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RESEARCH ARTICLE

THE RELATIONSHIP BETWEEN ACCULTURATIVE STRESS, DEPRESSION, ANXIETY AND RELIGIOUS COPING AMONG INTERNATIONAL STUDENTS IN CHINA

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ABSTRACT

Background: During past two decades, China has modernized its education system and became a hub for international students. However, studying abroad comes with various challenges. **Objectives:** In this study, we have focused on mental health of international students in response of acculturation, and investigated the relationship of religious coping with stress, depression and anxiety. **Methods:** We have analyzed data of 397 international students attending three different universities in Jinan, China. Acculturative Stress Scale for International Students was used to determine the level of stress. Zung Self-Rating Depression Scale (SDS) and Zung Self-Rating Anxiety Scale (SDS) were used to assess level of depression and anxiety respectively. Religious coping activity was recorded by Brief RCOPE. Data was analyzed by using SPSS Version 21. Descriptive statistics, Pearson's correlation, regression analysis, t-tests and ANOVA were conducted. **Results:** Our results indicated that Acculturative stress was positively associated to depression, anxiety and negative religious coping, whereas negatively correlated to positive religious coping. Furthermore, it is concluded that positive religious coping has negative impact on acculturative stress, depression and anxiety. We have also found that males students are more depressed than female students, whereas anxiety level is significantly high among female students which might be the outcome of acculturation. Analysis of variance between different religious groups of our participants indicates that level of acculturative stress, depression, anxiety and religious coping is different among different religions. **Conclusion:** Our study suggests that acculturative stress is one of main predictor of depression and anxiety among international students, and these psychological conditions can be influenced by religion. Religious commitment and activities should be taken into consideration while psychological assessment of foreigners living in China.

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INTRODUCTION

Thinking of studying abroad usually gives birth to numerous mixed feelings. On one hand there are expectations of enjoying new experiences of a very different host culture and on other hand there is an unknown fear of adjustment to a new environment. As the world is becoming a global village, the role of international students in higher education is increasing. Rapid pace of economic development of China and with vast number scholarship opportunities, makes it a leading host destination for international students. Figures show that in the year of 2018 a total of 492,185 international students from 196 countries studied in China (<http://global.chinadaily.com.cn/a/201904/12/WS5cb05c3ea3104842260b5eed.html>).

The idea of going to an unfamiliar country and studying there seems exciting and magical when one is sitting with family in native country but the reality of studying abroad can be quite different. Cross-cultural adjustment has tremendous impact on mental health of young adults which results in increase in mental stress level. Students may experience dilemma about the cultural differences between their own and host culture which can adversely affect their academic goals, motivation, beliefs and emotions. Acculturative stress is the psychological influence of adjusting to a new culture. The term "Acculturative stress" (Berry, 1970) was suggested as equivalent to culture shock (Kalervo Oberg, 1960). Learning new language, adopting different social norms of a host country and keeping native traditions may causes a

Acculturation process among international students is linked to mental health issues (Smith, 2011) Major stressors includes learning new language, lack of social support system, financial issues, no availability of desired food and loneliness. Acculturative stress can express in various ways, including anxiety, depression, substance abuse and physical problems (Berry, 2006). Depression is one of leading cause of disability. Depression is a psychiatric condition in which patient loss interest in daily activities, appetite and sleep changes, having feeling of guilt, lack of concentration, lethargy and suicidal ideas. In case of international students difficulty in Communication and lack of social support result in loneliness that leads to depression. Anxiety symptoms include irrational fear, excessive worry, agitation, palpitation and sleep disturbance. Exam-related anxiety has huge effect on academic performance of students. In response to stress and intra-psyche conflicts, there are several coping mechanism. Religious coping is religious related emotional, cognitive or behavioral responses to stress. Using spirituality and religion to cope with stress is not uncommon and for a believer it is usually perceived to be a part of one's nature. Sigmund Freud viewed religion as more than a defense mechanism. Research show that use of religious coping is not only limited to sickness or near death experiences but to everyday stressors as well. Extensive studies suggests that for many individuals, religion is a primary source to deal with stress (Harrison, 2001).

