

Cultural intelligence, Age and Prior Travel Experience as Predictors of Acculturative Stress and Depression among International Students Studying in China

Abstract

Mental health problems commonly prevail among international students as a result of acculturative difficulties. In light of this, the study attempted to determine the role of cultural intelligence, age and prior travel experience on acculturative stress and depression and also whether acculturative stress mediates the cultural intelligence-depression relationship. 506 international university students volunteered to complete a battery of tests assessing their cultural intelligence, acculturative stress and depression. Cultural intelligence showed a significantly negative relationship with both acculturative stress and depression. Students' prior travel experiences and age also performed a significant predicting impact on both acculturative stress and depression. Besides, the study found acculturative stress fully mediated (repaired?) the relationship between cultural intelligence and depression. Implication, limitations and future study directions were discussed as well.

Keywords: Cultural intelligence, Acculturative stress, Depression, International students

Introduction

Educational international exchange programs provide many advantages for international students and the host community. For instance, being part of the international intellectual learning environment (community?) is a tremendous opportunity for students to capitalize on their personal and professional potentials. It also provides the chance to familiarize with a wide range of cultures and thereby enriches their socio-cultural awareness and competence (Bevis, 2002). On the other (Secondly,?), the full range of multidisciplinary skills and knowledge of the international students significantly enhances the intellectual capital and workforce and thereby the knowledge-based economic development of the host country (Bista, 2019). However, adjusting (acclimating?) to the new environment of the host country may also be taxing for international students because of the accumulated pressure related to a new language, cultural values, and social norms and the pressure may subsequently increase their feelings of stress or fear (Mustaffa & Ilias, 2013). International students were studied to

be at a higher risk of undergoing challenges because of the acculturation related demands to the new social and educational environments (Mori, 2000; Yeh & Inose, 2003). It is for this reason that international students are commonly found to be more stressed and depressed than the domestic students (Krämer, Prüfer-Krämer, Stock, & Tshiananga, 2004).

The concern about mental health problems among international students stimulated (inspired?) many researchers to conduct studies about numerous psychological resources and personal factors that influence the students' acculturative outcomes (Brunsting, Zachry, & Takeuchi, 2018). As part of this concern, the present study in its part has made an effort towards the (an) accurate and comprehensive understanding of the relationship between psychological attributes as predictors and acculturative outcomes. More specifically, the study tried to examine how cultural intelligence as a psychological resource and personal characteristics like age and prior travel experience contribute to international students' psychological acculturation process and outcomes in the host environment.

Theoretical conceptualization and Empirical studies

Acculturative stress

According to Berry (2005), when individuals travel to a new environment, they undergo the process of acculturation. Acculturation takes place when people experience several psychological changes associated with the 'first hand' contact in the multicultural setting (Berry, 2005). As the acculturation process has its challenges, the acculturation outcome is not always positive. Berry (1997) has conceptualized the acculturation outcomes in two ways.

First, individuals encounter easily manageable behavioral changes which are barely challenging. This process of acculturative outcome entails three processes: culture shedding, culture learning, and culture conflict. In culture shedding and culture learning, individuals make intentional, selective and purposeful alterations in their behaviors and replace them with behaviors that appropriately fit with(in) mainstream society. These processes are mostly termed as adjustments for the reason that all the adaptive changes are more of the acculturating individual than the host community (Ward, Bochner, & Furnham, 2005). Because of the non-problematic nature of such stages, individuals are less likely to experience significant acculturative difficulties. Nevertheless (however), individuals may face some cultural conflicts (difficulties?) which they may tackle through their conformity to

the mainstream culture. For the individuals who search for integration, cultural conflict may be tackled in the context of multiculturalism. On the other hand, individuals remaining (**who remain with?**) with sustained separation and marginalization may be sidelined from the arena of acculturation and face greater cultural conflict.

Second, acculturative stress is the appropriate conceptualization under which individuals come to realize the experience of acculturative difficulties as a result of acculturation that may not be easily resolved through normal intercultural adjustment. Given the general stress and adaptation paradigm, this approach advocates the study of the process of how individuals come to cope with problems at the initial stage and overtime. In this context, acculturative stress is an individuals' stress reaction towards the life dealings that are embedded in the involvement of acculturation (Berry, 2005) which may detrimentally affect his or her psychological well-being, causing physical and mental illness. Hence, the second conceptualization of acculturation process seems to indicate that international students may go through acculturative complications which may not be easily managed through cultural conformity.

