

Measuring Acculturation of Pakistani Women: A Psychometric Evaluation of Urdu Version of the Short Acculturation Scale

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ABSTRACT

Objectives: The purpose of the study was to translate and validate the psychometric properties of the Short Acculturation Scale-Urdu version (SAS-U) for Pakistani women in Hong Kong.

Methods: This is a methodological study, and a convenience sample of 263 Pakistani women was recruited to participate in the study. The SAS was translated from English to Urdu using forward and backward translation and reviewed by an expert panel for semantic equivalence and content validity. Face validity was done by five bilingual Pakistani women. Construct validity was established by confirmatory factor analysis (CFA). Convergent validity was examined by the bivariate correlation of proxy indicators such as language preference, with the overall and subscales of SAS-U. Reliability was established by internal consistency and test-retest reliability. IBM SPSS Statistics for Windows version 22.0 and LISREL version 8.80 were used for data analysis. **Results:** The translated SAS-U

had good content validity and face validity. CFA revealed that the second-order model with three first-order factors and the results was supported by the following indices: root mean square error of approximation = 0.055, standardized root mean square residual = 0.031, $\chi^2/df = 1.80$, nonnormed fit index = 0.99, and comparative goodness-of-fit index = 1.00. Language preference correlated significantly with the overall and subscales of SAS-U ($r > 0.6, P < 0.01$). SAS-U demonstrated high internal consistency (Cronbach's alpha = 0.96) and acceptable test-retest reliability (weighted kappa = 0.68–0.93). **Conclusions:** The results provide support for the psychometric properties of the SAS-U – it is a reliable and valid instrument for measuring levels of acculturation among Pakistani women in Hong Kong.

Key words: Acculturation, ethnic minority, psychometrics

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Introduction

The increasing interconnectedness of people and countries, alongside the opening of international borders, have led to rapid inflows of different ethnic groups from one country to another.^[1] In particular, people living away from their home countries are exposed to new ways of life and have to undergo a period of adjustment to the culture of their host countries. This phenomenon of cultural adaptation, commonly known as acculturation, is a process in which the attitudes and behaviors of people from one culture are modified as a result of contact with a different culture.^[2]

Globally, the scale of international migration has kept rising over the past decades. Of all international migrants, nearly half come from Asian countries such as Pakistan. Pakistanis mostly migrate to countries in the Middle East, Europe, the Americas, and Asia.^[3] In terms of increasing migrants from Pakistan, Hong Kong is no exception. The total number of Pakistani people in Hong Kong, which has increased significantly by 63.7% over the past 10 years, has formed one of the largest local ethnic minority groups.^[4] This growing number of Pakistani people in the community has raised the public's concerns about the health of this population which, if not managed properly, can impose burden to the local health-care system. Previous local studies have revealed that South Asians (including Indians, Pakistanis, and Nepalese), especially females, face a number of barriers in accessing preventive health services such as screening. Such factors include a lack of knowledge about disease and about screening tests, inadequate language skills, and poor access to screening services.^[5-7] However, little attention was given in previous local studies to the effects of acculturation on South Asians, which may be due to the absence of a translated and validated instrument in the relevant language to collect information from the ethnic minority groups. Previous studies conducted in Western countries have shown that acculturation plays a significant role in influencing ethnic minorities' health behaviors. In particular, more acculturated women would have used preventive health services than those women who were less acculturated.^[8,9] In view of the growing number of literature that focused on the effect of acculturation on the health behaviors of ethnic minorities, there is a clear need to measure the level of acculturation among these groups of population.

There is currently no universally agreed definition of and methods in measuring acculturation. This could be due to the nature of acculturation, which varies among groups and changes over time. One of the instruments that have been developed to measure acculturation and frequently used in the previous research was the Short Acculturation Scale (SAS).^[10-13] The design of the SAS was based on the unidimensional model, one of the commonly used

models in understanding the concept of acculturation. The unidimensional model assumes that acculturation process is on a linear continuum, in which retention of the heritage culture is on one end whereas acquisition of the mainstream culture is at the opposing end.^[14] For instance, overt changes in daily life are presented by people's behaviors such as adoption of majority language and their ethnic loyalty that exists in social relations. Although there is a limitation of unidimensional model in capturing one's capability of accepting new culture while preserving certain aspects of their own cultural identity, the scale developed based on unidimensional model address beyond the use of certain proxy indicators such as duration of residence and language preference, which might not be able to capture the extent of acculturation^[15,16] in assessing different behavioral aspects of acculturation including language, media, and social affiliation.