Religious coping styles are unique and much influential to mental health. Religious coping has positive and negative dimension. Positive religious coping involves seeking spiritual help, seeking forgiveness and God's support. While negative dimension or negative religious coping involves questioning God's power, blaming devil to cause this stressful situation and perception of God's punishment. Religiosity is a significant aspect of international students' lives and should be taken into consideration by educational institutes. Unfortunately there are a few studies which highlights the impact of religious coping on acculturative stress, depression and anxiety among international students. This study addressed at following aims. To document the acculturative stress among international student in China using Acculturative Stress Scale for International Students (ASSIS)

- To investigate the prevalence of depression and anxiety among international students using Zung Self-Rating Depression Scale (SDS) and Zung Self-Rating Anxiety Scale (SAS) respectively.
- respectively.
- To figure out the role of religious coping in response to acculturative stress, depression and anxiety.

METHODS

Study Design and Sample: There were 397 international students randomly selected from Shandong University, Shandong Normal University and Jinan University. All three educational institutes are located in Jinan, the capital city of Shandong province in Eastern China and is also known as 'City of Springs'. The self-management questionnaire was distributed directly to 500 students and completed responses obtained from 397 individuals, including 223 (56.2%) males and 174 (43.8%) females.

Demographic Characteristics: Demographic variables included gender, age, marital status, level of educational degree, campus, financial support, country of origin, faculty and religion.

Measures

Acculturative Stress Scale for International students: It was originally developed by Sandhu and Asrabadi (Daya Singh Sandhu, 1994) in order to determine the acculturative stress of international students. It is a 36-item scale adapted to a 5-point Likert scale (originally 7-point scale 1=strongly disagree to 7=strongly agree). ASSIS consists of 7 subscales; Perceived discrimination (08 items), Homesickness (04 items), Perceived hatred (05 items), Fear (04 items), Culture Shock (03items), Feeling of guilt (02 items), and miscellaneous (10 items). The score of this instrument range from 36 to 180, with 72 is the lowest score, 144 is the moderate score and above 144 to 180 is high scoring (Jean-Paul, 2015).

Zung Self-Rating Depression Scale (SDS): This scale was designed by William W.K. Zung MD, a renowned psychiatrist from Duke University, to assess the level of depression for patients. It is a 20-item (10 positive worded and 10 negative worded) self-administered survey to determine the status of depression of a patient. Each question is scored on a scale of 1-4 (a little of the time, some of the time, good part of the time, most of the time). Score interpretation is as follow:

- 20-44 Normal Range
- 45-59 Mildly Depressed
- 60-69 Moderately Depressed
- 70 and above Severely Depressed

Zung Self-Rating Anxiety Scale (SAS): It is a 20-item self-report assessment scale designed to assess level of anxiety. Each question is scored on a Likert-type scale of 1-4 (based on these replies: "a little of the time," "some of the time," "good part of the time," "most of the time"). Total raw scores vary from 20 to 80. This raw score used to be converted to an "Anxiety Index". Clinical interpretation can be done by following range of scores.

- 20-44 Normal Range
- 45-59 Mild to Moderate Anxiety Levels
- 60-74 Marked to Severe Anxiety Levels
- 75 and above Extreme Anxiety Levels

Brief RCOPE: The Brief RCOPE is a 14-item scale developed from the RCOPE to assess the religious coping mechanism. Out of 14 items, 7 items indicates positive religious coping strategies and remaining 7 items indicates negative religious coping strategies with scores ranging from 7 to 28. Each item is scored on a 4-point Likert scale (1=not at all to 4=a great deal). Higher score shows stronger positive and negative religious coping respectively.

Data Analysis: Data was analyzed by using SPSS Version 21. Descriptive statistics, Pearson's correlation, regression analysis, t-tests and ANOVA were conducted. Because of possible gender differences, male and female international students were analyzed separately. For all statistical tests were conducted at 5% level of significance.

RESULTS

Table 1, depict the results of correlation between ASS, SAS, SDS, NCOP and PCOP. From the results we conclude that ASS positively correlated with SAS, SDS, and NCOP while negatively correlated with PCOP. Similarly, SAS positively correlated with SDS and NCOP while negatively correlated with PCOP. Furthermore SDS positively correlated with NCOP and negatively correlated with PCOP. Also NCOP negatively correlated with PCOP. Table 2 shows the results of regression analysis with NCOP and PCOP as independent variable and ASS as the outcome variable. From the result we conclude that NCOP has positive impact on ASS while PCOP has negative impact on ASS. Furthermore we conclude that one unit change in NCOP will .428 positive changes in ASS and one unit change in PCOP will .427 negatively changes in ASS.