Depression

According to American Psychiatric Association (cited in Arslan, Ayranci, Unsal, & Arslantas, 2009), depression is a frequent and severe mental health problem characterized by loss of interest, depressed mood, low self-worth, sleep difficulties, poor concentration, feelings of guilt and low energy which unsympathetically affect person's thoughts, feelings and actions. Depressive symptoms can be chronic and persistent and lead to substantial impairments in an individual's ability to undertake his or her day to day responsibilities. As depression is a widespread problem that can affect a wide range of groups such as males, females, students, workers, adolescents (Pilgrim, Rogers, & Pescosolido, 2011), several research findings indicate that depression is a common psychological problem among students population of institutions for higher education (e.g., Beiter et al., 2015; Shamsuddin et al., 2013). In a systematic review of studies on depression prevalence among university students, the rate of prevalence among university students was also found substantially higher than those found in general population (Ibrahim, Kelly, Adams, & Glazebrook, 2013).

Research works on depression among international students are limited (Sümer, Poyrazli, & Grahame, 2008). However, some researches revealed that international students are prone to health problems like anxiety and depression because of (a) myriad (of) adjustment difficulties. For example, in a study conducted on depressive symptoms among international university students in northern Japan, the students were found experiencing depressive symptoms (Eskanadrieh et al., 2012). Likewise (Similarly), in a survey study conducted in the Philippines, higher levels of depressive symptoms were detected among international students due to social and demographic factors such as level of satisfaction with one's financial condition, (or) level of closeness with parents and peers (Romeo, Madelene, Susana, & Cristina, 2013).

Cultural intelligence

Ang and VanDyne (2008) defined cultural intelligence as an individual's capability to function commendably in a multi-cultural context. According to Livermore (2011), cultural intelligence refers to an individual's ability to effectively function in contexts characterized by different national, ethnic and organizational cultural practices. More to these definitions, cultural intelligence refers to the person's ability to interact effectively with people of different cultures (Crowne, 2008). There is a common aspect among the definitions that cultural intelligence is a unique individual quality applied to better functioning in cross-cultural settings. (The commonality between the definitions is that cultural intelligence is a uniquely individual quality that allows people to better function in cross-cultural settings.?) In the current study, it refers to the ability of international students to adequately adjust to the new social, cultural and educational environment of the host community. Cultural intelligence is believed to have an ameliorating impact on peoples' psychological adjustment to the new environment.

According to Earley and Ang (2003), cultural intelligence is a multidimensional construct that comprises of four facets: metacognitive, cognitive, motivational and behavioral. (The) Metacognitive branch of cultural intelligence refers to how an individual makes sense of the multicultural experiences. (The) Cognitive aspect of cultural intelligence refers to the general knowledge structures and cognitive maps about different cultural

practices such as legal and economic systems, sociocultural values and norms. Motivational cultural intelligence refers to the individual's passion, interest, appreciation, and enthusiasm in acquiring and experiencing multiple cultural practices by (through?) having a positive interaction with people of different cultural upbringings. The behavioral aspect of cultural intelligence refers to the individual's competency to operate (navigate/interpret?) both verbal and non-verbal actions that appropriately fit the multicultural interactions.

Prior travel experience, age, acculturative stress and depression

Prior travel experience has long been thought to contribute to psychological adjustment positively because previous abroad exposure enables individuals to have a clear expectation about the potential adjustment difficulties that they could encounter in the host environment (Black, Mendenhall, & Oddou, 1991). It seems that individuals with previous international experience have the advantage of making the best use of their experience in better functioning in a culturally diverse environment. Despite the paucity of empirical studies conducted among international students, a few international students' studies are in favor of the protective role of students' previous travel experience against their adverse psychological acculturative outcomes (Akhtar & Kröner-Herwig, 2015).

Age is also another personal characteristic that affects students' acculturative experiences. The nature of the relationship between age and acculturative stress and depression is unclear and controversial. In (On) one hand, some researchers argue that young individuals are not mature and competent enough to effectively deal with acculturative encounters and consequently become more prone to acculturative stress and depression. On the other hand, according to Berry (1997), young students are believed to better function and quickly adjust to new environment because of their flexibility and openness in (to) learning the new lifestyles (e.g., language).