SAS is a simple and generic instrument that is applicable to a wide range of conditions such as health screening.^[10] It is easy and quick to administer in community settings. The SAS consists of 12 items that reflect three factors (language use, media use, and ethnic social relations) that migrants have to deal with in everyday life. Previous studies supported the construct validity of the scale and were reported to have high internal consistency.^[10-13]

Unfortunately, apart from an English version of the SAS that is currently available, there is no Urdu version to assess the acculturation levels of Pakistanis. The purpose of this study is to translate and validate the psychometric properties of the SAS-U in Pakistani women in Hong Kong. The validated instrument would be used in further health screening study that examines Pakistani women's screening behaviors.

Methods

Research setting and population

This was a methodological study conducted in Hong Kong from February to December 2015. To be eligible for the study, participants had to be Pakistani women aged 21 or above and can communicate in or read English or Urdu. Those who reported a history of psychiatric illness were excluded. To optimize the chance of recruiting potential candidates, convenience sampling was used. The participants were recruited from local community centers and ethnic minority associations. Pakistani women who attended large-scale gatherings or events and those appeared in frequent meeting points of their own community, such as schools or mosques, were also approached.

Sample size planning

To facilitate the assessment of the psychometric properties of the translated scale, we planned to recruit at least 250 participants, a sufficient sample size to achieve

accurate inference in confirmatory factor analysis (CFA)^[17] while allowing for a small percentage of incomplete surveys.

Research instrument

The study involved a structured survey in data collection. The survey consisted of two sections, namely demographic characteristics and level of acculturation, while the first section mainly collected demographic data such as age, educational level, duration of residence in Hong Kong, proportion of life spent in the Hong Kong by residence index (duration of residence divided by current age), and language preference in daily life and the second section assessed the participants with a 12-item SAS^[10] to determine their level of acculturation.

The scale of the 12-item SAS consisted of three subscales, namely language use, media, and ethnic social relations. The language subscale (five items) assessed the language that the women used when they read, thought, and interact with their family and friends. The media subscale (three items) examined the type of television programs, films, or radio broadcasts that women would choose to watch or listen to. The ethnic social relations subscale (four items) explored the women's and their children's circles of friends. The items in the original scale were scored on a five-point Likert-type scale from 1 (only Spanish), 2 (Spanish better than English), 3 (both equally/about half and half), 4 (English better than Spanish), to 5 (only English). As the target participants in the current study were Pakistani women with Urdu as their mother tongue and the major languages used by the Chinese residents of Hong Kong are Cantonese and English, the scoring was revised accordingly, i.e., 1 (only Urdu), 2 (Urdu better than English/Cantonese), 3 (both equally/about half and half), 4 (English/Cantonese better than Urdu), and 5 (only English/Cantonese).^[6] The scale was proven to have high internal consistency (Cronbach's alpha: language use – 0.78; media – 0.86; ethnic social relations – 0.90; and overall scale – 0.92).^[10] Through calculation, the average score of the total 12-item scale was used to represent the acculturation level. An average of 2.99 was the point used to distinguish between the less (score <2.99) and the more (score >2.99) acculturated participants.^[18] The development of the SAS-U involved two phases: (1) translation, semantic equivalence, face validity, and content validity testing and (2) psychometric property testing.

Phase 1: Procedure of translation, semantic equivalence, content validity, and face validity testing

Translation of the Short Acculturation Scale-Urdu version

After obtaining permission from the original author for instrument translation and use, the instrument was translated from English to Urdu, guided by Brislin's model.^[19] Four bilingual translators of the same ethnicity in the target participants were involved in the forward and backward

translation process. The first translator translated the original English version into Urdu, followed by the second one who translated (blindly) back into English. The original and back-translated versions were compared to identify any error in translation. Whenever any unclear item needed to be amended, back translation would be repeated. The translation cycle completed when all errors were corrected.

