as cultural knowledge, cultural distance, cultural identity, language ability and so on[11]. Moreover, Ward and Kennedy developed standard measures of acculturation further verifying the validity of the previous findings on psychological and sociocultural adjustment domains[12]. According to Ward, psychological adaptation can be assessed by several multi-measured mental health assessment tools with cross-cultural reliability and validity, such as Zung Self-rating Depression Scale (SDS), Profile of Moods State (POMS), etc. Sociocultural adaptation can be revealed based on the Sociocultural Adaptation Scale (SAS), which was developed on the basis of the social context questionnaire compiled by Furnham and Bochner. This instrument has been tested by multiple groups, and it was regarded as an effective evaluation tool for assessing acculturation[13]. To further develop her own theoretical structure framework, Ward critically reflected on the construct of sociocultural adaptation, including its origins, evolution, purpose and measurement. Meanwhile, she linked sociocultural adaptation to culture learning theory and situated the construct in the broader and problematic literature on cultural competence, concluding that "As it is unlikely that systematic behavioral observations will become the norm for assessing sociocultural adaptation, perhaps the best we can do is to examine the ecological validity of self-report measures[14]." At present, because of its clear theoretical basis and highly reliable measurement tools, Ward's acculturation theory has become the most authoritative theory in exploring cultural adaptation. It has been widely used in various qualitative and quantitative studies of acculturation. In China, Ward's theoretical framework has been adopted in many studies on cultural adaptation. For example, Wang Dan combined Ward's theory with other relevant theories to examine the cross-cultural adaptation of international students who came from the Belt and Road regions[2].

As more and more students choose to study abroad, academic adaptation has become a new research focus in cross-cultural adaptation and an important part of international students' cross-cultural adaptation[4]. On the definition of academic adaptation, different scholars have different opinions. One of the earliest studies on the academic adaptation of international

students was carried out by Tinto. In 1975, he proposed that academic adaptation refers to the process by which international students integrate with the two subsystems of their university, namely academic system and social system. Academic system integration is defined as students' academic performance and intellectual development. Social system integration highlights the student's interaction with other members of the school, as evidenced by peer relationships, student-teacher relationships and participation in community activities[5]. As to Feng Tingyong, academic adaptation means the psychological and behavioral process by which subjects try to adjust themselves to the needs of their environment and learning, in order to achieve a balance with the learning environment[15].

Nowadays, Groups of scholars have tried to combine Ward's theory with academic adaptation, enriching its theoretical dimension. However, few scholars have applied Ward's theory in the context of epidemic. In 2021, Xin Congcong investigated the cross-cultural adaptation of international university students in Shanghai under the background of COVID-19 and understood the adaptation of overseas students in psychology, life adaptation, interpersonal communication and academic, as well as the impact of the COVID-19 epidemic[16], which provided a new perspective to analyze cross-cultural adaptation.

Since Ward's theoretical framework was widely studied and has been proven effective, and the academic adaptation of international students tends to become another essential factor in the context of the epidemic, this paper employs Ward's definitions of psychological and sociocultural adaptation, and adopts Feng's definition of academic adaptation to provide a more comprehensive understanding of the cross-cultural adaptation of international students.

3. Research Design

3.1. Participants

About 102 international students participated in this study, who came from universities in the north and south of China. They were from 43 different countries, including America, Afghanistan, Bangladesh, Canada, Congo, Djibouti, Egypt, El Salvador, France, Ghana, Indonesia, Japan, Kenya, Korea, Kyrgyz, Laos ane etc. Overall, the distribution across continents showed 50.98% from Asia, 19.61% from Europe and the Americas, 26.47% from Africa, and 2.94% from Oceania.

3.2. Research Instrument

The questionnaire was adapted based on Ward's theoretical framework together with Zung (1965) and Zhu Guohui's (2011). It consists of four sections.

The first part of the questionnaire is aimed to collect demographic information of correspondents, including nationality, gender, duration of studying in China or in other countries and whether to get a job in China.

The second part of the assessment was derived from a scale originally formulated by Zung (1965), focusing on the psychological adaptation dimension. This section comprised 13 items, with six formulated in a positive manner, such as "I find my life meaningful," and seven in a negative tone, for instance, "I experience increased irritability compared to the past." The inclusion of both positively and negatively worded questions ensures the questionnaire's validity.