Cultural intelligence, Acculturative stress and depression

Studies on cultural intelligence made (make?) an effort to clarify the reason why some individuals adapt more effectively to the (without the is fine too) new intercultural setting than others. Cultural intelligence is one of the (most?) prominent factors that profoundly influences the quality of (the) adjustment process to the new environment, indicating that individuals with high cultural intelligence tend to make a successful adjustment (Ng &

Earley, 2006) with minimal experience of acculturative stress (Richard, Reginald, & Brent, 2006). Similarly, Le, Jiang, and Nielsen (2016) argue that cultural intelligence guides people in adjustment (**adjusting**) to the multicultural setting and handling stress, cultural barriers and difficulties in cross-cultural communications and interactions. Despite the limited empirical evidence for the significant relationship between cultural intelligence and acculturative stress, some studies have demonstrated that cultural intelligence is negatively related to acculturative stress. For instance, Khan (2015) conducted a study on 200 (**acculturating students**) within (**throughout the?**) country in India and provided sufficient empirical and statistical evidence for the predicting impact of cultural intelligence on acculturative stress.

Tamannaifar and Hesampour (2016) also found cultural intelligence to be significantly contributing to the students' adaptability to the university environment. (**Tamannaifar and Hesampour (2016) also found cultural intelligence to significantly contribute to students' adaptability to the university environment.**) Cultural intelligence guides all (**the entire?**) student population within and outside **one's?** native country migrant student population to effectively function in acculturative processes. However, it has paramount importance in (**on**) international students' psychological and sociocultural adjustments. In line with this argument, cross-cultural studies have also asserted that cultural intelligence significantly predicts the feeling of acculturative stress of the international students in the multicultural environment (Ayoob, Wani, Ahmad, Jan, & Dar, 2015). Such empirical studies indicate that cultural intelligence facilitates the process of acculturation towards the new environment and thereby shelters students from experiencing a plethora of deleterious (**negative or harmful?**) acculturative outcomes such (**like?**) as stress and tension (**for example**).

Previous cultural intelligence studies have asserted (**reminded or informed us?**) that cultural intelligence is positively associated with psychological well-being and negatively associated with mental health problems such as depression. For example, Elyasi et al. (2017) carried out a cross-sectional study of 385 university students to examine the relationship between cultural intelligence and mental health. and (**take out and, Their**) their report reveals that there is a significant association (**correlation?**) between cultural intelligence and mental health. In a similar recent study, cultural intelligence was also found moderating the relationship between acculturative stress and somatic symptoms of general health, meaning

that the relationship between acculturative stress and somatic symptoms was stronger when cultural intelligence was low, but the relationship was weak when the level of cultural intelligence was high (Ayoob & Alsultan, 2017). In line with these findings, cultural intelligence moderated the relationship between culture shock, one component of acculturative stress, and psychological and sociocultural adaptation (Presbitero, 2016).

Besides (Additionally?), A study on the relationship between cultural intelligence and psychological well-being with the moderating impact of mindfulness among 110 international students in Taiwan was carried out and reported. The report revealed that the metacognitive and behavioral components of cultural intelligence were positively and significantly correlated with psychological well-being (Tzu-Ping & Wei-Wen, 2017). However, the (the isn't necessary) overall cultural intelligence was not significantly correlated with psychological well-being. Harrison and Brower (2011) conducted a study on the role of cultural intelligence and personality hardiness on homesickness by surveying 537 international students in the United States of America. Their results revealed that personality hardiness and all dimensions of cultural intelligence significantly predicted psychological adjustment,; more particularly (in particular), the heart or emotional aspect of cultural intelligence depicted the most potent power of predicting homesickness. This result signposts the vital role of cultural intelligence in psychological adjustments, although the study examined only one aspect of acculturative stress as a measure of adjustment (homesickness) and (which) may not give a complete picture of adjustment difficulties.

Therefore, from the previous literature it can be inferred that cultural intelligence, age, and prior travel experience impact acculturative stress and depression of the international students even though the studies are insufficient and some have controversial results.

Acculturative stress as a mediator between cultural intelligence and depression

Some studies have analyzed the mediating effect of acculturative stress on the relationship between predictors and mental health outcomes. For instance, acculturative stress was found to function as a mediator on the relationship between the acculturation and mental distress and depression, indicating that a low level of acculturation intensified the level of acculturative stress and thereby led to debilitating mental health problems such as depressive symptoms (Cho, Jang, Ko, Lee, & Moon, 2017). Similarly, acculturative stress was found to mediate the linkage (connection) between cultural orientation and psychological functioning,

suggesting that balanced cultural orientation towards both the native and host culture shields individual students from higher acculturative stress and subsequently buffers against exacerbating mental health outcomes and can enhance positive health outcomes (Du, Li, Lin, & Tam, 2015).

