

## Development and Validation of Acculturative Stress Scale

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The stress that is related with cross cultural transition is called acculturative stress. This stress may be due to homesickness, adapting new language, experiencing racial discrimination or lack of comfort with the new culture. The present paper deals with the development and validation of acculturative stress scale after reviewing available literature on the scale and writing of new items. The development and validation of the scale was carried out in different steps by using purposive sample. After analyzing the data of 82 international students studying in India, investigators found that dimensions of the scale – discrimination, isolation, homesickness, cultural shock, guilt, hate, social support, poor self image, sad, safety, and academic challenges – were positively correlated with the total score of acculturative stress. The results of factor analysis showed that the dimensions of the scale possess adequate psychometric properties. The internal consistency indices, the alpha coefficient was found 0.896 for the scale. Hence the scale could be considered as an appropriate measure for assessing acculturative stress among international students.

**Keywords:** Acculturation, Acculturative stress, Discrimination, Homesickness, Isolation.

Recently, India has become one of the important centers of education for international students. Many international students are now enrolled in Indian colleges and universities. For international students cross cultural living may be exciting, but challenging also. They need to adjust in physical, social, psychological and cultural areas. The adjustments may be related with new education setup, study pressure, familiarity with new culture etc. "This period of adjustment during which an immigrant understands and incorporates the values, beliefs and behaviours of the new culture into the context of the values, beliefs and behaviours of his culture of origin is known as acculturation" (Berry, 1970). While making these adjustments they may face pressures and worries caused by the differences in Indian cultural values and beliefs. Some individuals may be able to manage it, but others may experience a certain amount of stress due to adjustments. This stress may be due to adapting new language, experiencing racial discrimination, homesickness and lack of comfort with the new culture. This stress associated with cross cultural transition is called acculturative stress. Berry (1970) defined acculturative stress as "reduction in health status

of individuals who have to struggle to adapt to a new culture psychologically & socially."

India is a land of cultural diversity. It has its own beliefs, attitudes, ideologies and values. Results of studies on acculturative stress done in other countries are assumed to have generalizability to the Indian context. It is recognized that some commonalities exist regarding language, culture and institutional existence. The adjustment problems of international students in other countries were discussed in the prevailing literature by (Berry, 1976; Bhui et al., 2004; Dillard & Chisolm, 1983; Gomez, 2011; Kim, 2013; Klineberg & Hull, 1979; Mishra, 2002; Naditch & Morrissey, 1976; Owie, 1982; Padilla, Alvarez, & Lindholm, 1985; Schram & Lauver, 1988; Yukunina, 2013). During the process of adaptation to academic life, students may experience several difficulties such as stress from academics, general development issues, financial pressures, sharing one's life with strangers, leaving home etc. (Spencer, Oatey, & Xiong, 2006; Toyokawa & Toyokawa, 2002).

After going through literature, it was found that very little work was done on adjustment problems of international students in India. Ayoob

et al. (2011) found that from the aspects - length of stay, acculturative stress, and health, length of stay was found to be a significant predictor of acculturative stress and health in Kashmiri students who were staying in Central India. Findings of the study suggested that students with short length of stay reported high level of acculturative stress and poor level of health. Mishra et al. (1996) researched on ecology, acculturation and psychological adaptation on Advasis in Bihar, a detail study on the pattern of psychological adaptation of three different tribal groups in the state of Bihar—the Birhor, the Asur and the Oraon. They found that different ecological adaptations resulted differences in settlement and occupation patterns. Mishra & Chaubey (2002) studied acculturation attitudes of Kharwar and Agaria Tribal groups of Sonbhadra. The findings revealed that the level of contact of both the groups with the outside world had no significant difference. While Kharwar tribe had been in contact with the outside world for a relatively longer period of time than the Agaria tribe. Their integration, assimilation and marginalization attitude towards acculturation was almost same as Agaria tribe.