The third part of the questionnaire incorporated elements from the Sociocultural Adaptation Scale (SCAS) developed by Colleen and Kennedy(1993). This segment encompassed 12 items that evaluated various aspects of adaptation, including adjustment to the physical living environment, language use, social interaction, and comprehension of Chinese values and politics. Sample items included statements such as "I can reside, commute and shop here normally".

The fourth part of the questionnaire consisted of 9 items adapted from Zhu Guohui's (2011) scale. These items covered aspects such as learning methods, assessment methods, and teacher-student communication. For instance, a statement like "I can adapt to the teacher's teaching method" was included. The survey concluded with an open-ended question to capture any additional challenges faced by international students. In total, there were 40 questions.

All survey items utilized a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The overall score reflected the students' level of adaptation, with higher scores indicating a lower degree of adaptation.

3.3.   Data Collection

As Chinese government managed to treat COVID-19 with measures against Class B infectious diseases in 2023 and the rapid resumption of international flights, international students who had not returned home for several years due to the epidemic can go back to their own country and spend their winter holiday. Therefore, questionnaires were distributed by SOJUMP online on February 1, 2023. The data was collected in 6 WeChat groups from international students in Fujian and Beijing. Finally, 110 questionnaires were received on February 15, including 102 valid questionnaires, with an effective questionnaire return ratio of 92.7%.

3.4.   Data Analysis

The data were analyzed by Excel and SPSS, adopting factor analysis, reliability analysis, descriptive statistics and correlation analysis. To begin with, principal component extraction, which is followed by varimax rotation, was mainly employed to explore the dimensions of the questionnaire for testing validity. Also, reliability analysis was conducted to evaluate the consistency of the questionnaire. After that, descriptive statistics such as the mean and standard deviation was made to observe the status quo of the psychological, sociocultural and academic adaptation of international students. Furthermore, Independent sample t-tests were computed to assess gender differences in psychological, sociocultural and academic adaptation and a one-way analysis of variance (ANOVA) were conducted to assess the differences of international students' cross-cultural adaptation levels with regard to lengths of stay in China. Finally, correlation analysis was applied to identify the relationship among different variables.

With China successfully managing COVID-19 in 2023 and the swift resumption of international flights, many international students, who had been unable to return home due to the pandemic for several years, were finally able to do so for the winter holidays. Consequently, we distributed online questionnaires via SOJUMP on February 1, 2023, to international students in China through 6 WeChat groups. By February 15, we had received a total of 110 responses, of which 102 were deemed valid, resulting in an effective questionnaire return rate of 92.7%."

4.   Results and Discussion

4.1.   Results

4.1.1. Demographic Characteristics

Among the respondents, 57 students (55.88%) were male, and 45 (44.12%) were female. Regarding the duration of their stay in China, about 46.08% of participants had been in China for less than a year, while 53.92% of them had been in China for over a year. Interestingly, nearly 50% of international students expressed uncertainty about whether to pursue work opportunities in China or return to their home countries after graduation, while 25% of students indicated a preference for staying and seeking employment in China.

4.1.2. Validity Anlysis

Factor analysis was conducted for validity confirmed. Detailed results of the factor analysis are presented in Table 1 and Table 2. It can be seen from the following chart that the KMO

coefficient is 0.792 and the associated level of significance is 0.000, indicating that the scale is adequate to perform the factor analysis. Following the exploratory factor analysis, a three-factor scale with 34 items was obtained with the cumulative variance contribution rate of 57.11%. The variance contribution rates of Factor 1 (named: psychological adaptation), Factor 2 (named: sociocultural adaptation) and Factor 3 (named: academic adaptation) are 17.45%, 25.31% and 14.35% respectively. Items 3, 7, 10, 12 and 13 in psychological part, items 1 and 4 in sociocultural part and items 1 and 6 in academic part are overlapped in Factor 1, 2, and 3. Thus, these 9 items are excluded and 25 items were remained for the further analysis.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.792
Bartlett's Test of Sphericity	Approx. Chi-Square	1781.656
	df	561
	Sig.	.000

Table 2: Rotated Component Matrix[a]