Statement of the problem

Acculturative stress, anxiety, and depression are appearing to be prevalent health problems among students as a result of adjustment difficulties in a new environment. Given this, there was (is) a need to have an accurate and comprehensive understanding of the antecedents of psychological adjustment and thereby to find out strategies that have the potential of safeguarding students from detrimental acculturative outcomes. To this end, (For this purpose, ?) researchers have uncovered various psychological resources such as coping skills, social support, self-efficacy, emotional and cultural intelligence, and personality which act as vital influencing factors of psychological adaptation (Mesidor & Sly, 2016). However, empirical cultural intelligence studies on international students have globally been unheeded and lagged behind (Wang, Heppner, Wang, & Zhu, 2015).

Likewise, the international students' adjustment studies from individual-level perspective are also significantly limited in China although the number of students in the country is swiftly increasing (Wen, Hu, & Hao, 2017). Drawing on the prevailing mental health problems among the students and the limited cultural intelligence studies, the present study primarily (is?) endeavored to address the gap by examining the relationships between cultural intelligence, acculturative stress and depression. Understanding the relationship between the study variable may provide practical implication for university communities in assisting international students to better adjust to the new environment and thereby foster (supporting?) their psychological health (and well being?).

Research questions and Hypotheses

Following the reviewed literature and the theoretical conceptualization of cultural intelligence and acculturative stress, the study voiced the following guiding research questions and hypotheses.

1. What is the predicting impact of prior travel experience on acculturative stress and depression?

2. What is the predicting impact of age on acculturative stress and depression?
3. Do students' cultural intelligence scores predict their acculturative stress scores?
4. Do students' cultural intelligence scores predict their depression scores?
5. Does acculturative stress mediate the relationship between cultural intelligence and depression?

Hypothesis 1. Students with prior travel experience before coming to China have lower acculturative stress and depression than students with no previous travel exposure.

Hypothesis 2. Younger students have lower acculturative stress and depression scores than older students.

Hypothesis 3. Students' cultural intelligence negatively relates to acculturative stress.

Hypothesis 4. Students' cultural intelligence negatively relates to depression.

Hypothesis 5. Acculturative stress fully mediates the relationship between cultural intelligence and depression.

Methods

Participants

The study recruited a total of 506 volunteer international university students (284/56% males and 222/44% females) with the average age of 27.32. Participants were conveniently selected from seven universities located in Wuhan, China. Their average length of stay in the host country was 21 months. 70 % of the participants were single while the rest (30%) were married. The frequency distribution of the respondents as per educational status was 152 (30%) – Bachelors, 206 (41%) – Masters and 148(29%) – doctorate. Majority of the participants were from Asia (45%), and Africa (41%), and 14% were from the rest of the continents (Europe, Oceania, Latin America, and North America).

Measures

Cultural intelligence

The study employed Ang et al. (2007)'s Cultural Intelligence Scale (CQS) to measure cultural intelligence. CQS is a reliable 20 item multifaceted scale encompassing four subscales rated on seven Likert scales ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). The four subscales of CQS are Metacognition (4 – items, $\alpha = .72$), Cognition (6 – items, $\alpha = .86$), Motivation (5 – items, $\alpha = .76$), and Behavior (5 – items, $\alpha = .83$). Higher scores reflect a higher level of cultural intelligence. Several studies supported the reliability of the instrument (Khan, 2015; Tzu-Ping & Wei-Wen, 2017). Some studies provided evidence for the predictive, discriminatory, and convergent validity of the measure (e.g., Ang et al., 2007; Khan & Hasan, 2016).

Acculturative stress

The study adopted Acculturative Stress for International Students Scale (Sandhu & Asrabadi, 1994) to measure the acculturative stress. The device is a 36- items self-report questionnaire rated on 5 points Likert type of scale ranging from 1 (*Strongly Disagree*) to 5 = (*Strongly Agree*). Higher scores represent the prevalence of higher level of acculturative stress. Several researchers have agreed that the measure is a highly reliable instrument with reliability coefficient, ranging from .92 to .94 (e.g., Liu et al., 2016; Sandhu & Asrabadi, 1994; Wei et al., 2007). Besides, Sandhu and Asrabadi (1994) provided valid evidence for the instrument.

Depression

Radloff (1977) Center for Epidemiological Studies Depression Scale (CES-D) was used to measure Depression. CES-D is a self-report instrument devised to measure depressive symptomatology such as depressed mood, the feeling of worthlessness, loss of appetite, poor concentration and sleep disturbance in the general population. CES-D contains 20 both positively and negatively worded items rated on 4 Likert type of scale which ranges between 1 (*Rarely or None of the time*) and 4 (*All of the time*). Total scores for responses range from 20 to 80. Higher scores reflect a prevalence of higher depressive symptoms. A widely used instrument, CES-D, has consistently been reported having high Cronbach's alpha coefficients ranging from .85 to .90 across studies (Radloff, 1977).