Thus, investigating the process of acculturation which students go through and understanding the challenges they experience will provide a view of what kind of services can be provided to keep them as well as to increase the number of international graduates in India. Understanding the challenges and obstacles faced by international students can contribute to planning for new support for academic help. Such support to the current structure could be: academic advising, support services in terms of coping with a new environment, psychological services for students in adversity and financial support etc. The presence of international students in our institutions provides an opportunity to develop international understanding and to promote of our culture among students. The purpose of the present scale was to develop a measure for the acculturative stress, which may help in understanding various problems of international students while acculturating in a new culture like India.

### Method

The present scale has been developed by employing deductive approach. It utilizes already explored theoretical definition of the construct. Deductive approach is most suitable for situations where some theory is already present. One of the important approaches is Eric Kramer's "theory of Dimensional Accrual and Dissociation (DAD)". In this theory, no single mode of communication is superior and no final solution to intercultural conflict is suggested. According to Kramer, changes in each culture due to acculturation is referred as co-evolution. He uses the phrase "interaction potential" to refer to differences in individual or group acculturative processes. The process of acculturation may be different for an immigrant or a refugee. It also depends on how receptive a host culture is to the immigrant, how the immigrant interacts with the host culture and how this interaction affects both the immigrant and the host culture. According to another theory, the acculturation process begins with the contact between two different cultures. Then there is a reciprocal influence on both groups. In general, the dominant group has more significant influence on the non-dominant group, therefore the non-dominant group will have to make more changes. This change could be "uni-dimensional," in which acculturation brings change of the dominant culture. In uni-dimensional change, an individual may lose his own cultural identity and will gain host culture's identity (Sam, 2005). While Berry proposed that acculturation is not a process to be considered as uni-dimensional he suggested that while examining acculturation, one should examine the extent to which an individual identifies with his own culture as well as with the host culture (Berry, 1988, 2002). He also suggested a bi-directional model which would entail an individual's values for maintaining his own identity as well as the desire to have "inter-ethnic contact" and relations with the dominant culture (Berry, 1988). Within Berry's model, these two dimensions intersect to create four acculturation categories—assimilation (adopts the host culture and rejects one's own culture), separation (rejects the host culture and retains own culture), integration (adopts the host culture as well as retains his own culture), and marginalization

(rejects both the host and own cultures). While comparing various models, it was found that bi-directional models is more valid and as it gives a more accurate representation of an individual's adaptation to the other culture (Cleveland & Loroche, 2007).

### Significance of the Study

As there was very limited research done on the said theme in India as a result there was no instrument available which could assess the acculturative stress of international students in India. As the applicability and validity of foreign scale in Indian context was limited so researcher decided to construct a scale on acculturative stress. For this, the researcher went through the existing stock of test and tools available in other countries like "The Acculturative Stress Scale for International Students" (Sandhu & Asrabadi, 1994); "Social, Attitudinal, Familial & Environmental Acculturative Stress Scale for Children" (Hovey & King, 1996); and "Acculturative Stress Scale" (Meena et al., 1987). The review of literature showed that various factors of acculturative stress were – anxiety (Ward, 1967); personal depression, (Kline berg & Hull, 1979); attitude and cognitive style (Berry, 1987); homesickness, loneliness (Pederson, 1991); perceived discrimination, homesickness, perceived hate, fear, cultural shock, guilt, miscellaneous factors (Sandhu & Asrabadi, 1994); academic life, psychological autonomy, economic independence (Toyokawa & Toyokawa, 2002); cultural adjustment (Mori, 2000); lack of adequate social connectedness and social support (Yeh & Inose, 2003); social support (Jeessook, 2004), physical environment (climate & safety); biological factors (food, diseases); social factors (homesickness, loneliness); cultural factors (differences in values, racial discrimination); and functional factors (academic, financial and transportation problems) (Ying, 2005); perceived discrimination (Bacalao, 2006); homesickness (Eigene, 2009); and language (Singh, 2011) etc.