Table 3 shows the results of regression analysis with NCOP and PCOP as independent variable and SAS as the outcome variable. From the result we conclude that NCOP has positive impact on SAS while PCOP has negative impact on ASS. Furthermore we conclude that one unit change in NCOP will .252 positive changes in SAS and one unit change in PCOP will .220 negatively changes in SAS. Table 4 shows the results of regression analysis with NCOP and PCOP as independent variable and SDS as the outcome variable. From the result we conclude that NCOP has positive impact on SDS while PCOP has negative impact on ASS. Furthermore we conclude that one unit change in NCOP will .082 positive changes in SDS and one unit change in PCOP will .657 negatively changes in SDS. Table 5 presents a comparison of ASS, SAS, SDS, NCOP and PCOP.

Table 1. Correlation between ASS, SAS, SDS, NCOP and PCOP

Variable	M±SD	1	2	3	4	5
ASS	89.015±23.14	1				
SAS	34.39±6.51	.611**	1			
SDS	40.95±8.55	.706**	.464**	1		
NCOP	20.90±6.31	.497**	.287**	.187**	1	
PCOP	12.29±4.91	-.496**	-.260**	-.670**	-.161**	1

Table 2. Regression analysis, using NCOP and PCOP as independent variable and ASS as an outcome

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R ²	F
	B	Std. Error	Beta				
(Constant)	80.968	4.096		19.768	.000	.425	145.488
NCOP	1.570	.142	.428	11.059	.000		
PCOP	-2.015	.183	-.427	-11.037	.000		

Note: ASS: Acculturative Stress in Students; NCOP: Negative religious coping; PCOP: Positive religious coping

Table 3. Regression analysis, using NCOP and PCOP as independent variable and SAS as an outcome

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R ²	F
	B	Std. Error	Beta				
(Constant)	32.543	1.419		22.931	.000	.130	29.319
NCOP	.260	.049	.252	5.287	.000		
PCOP	-.292	.063	-.220	-4.614	.000		

Note: SAS: Anxiety level; NCOP: Negative religious coping; PCOP: Positive religious coping;

Table 4. Regression analysis, using NCOP and PCOP as independent variable and SDS as an outcome

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R ²	F
	B	Std. Error	Beta				
(Constant)	52.719	1.472		35.804	.000	.455	164.753
NCOP	.110	.051	.082	2.165	.000		
PCOP	-1.145	.066	-.657	-17.438	.000		

Note: SDS: Depression level; NCOP: Negative religious coping; PCOP: Positive religious coping

Table 5. Comparison of ASS, SAS, SDS, NCOP and PCOP between male and female students

Variables	Male (n=223)	Female (n=174)	t	P
ASS	86.41±20.08	92.36±26.24	-2.599	<0.006
SAS	33.76±5.01	35.20±7.99	-2.200	<0.014
SDS	41.68±6.53	40.02±10.54	1.924	<0.026
NCOP	21.22±6.30	20.50±6.31	1.121	0.132
PCOP	11.27±3.00	13.59±6.36	-4.791	<0.000

Note: ASS: Acculturative Stress in Students; SAS: Anxiety level; SDS: Depression level; NCOP: Negative religious coping; PCOP: Positive religious coping

Table 6. Comparison of ASS, SAS, SDS, NCOP and PCOP of students belongs to different religion

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
ASS	Between Groups	23380.696	4	5845.174	12.144	.000
	Within Groups	188675.214	392	481.314		
	Total	212055.909	396			
SAS	Between Groups	505.967	4	126.492	3.039	.017
	Within Groups	16316.517	392	41.624		
	Total	16822.484	396			
SDS	Between Groups	1074.609	4	268.652	3.778	.005
	Within Groups	27872.575	392	71.104		
	Total	28947.184	396			
NCOP	Between Groups	3752.857	4	938.214	30.612	.000
	Within Groups	12014.311	392	30.649		
	Total	15767.169	396			
PCOP	Between Groups	382.268	4	95.567	4.096	.003
	Within Groups	9145.837	392	23.331		
	Total	9528.106	396			

We conclude that the levels of ASS, SAS and PCOP were the statistically significant higher in female students as compared to male students whereas SDS statistically significantly higher in male students as compared to female students. Furthermore no significant difference was found in the level of NCOP. The table 6, represent the results of the levels of ASS, SAS, SDS, NCOP and PCOP of students belongs to different religion. From the results we concluded that the levels of ASS, SAS, SDS, PCOP, and NCOP are statistically significantly differ in the students belongs to different religions.