	Factors		
	1	2	3
1. I always feel depressed.	0.693		
2. I have trouble sleeping at night.	0.657		
4. I often want to cry.	0.742		
5. I notice that I'm losing weight.	0.515		
6. I feel tired for no reason.	0.747		
8. I find it easy to do the things I used to.	0.658		
9. I have difficulties in staying calm.	0.668		
11. I feel more irritable than before.	0.641		
2. I can adapt to the taste of meals here.		0.632	
3. I can make friends with Chinese people.		0.594	
5. I think I can be understood by the local people.		0.571	
6. I can understand the way Chinese people communicate.		0.762	
7. I can take part in social events actively.		0.608	
8. I can learn and use Chinese.		0.773	
9. I understand Chinese jokes and humors.		0.627	
10. I can understand Chinese values.		0.753	
11. I can reside, commute and shop here normally.		0.739	
12. I'm getting used to the Chinese pace of life.		0.779	
2. I can adapt to teacher's current teaching method.			0.582
3. Online classes can help me better understand the content of the courses.			0.671
4. I don't have much difficulty in taking online classes.			0.542

5. I prefer online classes to offline classes.	0.668
7. I am able to attend the online courses.	0.492
8. Online classes allow me to arrange my study time more efficiently.	0.685
9. Chinese teachers helped me a lot.	0.538

4.1.3. Reliability Analysis

Internal consistency is calculated using Cronbach's Alpha. Based on the results of the factor analysis, 9 items are removed. The coefficients of Cronbach's Alpha of psychological adaptation, sociocultural adaptation and academic adaptation are 0.792, 0.891 and 0.775 respectively, demonstrating a high level of internal consistency (refer to Table 3).

Table 3: Reliability statistics

	Cronbach's Alpha	N of Items
Psychological adaptation	.792	8
Sociocultural adaptation	.891	10
Academic adaptation	.775	7

4.1.4. Independent T-test and ANOVA Analysis

Independent-samples T test was evaluated to investigate whether there is a significant difference between genders on cross-cultural adaptation. The results demonstrate the absence of significant gender differences in psychological adaptation (t=-1.037, p=0.302>0.05), sociocultural adaptation (t=1.005, p=0.318>0.05) and academic adaptation (t=0.166, p=0.869>0.05) (see Table 4).

To examine the differences of international students' cross-cultural adaptation levels with regard to lengths of stay in China, one-way ANOVA was conducted. The results show that there is no significant difference in the sociocultural adaptation (F=2.03, P=0.14>0.05) and academic adaptation (F=1.49, P=0.23>0.05) of international students concerning the length of their stay in China. However, the length of stay in China has a significant effect on psychological adaptation (F=4.05, p=0.02<0.05). A post-hoc multiple comparison reveals that the mean score of students who came to China for less than a year (M=2.13, SD=0.8) is statistically different from those who came to China for 1-2 years (M=2.96, SD=1.04). In general, there are differences in the psychological adaptation of international students, with those who have been in China for 1-2 years experiencing more severe psychological maladjustment than those who have been in China for less than one year during COVID-19 (see Table 5).

Table 4: Independent samples test

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t	P
Psychological adaptation	Male	57	2.25	.81641	.10814	-1.037	.302
	Female	45	2.41	.76503	.11404		
Sociocultural adaptation	Male	57	2.53	.79721	.10559	1.005	.318
	Female	45	2.36	.82163	.12248		
Academic adaptation	Male	57	2.78	.73414	.09724	0.166	.869
	Female	45	2.75	.77189	.11507		

Table 5: ANOVA test

	below 1 year (n=47)		1-2 year(s) (n=6)		above 2 years (n=49)		F	P
	Mean	SD	Mean	SD	Mean	SD		
Psychological adaptation	2.13	0.8	2.96	1.04	2.43	0.71	4.05	0.02
Sociocultural adaptation	2.33	0.79	2.98	0.88	2.51	0.80	2.03	0.14
Academic adaptation	2.65	0.83	3.14	0.68	2.83	0.66	1.49	0.23

4.1.5. Correlation Analysis

Table 6 presents the results of correlation analyses among each dimension of cross-cultural adaptation. With respect to the correlations among students' cross-cultural adaptation, psychological adaptation is found to be positively correlated with sociocultural adaptation (r=0.379, P=0) and academic adaptation (r=0427, P=0). In addition, with a coefficient of 0.539 and a significance level of 0, a positive correlation is found between sociocultural adaptation and academic adaptation of international students. Therefore, it could be concluded that there are significant correlations among psychological adaptation, sociocultural adaptation and academic adaptation.