Thus, keeping the above in forefront (the already existing foreign scales and stressors) the present scale was developed. Some items were taken from existing tools with some modification in language and some new items suited to Indian

culture were added. Thus, after the survey of literature 15 recurring dimensions were found: discrimination, isolation, homesickness, fear, communication, cultural shock, hate, guilt, sadness, social support, financial challenges, self image, safety, re-entry challenges, and academic challenges.

### Item generation:

A draft of 97 items under 15 dimensions in English was given for evaluation to 14 experts having a good experience in the field of teaching and research at university and college level to examine the content, repetitiveness and ambiguity of the items. These experts were personally requested to give their reflections over every statement and to respond objectively with their comments and observations. The experts were also provided with the description of the theoretical basis of the formulation of the acculturative stress scale and the definition of the dimensions. For the purpose of evaluation, they were asked to mark "A" for acceptable item, "M" for modification of item and "D" for deleting the item. For evaluation of face validity, based on feedback of experts - three dimensions were deleted, 16 items were deleted and 25 items were modified and reframed. Accordingly, the primary draft for initial tryout was prepared consisting of 81 items.

### Initial Try Out:

Preliminary draft was administered on a sample of 100 undergraduate international students of mixed stream of study of one of the universities of Union Territory Chandigarh having a minimum strength of 150 international students.

### Sample:

Sample students included students enrolled in a course of minimum two years duration. The demographic characteristics of the students who participated in the study were: female (34%) and male (66%). The age range of participants was from 18-22 years (32%) and 20-22 years (68%) and all of them were single. The students who were included in the sample were from streams of Management, Commerce, Science, and Humanities. Majority of the students were from countries like Afghanistan, Bhutan, Nepal,

Iraq, etc. Acculturation experience range of participants was approximately one month. Out of 100, 92 copies were received, in which 12 copies were not complete. So, 80 questionnaires were used for statistical analysis. Purposive sampling technique was used. It was not designed as a time test.

#### Scoring:

Acculturative stress scale was on a five-point Likert scale. The 'Likert' five-points continuum viz, strongly agree, agree, not sure, disagree and strongly disagree with respective weights of 5, 4, 3, 2 and 1 for favourable statements and 1, 2, 3, 4, 5 for the unfavourable statements were used. To obtain the value of score for each statement, the response category of the scale was assigned by a number. From a sum of scores of responses, the total score can be derived. Higher the score on all statements stress was considered to be higher.

#### Item Evaluation:

After completing the initial try out, statements were assigned scores according to the mentioned scoring procedure and then the scores were arranged in ascending order to calculate

discrimination index. Based on the total scores on acculturative stress scale (obtained by summing the subject's ratings on items) the upper (27%) and lower (27%) criterion groups were selected. The t values were computed for evaluating the difference in the mean response of subjects to an item having high and low stress with SPSS. Items which had a t value, which was positive and significant at 0.05 level of confidence ( $t >= 2.02$ ) were selected for the scale. It was found that 15 items out of 81 items had t values insignificant at 0.5 level and the rest 63 items successfully discriminated between the extreme groups and gave significant t-values. Therefore, these 15 items were eliminated and 63 items that were significant at 0.5 level were retained and selected.

#### Factor Analysis:

To reduce the data and assess the interrelationship among a set of variables factor analysis was done. It was based on the principal components and inter correlations among all items. KMO was  $>0.5$ , so correlation matrix was not identity matrix. Items having communalities and values greater than 0.5 were retained in the scale. It is evident from Table-1 of total variance

Table 1: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	24.628	38.481	38.481	24.628	38.481	38.481	17.545	27.413	27.413
2	7.431	11.611	50.092	7.431	11.611	50.092	8.136	12.713	40.126
3	5.929	9.264	59.355	5.929	9.264	59.355	6.242	9.753	49.879
4	4.794	7.49	66.846	4.794	7.49	66.846	5.321	8.314	58.194
5	4.031	6.299	73.144	4.031	6.299	73.144	4.355	6.805	64.999
6	3.743	5.849	78.993	3.743	5.849	78.993	3.913	6.114	71.113
7	3.463	5.41	84.404	3.463	5.41	84.404	3.873	6.052	77.165
8	2.113	3.301	87.705	2.113	3.301	87.705	3.566	5.571	82.736
9	1.965	3.07	90.775	1.965	3.07	90.775	3.236	5.056	87.792
10	1.521	2.377	93.152	1.521	2.377	93.152	2.758	4.31	92.102
11	1.384	2.162	95.314	1.384	2.162	95.314	2.056	3.212	95.314
12	0.866	1.353	96.667						
13	0.72	1.125	97.792						