Data Collection Procedure

Once the study was approved by the School of Psychology, Central China Normal University, anonymous self-report questionnaires were distributed to the participating

students in their respective schools and classrooms. Some Senior Master or Ph.D. students from Central China Normal University, country mates, and friends were involved in administering, guiding and facilitating the data gathering process in case participants may face difficulties in understanding the item statements. As per the American Psychological Association guidelines, participation in the present study was voluntary and based upon informed consent. Participants were also assured that the data would not be used for any other purpose than the research.

Results

Descriptive statistics of the study variables

Table 1 presented the summary of the mean of mean scores, standard values and reliability coefficient values of the valuables measured in the study. Reliability of the instruments was established using Cronbach’s alpha. The study measures were found to have sufficient internal consistency reflecting that the data obtained from this scale is trustworthy. Besides, to assess the assumption of normality for the study variables, measures of distribution shape, skewness and kurtosis were calculated. The values for skewness and kurtosis between -2 and + 2 are considered as acceptable limits to prove the normal univariate distribution (Gravetter & Wallnau, 2014). Therefore, as depicted in Table 1, the values of skewness and kurtosis for all study variables fell within the acceptable range, reflecting that data were normality distributed.

Table 1

Summary of descriptive statistics of the study variables

Variables	No. of items	Alpha	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Ku</i>
Cultural intelligence	20	0.88	4.65	0.86	0.00	-0.09
Acculturative stress	36	0.92	2.27	0.57	-0.08	-0.49
Depression	20	0.82	1.88	0.41	0.41	-0.32

Bivariate Correlations between study variables

The summary of the inter-correlations between the study variables was presented in Table 2. The results indicated that students with no previous travel experience as well as older students reported greater acculturative stress and depression. Besides, cultural intelligence was found to be negatively related to both acculturative stress ($r = -0.27, p < .01$) and depression ($r = -0.18, p < .01$), delineating that students with a higher level of cultural intelligence were found to have lower acculturative stress and fewer depressive symptoms.

Table 2

Summary of inter-correlations between study variables

Variables	1	2	3	4
Age of participant				
Prior Travel Experience	0.03			
Cultural Intelligence	0.00	0.18**		
Acculturative stress	0.16**	-0.19**	-0.27**	
Depression	-0.10*	-0.10*	-0.18**	0.37**

**correlation significant at the 0.01 (2-tailed)

*correlation significant at the 0.05 (2-tailed)

Predicting acculturative stress from age, prior travel experience and cultural intelligence

(The?) Hierarchical multiple regression was run to examine the predicting effect of age, prior travel experience, and cultural intelligence. Predicting variables were sequentially entered in the form of blocks. Age and prior abroad travel experience were put in the first block. Having (With) the variables of the first block in the model (already inputted?), cultural intelligence was entered in the second block. The results indicated that the combined effect for block one variables accounted by for 7% of the variance in acculturative stress in which the regression equation was statistically different from zero, ($R^2 = 0.07, F_{(2, 499)} = 17.60, p < .0005$). Students with prior travel experience ($\beta = -0.20, p < 0005$) and younger students ($\beta = 0.17, p < 0005$) reported less acculturative stress. When cultural intelligence was added into the second block, the overall model explained 12% and was statistically significant: ($R^2 = 0.12, F_{(3, 498)} = 22.63, p < .0005$). After removing the effect for age and prior travel experience, cultural intelligence explained an additional 5% of the variance in acculturative

stress; this additional contribution was statistically significant: (R squared change = .05, F change (1, 498) = 30.60, $p < .0005$). Culturally brilliant students experienced lower level of acculturative stress ($\beta = -0.24$, $p < .0005$). Prior travel experience ($\beta = -0.16$, $p < .01$) and age ($\beta = 0.17$, $p < .01$) continued to maintain their significant unique contribution in the second block.