Table 6: Correlation analysis

		Psychological adaptation	Sociocultural adaptation	Academic adaptation
Psychological adaptation	Pearson Correlation	1	.379**	.427**
	Sig. (2-tailed)		0	0
	N	102	102	102
Sociocultural adaptation	Pearson Correlation	.379**	1	.539**
	Sig. (2-tailed)	0		0
	N	102	102	102
Academic adaptation	Pearson Correlation	.427**	.539**	1
	Sig. (2-tailed)	0	0	
	N	102	102	102

**. Correlation is significant at the 0.01 level (2-tailed).

4.2.   Discussions and Suggestions

4.2.1. Cross-cultural Adaptation of International Students

The cross-cultural adaptation status of international students was assessed using a 5-Point Likert scale, measuring psychological, sociocultural, and academic adaptation. Following Zung's guidelines[17], the adaptation index was derived from dividing the sum of values obtained on the items by the maximum possible value of each part of the questionnaire. Accordingly, an adaptation index below 0.5 indicated no adaptation issues, while an index between 0.5 and 0.59 signified mild adaptation challenges. Moderate adaptation problems were inferred with an

index between 0.6 and 0.69, and an index of 0.7 or higher indicated severe adaptation issues. On a scale from 1 (strongly disagree) to 5 (strongly agree), a lower mean score indicated better adaptation. Descriptive analysis revealed that international students generally demonstrated favorable psychological (adaptation index = 0.49 < 0.5) and sociocultural adaptation (adaptation index = 0.49 < 0.5), with minor academic adaptation difficulties (adaptation index = 0.55 > 0.5).

4.2.2. Psychological Adaptation

While international students generally exhibit relatively positive psychological adaptation, there is still room for improvement. Notably, their performance is less than ideal, as demonstrated before. The highest mean score, 3.05, pertains to item 8, "I find it easy to do the things I used to," indicating difficulties in adapting to certain situations. This can be attributed to the stringent university regulations during the pandemic, which curtailed international students' freedom of movement and disrupted their original plans. In response to an open-ended questionnaire, one participant lamented a loss of 2.5 years due to pandemic-related test restrictions, job searches, and limited social interactions beyond campus. Another mentioned that prolonged lockdowns affected their academic progress and anticipated graduation, potentially leading to psychological distress. These findings are in compliance with the prior research of Sun Li (2022), who revealed that 73.1% of participants reported reduced communication with friends, and over 70% engaged in secretive outings, indicating students' discomfort with restricted campus life and their desire for normal social activities. Consequently, the decline in social interactions contributes to heightened loneliness levels among college students[18], potentially increasing the incidence of psychological issues.

Regarding gender differences, our results indicate no significant distinction in psychological adaptation between males and females, contrary to prior studies[15, 19]. This discrepancy may stem from differences in sample size and participant characteristics. Nevertheless, male students (M=2.25) exhibit slightly higher overall psychological adaptation scores compared to female students (M=2.41), suggesting relatively better psychological adjustment among males. The most notable difference between genders appears in the item "I often want to cry," with males scoring 1.63, while females score 2.29. This variation aligns with previous research highlighting girls' heightened emotional sensitivity[15]. In summary, female students warrant increased attention in terms of psychological adaptation support.