Table 2: Component Transformation Matrix

Component	1	2	3	4	5	6	7	8	9	10	11
1	0.784	0.436	-0.25	0.208	0.207	-0.145	-0.014	0.087	0.019	0.128	-0.025
2	0.473	-0.213	0.585	-0.515	-0.102	0.075	0.257	0.046	0.196	0.026	0.015
3	-0.285	0.566	0.468	-0.059	0.426	-0.005	0.05	-0.248	-0.083	0.34	0.091
4	0.009	0.243	-0.119	0.089	-0.432	0.249	0.663	-0.118	-0.349	-0.022	0.306
5	0.093	-0.267	0.204	0.603	0.173	0.013	0.263	-0.508	0.349	-0.187	-0.033
6	0.191	-0.079	0.111	0.087	0.07	0.743	-0.319	-0.16	-0.417	-0.018	-0.28
7	-0.113	-0.049	0.044	0.289	0.162	0.445	0.162	0.65	0.354	0.271	0.165
8	0.021	-0.418	-0.389	-0.27	0.624	0.011	0.334	-0.101	-0.243	0.18	0.113
9	0.051	-0.316	0.282	0.357	-0.169	-0.37	0.033	0.175	-0.456	0.507	-0.169
10	0.083	-0.139	-0.173	-0.058	-0.266	0.122	-0.33	-0.382	0.241	0.569	0.467
11	-0.108	0.104	-0.247	-0.145	-0.169	0.091	0.27	-0.152	0.294	0.381	-0.729

that Eigen values for first eleven components were greater than 1. Percentage of total variation explained by factor 1 was approx. 38% and all the eleven factors explained approx. 95% of the total variation. Hence, sixty-three variables in the scale could be clustered into 11 factors and the rest all factors were forfeited. There were 22 (0.0%) residuals in the data which are greater than 0.05. So, the overall factor analysis model was fit for acceptance. From the un-rotated component matrix we can see that maximum variables are loaded on factor 1 and then on 2 and so on and least on 10 and 11. Maximum variables were still loaded on factor 1 and 2, but distribution was fine in other factors also. (Table-2 showed Component Transformation Matrix and Table-3 showed some items with loading values)

Thus, the final draft of the scale comprised of 63 statements and it was finalized consisting of 14 unfavorable items and 49 favorable items. Unfavorable items were 7, 8, 10, 12, 13, 16, 21, 23, 33, 38, 41, 47, 48, 50 and rest were favorable ones. The 11 dimensions with division of the statements in the dimensions were: discrimination (6), isolation (7), homesickness (5), guilt (3), cultural shock (6), hate (4), social support (7), poor self-image (5), sadness (5), safety (6), and academic challenges (9).

#### Validity:

To determine the Face validity, the preliminary draft of the scale was shown to experts for obtaining their verdict on validity and only those

items were included on which the experts agreed. Besides, these items of the scale were selected after carefully scrutinizing the definitions of acculturative stress and its dimensions, hence the scale has a fair degree of face validity. To find the Concurrent validity, which refers to the extent to which the results of a test, or measurement, correspond to those of a previously established measurement for the same construct. Thus, validity was calculated with one of the previous, established measure used in many researches like 'Acculturative stress scale for international students by Sandhu and Asrabadi (1994)'. 'Pearson's Product Moment Correlation' was calculated and it was found to be 0.824 which provided sound reliability for both the measures.