Table 3

Summary of hierarchical regression for predictors of acculturative stress:

Predictors	B	SEB	β	Model			
				R	R^2	R^2 change	F change
Block 1				0.26	0.07		17.60***
Age	0.02	0.00	0.17***				
Prior Travel Experience	-0.23	0.05	-0.20***				
Block 2				0.35	0.12	0.05	22.63***
Age of participant	0.02	0.00	0.17***				
Prior Travel Experience	-0.18	0.05	-0.16***				
Cultural intelligence	-0.16	0.03	-0.24***				

Note. Dummy variable - Prior travel experience: Yes = 1, No = 0

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Predicting Depression from age, prior travel experience, cultural intelligence and acculturative stress

To examine whether age, prior travel experience, cultural intelligence, and acculturative stress predict depressive symptoms, hierarchical multiple regression was carried out. In running the hierarchical regression analysis, predictors were inputted into the model in

three blocks. Participants' age and prior travel experience were put in the first block of the model, followed by acculturative in the second block, and cultural intelligence in the third block. As depicted in Table 4, findings of the analyses noticed that students' age and prior travel experience tallied to explain a 2% of the variance in depression ($R^2 = .02$, $F_{(2, 499)} = 5.52$, $p < .05$). Students who have had the experience of traveling abroad ($\beta = -0.10$, $p < .05$) and younger students ($\beta = -0.11$, $p < .05$) appeared to have fewer depressive symptoms. Including cultural intelligence in the second block of the model improved the predicting power of the overall model to account for by 4% of the variance in the outcome variable and this was statistically significant ($R^2 = .04$, $F_{(3, 498)} = 8.03$, $p < .001$). Cultural intelligence additionally contributed 2% of variance in depression, and the change in R^2 was statistically significant (R^2 squared change = .02, F change $_{(1, 482)} = 12.78$, $p < .0005$). Culturally intelligent students reported less depressive symptoms ($\beta = -.16$, $p < .0005$). Compared to ? block one variables, age continued to maintain its unique contribution to the outcome variable in the second model.

When the acculturative stress was added in the third block of the model, the overall model explained 18% of the variance in depression and the regression equation was statistically significant ($R^2 = 0.18$, $F_{(4, 497)} = 26.30$, $p < 0.0005$). After removing the effects of age, prior travel experience, and cultural intelligence, acculturative stress contributed an additional 13% of the variance in depression. The additional contribution was statistically significant as well (R squared change = 0.13, F change $_{(1, 487)} = 77.42$, $p < 0.0005$). Therefore, what this indicated is that international students with high level of acculturative stress experienced greater depressive symptoms than the ones with lower acculturative stress ($\beta = 0.38$, $p < .0005$). Among block one and block two variables, age again continued to have an improved negative predicting effect on depression. In the third block of the equation ($\beta = -0.17$, $p < .0005$).

Table 4

Hierarchical regression results for predictors of Depression:

Predictors	B	SEB	β	Model			
				R	R^2	R^2 change	F change
Block 1				0.15	0.02		5.52*

Age of participant	-0.01	0.00	-0.11*				
Prior Travel	-0.09	0.04	-0.10*				
Experience							
Block 2				0.22	0.5	0.02	8.03***
Age of participant	-0.01	0.00	-0.11*				
Prior Travel	-0.06	0.04	-0.07				
Experience							
Cultural intelligence	-0.08	0.02	-0.16***				
Block 3				0.42	0.18	0.13	26.3***
Age of participant	-0.01	0.00	-0.17***				
Prior Travel	-0.01	0.04	-0.01				
Experience							
Cultural intelligence	-0.03	0.02	-0.07				
Acculturative stress	0.28	0.03	0.38***				

Note. Dummy variable - Prior travel experience: Yes = 1, No = 0

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Mediating effect of acculturative stress on the relationship between cultural intelligence and depression

Mediation is hypothesized to be a causal chain relationship in which one variable affects the second variable and therefore affects the third variable. Mediation occurs when the following four conditions are fulfilled (Baron & Kenny, 1986).

- a. The independent variable must predict dependent variable.
- b. The independent variable must predict the mediating variable.
- c. The mediating variable must predict the dependent variable.

- d. Finally, when the mediator is removed from the model, the significant predicting effect of an independent variable on the dependent variable is either reduced (partial mediation) or eliminated (full mediation).

To fulfill the four conditions of the mediating effect, regression PROCESS macro of Preacher and Hayes (2004) was conducted. As displayed in figure 1, the output of the regression PROCESS macro of the present study demonstrated that all four conditions were satisfied, indicating that mediation occurred. Cultural intelligence predicted both the mediating variable of acculturative stress ($b = -.18, t = -6.19, p < .001$) and the outcome variable of depression ($b = -.08, t = -4.00, p < .001$). The mediator also predicted the dependent variable ($\beta = .26, t = 8.24, p < .001$). When the effect for acculturative stress (mediator) was removed, cultural intelligence was no longer significantly predicted depression ($b = -.04, t = -1.91, p = .06$), reflecting that full mediation has occurred. To assess the statistical significance of the indirect effect, a bootstrap estimation approach with the sample of 5000 was used, and the indirect effect was evident in which the 95% confidence interval did not include zero ($b = 0.05, SE = .01, 95\% CI = -0.07$ to -0.23).