Semantic equivalence, content validity, and face validity testing

The semantic equivalence and content validity were evaluated by a panel of five experts: two experienced nurse educators from a university and three doctors who worked in clinical settings. The experts were invited to use the four-point Likert-type scale to rate the clarity of the wording and appropriateness (1 = not appropriate, 2 = somewhat appropriate, 3 = quite appropriate, and 4 = very appropriate) and the relevance to the constructs of items (1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, and 4 = very relevant). The experts were invited to provide comments and suggestions on items that they had given ratings of 1 or 2. The expert panel then reviewed the modified items for appropriateness and relevance.

Finally, five bilingual Pakistani women were invited to evaluate the face validity by commenting on the clarity and relevance of the contents, difficulties encountered in answering the questions, and time spent in completing all items.

Phase 2: Psychometric property testing

CFA was employed to establish the construct validity of SAS-U through ascertaining the factor structure indicated in the original version with three first-order factors (language use, media, and ethnic social relations) and the second-order factor (acculturation).^[10,11]

Convergent validity was established by exploring the correlation between the scores of overall and subscales of SAS-U and proxy indicators, i.e., duration of residence in Hong Kong, residence index, and language preference in daily life.^[10,11,16] Some previous studies have used these proxy indicators rather than adopting a validated scale to measure acculturation. In fact, there was evidence that these indicators had associations with health behaviors.^[20,21]

Internal consistency of the overall scale and subscales of SAS-U was tested by calculating Cronbach's alpha, which showed homogeneity of the constructs of SAS-U.

For test–retest reliability, 50 participants were invited to complete the scale twice at a 2-week interval, with weighted kappa obtained to assess test–retest reliability.

Data collection procedure

Ethical approval was obtained from the ethics committee of the study institution before the research began. The study investigator contacted stakeholders of community centers,

ethnic minority associations, mosque, and schools – to gain access to potential participants. The purpose of the study, eligibility criteria, data collection methods, and certain incentives (HKD 10 cash coupon) were explained to stakeholders to obtain their support. A female data collector of Pakistan origin was trained to conduct the survey. The data collector read the items together with the participants and asked the participants to choose the most appropriate response for each item. Further explanations were given to the participants when they encountered difficulties in understanding the items. For example, for items related to ethnic social relations concerning participants' choice of friends, further explanations were given to assist the participants in thinking about the ethnicity of their friends and the language commonly used by their friends when they interacted with each other. Eligible participants were briefed on the study with information sheet distributed. Written consent was obtained when participation was agreed. The surveys were conducted either in a private room or in places where no males were present. Two weeks later, a subsample of 50 participants was asked to fill in the surveys again by phone interview to assess the test–retest reliability.

Statistical analysis

IBM SPSS Statistics for Windows version 22.0 was used for statistical analysis. Descriptive statistics using frequencies, means, and standard deviations (SDs) were calculated to present the participants' demographic characteristics. For content validity, the content validity index (CVI) for each item and scale was computed with item-CVI >0.8 and scale-CVI >0.9 considered as good.^[22]

CFA performed by Scientific Software International LISREL version 8.8, using the robust maximum likelihood estimation procedure, was used to examine the factor structure. An acceptable model fit was assessed by the following indices: Satorra–Bentler scaled Chi-square divided by its degree of freedom (χ^2/df) with values <3; comparative goodness-of-fit index (CFI) with values >0.9; nonnormed fit index (NNFI) with a value >0.9; standardized root mean square residual (SRMR) with values ≤ 0.1 ; and root mean square error of approximation (RMSEA) with values ≤ 0.08 .^[23,24]

The convergent validity was evaluated by examining the correlation between proxy indicators (duration of residence in Hong Kong, residence index, and language preference)^[10,11,16] with the overall acculturation scale and the subscales, using Spearman's correlation. The correlations of 0.10–0.29, 0.30–0.49, and 0.50–0.10 were considered as small, moderate, and large, respectively.^[25]

The internal consistency was evaluated as a Cronbach's alpha, where a value >0.7 was acceptable.^[26] Test–retest reliability was assessed by weighted kappa for the agreement

between the test–retest scores of each item. A value of 0.41–0.60, 0.61–0.80, and 0.80–1.00 indicated moderate, substantial, and almost perfect agreement, respectively.^[27]

Results

Participant characteristics

A total of 263 women completed the survey. Their mean age was 35.70 years (SD = 9.76), and the mean duration of residence in Hong Kong was 14.29 years (SD = 9.97). More than 60% of the participants had a secondary school educational level or below and mostly used Urdu for daily communication [Table 1]. The mean acculturation score was 1.95 and those of the three subscales ranged from 1.82 to 2.06, indicating low levels of acculturation.