Regarding the length of stay in China, notable differences emerged in the psychological adaptation of international students. Those residing in China for 1-2 years experienced more pronounced psychological maladjustment than those here for less than one year. This observation aligns with the U-curve hypothesis[8], which posits three stages of culture shock: initial adjustment, crisis, and regained adjustment. During their first year in China, international students navigated new environments and cultural contexts, primarily residing in the initial adjustment stage, resulting in effective adaptation (M=2.13). Subsequently, during the crisis stage (1-2 years in China), challenges surfaced, potentially leading to feelings of loneliness and unhappiness, leading to diminished adjustment (M=2.96). Finally, beyond 2 years in China, students naturally and culturally integrated, crafting crisis-coping strategies, and achieving improved adjustment (M=2.43). They assimilated into society, exemplified by the chart illustrating international students' adaptation levels relative to their length of stay in China.
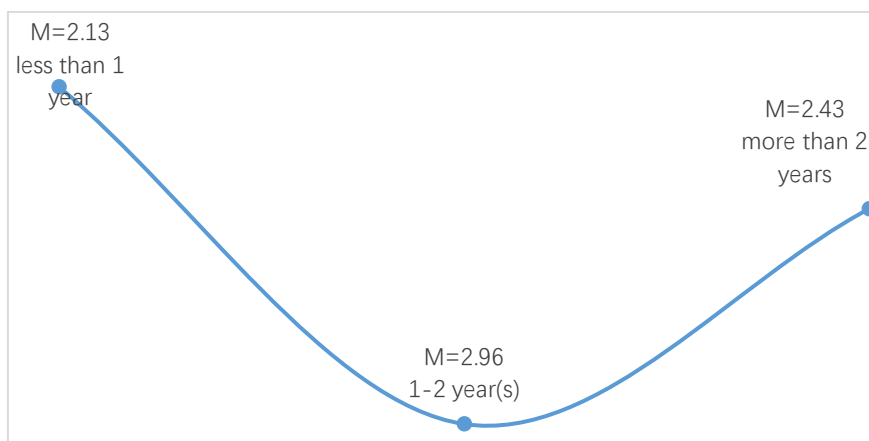
Figure 1: Changes in cross-cultural adaptation of international students with length of stay

4.2.3. Sociocultural Adaptation

International students generally exhibit favorable sociocultural adaptation overall (Index=0.49<0.5). Notably, item 9 ("I understand Chinese jokes and humor") received a relatively high mean score of 3.01, while item 8 ("I can learn and use Chinese") had the lowest score at 2.10. Gender-based analysis (Table 4) and length of stay in China (Table 5) did not reveal significant differences (t=1.005, p=0.318>0.05; F=2.03, P=0.14>0.05), possibly because, three years after the outbreak, most international students, regardless of gender or duration in China, have fully assimilated into Chinese culture. Consequently, their responses may reflect a subjective belief in their cultural adjustment.

However, despite fluency in spoken and written Chinese, international students struggle to grasp Chinese humor and jokes, indicating a deficit in their understanding of diverse Chinese culture. In an online interview, one student highlighted that while some universities offer Chinese language courses and mandate credits, many international students remain unfamiliar with Chinese culture. This hinders their integration and cultural comprehension. Such issues are common among international students. As Wang Dan's research suggests, students from Belt and Road regions can adapt to Chinese culture to some extent but may struggle with deeper cultural nuances and customs[2]. Consequently, enhancing the cross-cultural competence of international students is imperative.

4.2.4. Academic Adaptation

Based on Zung's criteria[17], international students' academic adaptation, with an adaptation index of 0.55 exceeding 0.5, can be considered slightly problematic. Among all the items, item 5 ("I prefer online classes to offline classes") had the highest score at 3.43, while item 9 ("Chinese teachers helped me a lot") received the lowest rating. This suggests that international students encounter challenges in adapting to online classes, with items closely associated with "Online classes" averaging scores close to or above 3.

Undoubtedly, the surge in online classes during the COVID-19 outbreak aided in curbing the virus's spread and maintaining social distancing[20]. However, as higher education institutions transitioned to online teaching for the first time, drawbacks emerged. With the outbreak occurring during winter holidays, many international students had already returned to their home countries. If online classes strictly adhered to Chinese time zones, time differences would lead to numerous absences, hindering timely completion of coursework. Moreover, the hurried preparation of online teaching materials and limited online teaching experience negatively affected academic quality[21]. Prolonged screen time posed potential psychological and physiological challenges for students[22]. Consequently, improvements are necessary to ensure high-quality online teaching.

Table 4 indicates no gender difference in international students' academic adaptation (t=0.166, p=0.869>0.05), and there is also no significant variation in academic adaptation concerning the length of stay in China (F=1.49, P=0.23>0.05). Potential explanations include sample size and characteristics, as well as the widespread proficiency of international students in English, the primary language of communication, and instruction. Therefore, academic learning remains unaffected by gender or length of stay in China for international students.

4.2.5. Relationship among psychological, sociocultural and academic adaptation

Table 6 reveals positive correlations between psychological adaptation, sociocultural adaptation, and academic adaptation. Thus, enhancing psychological adaptation can subsequently improve sociocultural and academic adaptation. These findings align with Ding Jieqiong (2020), who observed that greater psychological comfort leads to improved sociocultural and academic adaptation.