DISCUSSION

In this study, the survey data of 397 international students was investigated. These students coming from 37 countries were attending three educational institutes in Jinan, Shandong province, PR China. We have analyzed the impact of acculturative stress on mental health of international students. We have investigated the relationship of acculturative stress, depression and anxiety. As from past research it was concluded that culture shock and related stressors were source of depression in international students (Minh Hoang Nguyen, 2019). In response to stress, usually an individual use coping strategies to overcome it. Religious coping is believed to be one of important coping mechanism used in stress (Rammohan, 2002). Our study figured out the correlation between positive and negative religious coping and mental problems among international students. Our findings may help campus administration to better understand the importance of spirituality in the lives of international students. From our results it is indicated that acculturaive stress is positively linked to depression, anxiety and negative religious coping, whereas negatively correlated to positive religious coping (Table no. 1). Severity of symptoms of depression and anxiety increased by high level of acculturative stress. As a result negative religious coping was observed among international students. This observation was consistent with the previous research (Benedict Francis and Jesjeet Singh Gill, 2019) in which negative religious coping was associated with depression and anxiety among students. Similarly we concluded that increase in anxiety resulted in increase in depression among students. One previous study suggested that about half of patients with either depression or anxiety have the other condition (Robert, 2001). This co-morbidity is not uncommon and results in high incidence of suicide and psychiatric hospitalization.

However it is evident from our study that acculturative stress, depression and anxiety are negatively correlated with positive religious coping. Furthermore, results suggest that negative religious coping has positive impact on acculturative stress, anxiety and depression whereas positive religious coping has negative impact on these conditions (Table 2,3 & 4). Studies in past revealed that negative religious coping was linked to anxiety, depression, phobias and somatic symptoms (Fitchett, 2004; McConnel, 2006). Present study showed that religious coping is one of prevalent coping strategy among international students. Our results support past study in which religion has buffering effect during acculturation (Andrade, 2009). Additionally, we have found that acculturative stress, anxiety and positive religious coping were more prevalent in female international students, and depression was more prevalent in male students (Table no. 5). This finding is contrary to previous studies (Paul, 2015; J M Cyranowski, 2000) which suggested that depression is more prevalent in females. Maybe the process of acculturation is the reason that male international students were more depressed than female students. The significance of this observation is that men with depressive disorders are more likely to commit suicide than opposite gender. Table no. 5 also suggests that negative religious coping is equally significant in both genders. Analysis of variance between different religious groups of our participants indicates that level of acculturative stress, depression, anxiety and religious coping is different among different religions (Table no. 6)

Limitations

We have collected data from a limited number of international students from only three public universities of Jinan city. The results yielded might be variable if we could collect data from universities in big cities like Beijing and Shanghai. Because those universities have huge number of international students. Furthermore, due to COVID-19 pandemic we were unable to reach other educational institutes to conduct this survey. Although there is freedom to practice one's religion in China but religious gathering and practices are bit different from other countries. This might have an impact on religious coping mechanism of international students.

Conclusion

By taking into consideration the religious background and spiritual commitment of a foreigner coming to China, mental health professionals can easily asses the role of religiosity in facing the challenges of acculturation by a newcomer.

Psychological counseling centers in universities can religiously facilitate the international students with any mental problems. Good mental health will eventually lead to better academic performance and quality of life.

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Glossary of Abbreviations

ANOVA Analysis of variance
 ASSIS Acculturative Stress Scale for International Students
 Brief RCOPE Brief Religious Coping Scale
 NCOP Negative religious coping
 PCOP Positive religious coping
 SAS Zung Self-Rating Anxiety Scale
 SDS Zung Self-Rating Depression Scale
 SPSS Statistical Package for the Social Sciences

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