#### Reliability:

After completing the initial tryout and item selection final try out of the scale, it was administered on a sample of 200 international graduate students from different streams of study of University of Punjab. 159 forms were taken for evaluation and rest was discarded due to incomplete information. 'Cronbach's alpha' reliability was calculated with the help of SPSS. It was found to be 0.896. It was fairly high to testify the soundness of the scale. For test-retest reliability the same test was given to the same respondents after 10 days. The scores on the two occasions were then correlated. The 'Pearson's correlation coefficient' was calculated and it was found to be 0.834. (Table-4)

**Table 3: Showing dimension with some items and their loading values**

	Factor name and item content	Loading
1. Discrimination	i. I am treated differently because of my background.	0.62
	ii. I am treated differently because of my appearance.	0.54
	iii. I feel biased most of time.	0.86
2. Isolation	i. I do not hesitate to make new friends here.	0.52
	ii. I do not have a sense of belongingness.	0.55
	iii. I am unable to adjust in new environments.	0.58
3. Homesickness	i. I do not miss my country people.	0.61
	ii. I do not feel at home here.	0.63
4. Cultural Shock	i. I am hurt when people don't understand my cultural values.	0.57
	ii. I feel uncomfortable when others make jokes on people from my culture.	0.91
5. Hate	i. People show hate towards me verbally and nonverbally.	0.59
	ii. People appreciate my cultural values.	0.83
6. Guilt	i. I feel guilty to leave my family and friends behind.	0.84
	ii. I feel guilty I am not doing something constructive for my country.	0.52
7. Sad	i. I don't find anything to laugh about.	0.68
	ii. Living on foreign land gives me stress.	0.47
8. Social Support	i. I often feel neglected by people who are supposed to help me.	0.67
	ii. People of other cultures try to stop me from advancing.	0.65
9. Poor Self Image	i. I have more barriers to overcome than other people.	0.69
	ii. I am unable to seek help to adjust myself.	0.33
10. Safety	i. Here many places are not safe for me.	0.80
	ii. I fear for my safety because my culture is different from others	0.47
11. Academic Challenges	i. Teacher's expectations are very different from me.	0.50
	ii. I feel comfortable to acquire new academic skills here.	0.50

**Table 4: Showing reliability**

Reliability table	
N	159
Cronbach's Alpha	0.896
Split-Half	0.814
Test-retest reliability	0.834

a low level of acculturative stress and a score between 42-58 means an individual has average level of acculturative stress and above 59 shows a high level of acculturative stress.

#### Applicability of the Scale

The present scale is administrable on international students to assess their acculturative stress, as it sufficiently fulfills the reliability and validity criteria.

#### Development of Norms

The norms of the acculturative stress scale were based on the scores obtained on a sample of 159 international students. Respondents were appropriate in terms of representativeness and adequacy for proposed population. The minimum and maximum range of the score was 63 and 315 respectively. The z score was obtained and a score below 26-41 means an individual has stress of 100 graduate, international students

#### Results and Discussion

The purpose of the present study was development and validation of acculturative stress scale. The psychometric properties of acculturative stress scale were explored. The study was used to assess the acculturative stress of 100 graduate, international students

studying in one of the universities of Union Territory of Chandigarh. Reliability statistics revealed that 63 items possess adequate internal consistency (Cronbach's Alpha -0.896) and homogeneity of the scale. Validity statistics show that face validity and concurrent validity display positive correlation among dimensions. It was clear that the present scale can provide consistent and valid results.

#### Limitations and Future Research

Although the findings of this study add to the existing literature (Azizah, 2014); Papazyan, 2012; Zhang, 2012), but there were some delimitations. The study employed a purposive sample of international students residing currently in India. The sample of the present study was not so vast to represent the large population due to low response rate. The participants of this study were of 18 to 22 years of age and having acculturation period in India of one month. So, this age group of the study has indicated stress, but older age group having longer period of stay may show different results. The future study may take up the older group. The sample in the present study was not representative of all international students in India. As the participants were mainly from countries like Afghanistan, Bhutan, Nepal, Bangladesh, Thailand and Iraq etc. Thus, the present sample results may not be generalized to other racial groups.

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