Furthermore, sociocultural adaptation shows a positive correlation with academic adaptation, implying that enhancing sociocultural adaptation can boost academic adaptation. This echoes Lai Hongling's (2021) research, which found that stronger acceptance and adaptation to a foreign culture enhance international students' academic performance.

In summary, this correlation analysis not only confirms positive relationships among academic, sociocultural, and psychological adaptation but also aligns with previous research. Timely interventions can significantly enhance international students' cultural adaptation, benefiting their psychological well-being, sociocultural integration, and academic success.

5. Conclusion

5.1. Summary

This study, based on Colleen Ward's theory of cultural adaptation, investigates international students' cross-cultural adaptation amidst the COVID-19 backdrop, addressing three key research questions. The findings both validate previous research and unveil new insights, offering a comprehensive view. International students currently exhibit minimal psychological and sociocultural issues, with manageable academic challenges. Gender does not significantly impact psychological, sociocultural, or academic adaptation. The length of stay in China affects psychological adaptation but not sociocultural or academic adaptation. Importantly, there are positive correlations among psychological, sociocultural, and academic adaptation.

This study holds valuable implications for cross-cultural adaptation among international students in Chinese universities. Enhancing one dimension of adaptation positively affects the others, presenting a significant opportunity for universities to alleviate student challenges. A deeper understanding and stronger connection with Chinese culture empower international students to anticipate and tackle issues effectively. Ultimately, this research encourages universities to prioritize international students' well-being, promoting China as an open, inclusive, confident, and responsible global force.

5.2. Implication

Based on the findings, three implications are put forward. First and foremost, universities should enhance their management systems. College authorities must continually establish and refine the educational management system for international students to monitor their well-being and address any issues. This system enables supervisors to track students' psychological, sociocultural, and academic adaptation, while teachers can gather feedback to enhance the quality of their classes. Special attention should be given to female students due to their heightened sensitivity and vulnerability to psychological challenges. Collaboration among various departments ensures efficient and targeted educational management and services. For instance, during the COVID-19 pandemic, proactive communication and joint efforts by

supervisors, teachers, and schools helped international students understand the emergency policies and measures implemented by Chinese authorities and schools. This support alleviated their psychological stress and fostered optimism about their future [23].

Additionally, students should proactively participate in cross-cultural competency training. Research indicates that 87.25% of international students believe it is essential to undergo Chinese culture training before coming to China[2]. Those who receive such training exhibit improved academic and emotional adaptation. Preparing for cultural shock is an international student's responsibility, and systematic cross-cultural training equips them to mentally prepare, understand cultural differences, and adapt to diverse cultural phenomena. Establishing an affinity for Chinese culture is crucial for sociocultural adaptation, which, in turn, affects psychological and academic adjustment. Educational institutions should provide cultural exchange platforms, organize events focusing on traditional Chinese festivals, and encourage cultural interaction between Chinese and foreign students.

Lastly, teachers should innovate teaching methods to cater to international students better. Prior research indicates that international students struggled with online courses and felt disconnected from their programs during COVID-19 due to the lack of physical interaction[24]. Diversifying teaching methods, adopting student-centered approaches, and enhancing classroom interaction are essential. A blended teaching approach, combining in-person and online elements, can improve teaching effectiveness. For instance, using a blend of recorded and live-streamed content can enhance classroom management and student motivation [25]. International students should also communicate more frequently with Chinese peers to adapt to teaching styles and integrate into Chinese universities. Mutual support and friendship with Chinese students foster academic growth within a collaborative environment.

5.3. Limitations

There are a few noteworthy limitations in this study. Firstly, the sample size is relatively small due to the ongoing pandemic. While many international students are enrolled, most are studying online from their home countries, limiting the data available for comprehensive results.

Additionally, numerous influencing factors impact psychological, sociocultural, and academic adaptation. This study selected three factors based on prior research, potentially overlooking other significant variables.

Lastly, the research methodology could be enhanced. Ideally, a combination of qualitative and quantitative research methods would provide a more comprehensive understanding. However, due to resource constraints, only two international students were interviewed via WeChat and email, potentially limiting the depth of insight into certain questions.

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