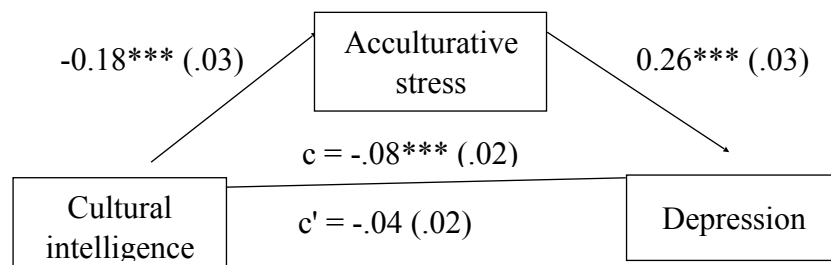


Fig. 3 demonstrated the unstandardized coefficients for the regression paths (paths a, b and c) between the independent, mediator and dependent variables with standard errors in parentheses. *** $p < .001$. The indirect effect is $(-0.18)(0.26) = -0.047$

Discussion

The study examined how age, prior travel experience and cultural intelligence impact acculturative psychological outcomes (i.e. acculturative stress and depression). In line with the hypothesis that age and prior travel experience predict acculturative stress and depression, the present finding confirmed that students with previous exposure experience lower acculturative stress and depression than their counterparts. Several studies supported the

present finding that previous abroad exposure decreased students' feeling of stress (Akhtar & Kröner-Herwig, 2015; Smiljanic, 2017) and depression. It is not a surprise that students with previous travel experience reported lower acculturative stress and depression because those students have already experienced how it felt to be **very far?** away from home. They may have also gained the skill and competence on how to adjust to the new environment because of their clear expectation and visualization about the host environment (Smiljanic, 2017). Concerning **Pertaining to?** age, the study found younger students experience less acculturative stress which is in line with Berry (1997)'s argument that young individuals easily integrate with mainstream society. Despite their better adjustment to the new environment, younger students reported greater depressive symptoms than older students. The reason for this might be attributed to the psychological and emotional immaturity of younger students to successfully cope **with** emotional disturbances, frustration, and hopelessness which might stem from factors that are not associated with adjustment difficulties such as academic failures or relationship problems. Even though there is a scarcity of depression studies among international students (Sümer et al., 2008), some studies reported that the rate of prevalence of depression is relatively common among the students irrespective of their age (Eskanadrieh et al., 2012).

Following the acculturative stress models of Berry (2003) and the cultural intelligence model of Ang and VanDyne (2008), the study conjectures that cultural intelligence predicts acculturative stress and depression assuming that students who are culturally smart **aware?** before they first come into contact with the new society are likely to experience less acculturative difficulties and depression. The finding of the study corroborated **(confirmed?)** this hypothesis that international students with a higher level of cultural intelligence before they sojourn to the host community reported less acculturative stress and depression. A possible explanation for this finding relates to the theoretical postulation of cultural intelligence as part of general intelligence and acculturative stress. Berry (2003), in his acculturation theory, argued that psychological resources **(tools, arsenal?)** which individuals bring into the arena of acculturation are essential features **(components?)** of psychological acculturation.

In their cultural intelligence model, Ang and VanDyne (2008) conceptualized cultural intelligence as a mental ability that enables individuals to control and be aware of their

cognitive processes in dealing with people of different cultures. It also enables (requires?) them to critically and consciously examine their own culture in order to make a possible amendment to better fit in with the host culture (Van Dyne et al., 2012). According to Ang and VanDyne (2008), the ability of individuals to gain comprehensive knowledge and understanding about (of?) the host community's cultural practices allows them to develop a sense of cultural recognition and appreciation which notably orchestrates and guides their social interaction within the culture. Subsequently, individuals who have higher cognitive cultural intelligence are believed to better function and develop healthy relationships with culturally diverse people. Motivational cultural intelligence enables international students to have (obtain?) the necessary willingness to acquire new (important?) cultural information and learn from other culturally diverse students (Van Dyne et al., 2012). Besides, motivational cultural intelligence encapsulates individuals' internal motivation as a source of personal satisfaction, external motivation as a source of concrete benefits, and self-efficacy as an opportunity to demonstrate their potential and capabilities by taking part in different intercultural experiences (Van Dyne et al., 2012). Behavioral cultural intelligence also helps individuals to depict appropriate verbal and nonverbal behaviors during sociocultural interactions with people of different cultural backgrounds (Ang & VanDyne, 2008). Behavioral cultural intelligence is the most salient dimension of cultural intelligence because it enables individuals to gain a sense of control and regulation over their social behaviors in new multicultural settings with minimal misunderstandings, miscommunications, and attributional problems (Ghahremani, Monterosso, Jentsch, Bilder, & Poldrack, 2010).

Several empirical studies have also supported the current finding that cultural intelligence is inversely related to adverse acculturative outcomes (Harrison & Brower, 2011; Khan, 2015; Lin, Chen, & Song, 2012). Tzu-Ping and Wei-Wen (2017) found metacognitive and behavioral aspects of cultural intelligence to be significant predictors of psychological well-being. However, unlike the present finding, some international students' studies found no significant explained variance for the cultural intelligence on acculturative psychological outcomes (Tzu-Ping & Wei-Wen, 2017; Ward, Fischer, Zaid Lam, & Hall, 2008) which might be due to the self-report nature of the cultural intelligence (Ward et al., 2008).

The sample data confirmed the hypothesis that acculturative stress mediated the relationship between cultural intelligence and depression, representing indicating? that

students with high levels of cultural intelligence experienced a lower level of acculturative stress and subsequently fewer depressive symptoms. Despite the limited available or accessible? literature, parallel to the present finding, some related empirical studies showed that acculturative stress mediated the relationship between psychological adjustment outcome and its predictors such as collectivistic cultural orientation (Du et al., 2015), and acculturation (Cho et al., 2017).

Despite its contribution, the study had several limitations. First, as the study was descriptive cross-sectional and examined all the study variables at the same point in time, establishing causal relationships between the variables was not achieved. Therefore, future studies might continue to study the variables using other research designs such as: longitudinal or quasi-experimental approaches. Secondly, those selected to participate in the study were international students completing their studies in universities located in Wuhan which may affect the external validity of the findings. Since participants were from a wide range of countries, the diversified cultural background of the study may affect the finding. Therefore, future research could endeavor to focus on a specific group of international students with sufficient sample representativeness to achieve a comprehensive and accurate understanding of the psychological adjustment of the students. Finally, participants' response bias might affect the accuracy of the findings, and future studies might, therefore, replicate the study using another research design which may minimize the potential response bias of future participants.

Conclusion

The present study provided statistical evidence that cultural intelligence, age, and prior travel experience have a significant predicting effect on both acculturative stress and depression. The finding of the study underlines that Cultural intelligence, age, and prior travel experience are a salient feature of the psychological adjustment process. The mediating effect of acculturative stress on the cultural intelligence-depression relationship also highlights the importance of considering potential mediating factors in scientific understandings of the acculturative context of international students.

Implication

There are no considerable empirical cultural intelligence studies on international students. Therefore, the findings of the present study could be noteworthy in theoretically

enriching the scientific body of cross-cultural knowledge by examining 1) the predicting effects of cultural intelligence, age and prior travel experience on acculturative stress and depression; 2) the mediating role of acculturative stress on the relationship between cultural intelligence and depression. The mediating effect of acculturative stress provides evidence that the relationship between cultural intelligence and depression is straightforward because of the comorbidity of various variables in the impact.

Practically, the significantly explained variance of cultural intelligence in both acculturative stress and depression could guide university communities to better handle adjustment difficulties of their international students. The findings of the study inform university personnel **interacting** with international students to create suitable ground where students with low level of cultural intelligence cultivate and capitalize their ability to effectively function in a multicultural context thereby promoting their mental health. For instance, university communities can arrange various curricular and co-curricular activities which include **off-campus** tours or visits, educational clubs and units (e.g. language clubs, research and publication units), alumni programs, cultural exchange festivals, sport activities, which can **all** take place inside and outside the campus with other partner universities. **Lastly**, universities can use their campus magazines to actively work on publishing students' multicultural experiences and reflections. Such activities also seem to help students feel confident and capable of mobilizing their full attention and energy towards active engagement and learning in the process of acculturation while respecting, appreciating and valuing cultural diversity. Another implication derived from the finding of the study **is** that students with younger ages and no previous travel experience **with a** higher risk of depressive symptoms **can encourage** university mental health professionals first to channel their services towards such sub-groups of students.

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