Phase 1 results

Semantic equivalence, content validity, and face validity of Short Acculturation Scale-Urdu version

The expert panel commented that SAS-U was appropriate and culturally relevant for measuring acculturation of Pakistani women, and 100% agreement was obtained for semantic equivalence. The item-CVI of the 12 items ranged from 0.8 to 1.0, while the scale-CVI was 0.97. These results demonstrated good content validity of SAS-U. The face validity was established by five Pakistani women. They commented that the scale was clear and relevant, and they had no difficulty in answering the questions. In average, they used around 3 min to complete the scale.

Phase 2 results

Construct validity of Short Acculturation Scale-Urdu version

CFA was used to confirm the factor structure of SAS-U. It revealed the second-order model with three first-order factors that matched with the overall sample (RMSEA = 0.055,

Table 1: Demographic characteristic of study participants

Demographics	Pakistani women (n=263)	
	Mean	SD
Current age (years)	35.70	9.76
Duration of residence (years)	14.29	9.97
Residence index (duration of residence/current age)	0.42	0.30
	n	%
Education level		
Primary school or below	106	40.3
Secondary school	68	25.9
College	44	16.7
University	45	17.1
Language preference		
Mostly Urdu	167	63.5
Both English/Cantonese and Urdu	51	19.4
Mostly English/Cantonese	45	17.1

Residence index: range from 0-1, indicating the proportion of life spent in the new country

SRMR = 0.031, $\chi^2/df = 1.80$, NNFI = 0.99, and CFI = 1.00). The factor loadings ranged from 0.64 to 0.95 [Table 2]. All first-order factors loaded significantly on second-order factor, i.e. acculturation.

Convergent validity of Short Acculturation Scale-Urdu version overall and subscales with proxy indicators

The correlations between proxy indicators and the SAS-U are shown in Table 3. Among all, the overall SAS-U scale and the subscales correlated positively and strongly with the participants' language preference ($r > 0.6$, $P < 0.01$) [Table 3].

Internal consistency and test-retest reliability of Short Acculturation Scale-Urdu version

The Cronbach's alpha values for the subscales of language use, media, and ethnic social relations were 0.92, 0.93, and 0.87, respectively. Meanwhile, the overall scale was 0.96, which indicated high reliability. The weighted kappa of the items ranged from 0.68 to 0.93, showing substantial to almost perfect agreement between the baseline and retest measurements [Table 4].

Discussion

The current study findings supported the SAS-U as a valid and reliable means of measuring acculturation in community settings. The high item-CVI (0.8–1.0) and scale-CVI (0.97) obtained in the current study, meanwhile, indicated the relevance of concept being measured. The semantic equivalence, content validity, and face validity established by both the expert panel and the Pakistani women recruited from community further supported the user-friendliness of using SAS-U in community settings.

The current study established the construct validity of the SAS-U by CFA. It identified the second-order model with three first-order factors in SAS-U, suggesting that the scale possessed a factor structure similar to that of the original scale and previous study.^[10,11] This result supported

the three first-order factors, namely language use, media, and ethnic social relation, as appropriate measures of the second-order factor on acculturation. Furthermore, comparing the factor loading of the items obtained in the current study with a previous study by Choi and Reed^[11] with Korean immigrants, the results are found to be quite similar in all factors. In comparison with other items in the same subscale and ethnic social relations, a comparatively low loading was noticed for item 12 about choosing the ethnicity of children's friends in both the study by Choi and Reed (Korean version: 0.43) and the current study (Urdu version: 0.67).^[11] Other items in this subscale concerned with the ethnicity of people or friends that the women mostly interacted with in their daily lives, while item 12 assessed their preference for the ethnicity of their children's friends. The resultant loading could be related to the women allowing the children to choose their friends' ethnicity rather than according to the mothers' preferences.

The relationship between the scale and proxy indicators was analyzed. The convergent validity was supported by the result that SAS-U significantly associated with women's language preference. Consistent with previous studies,^[11,16] people who preferred to use the majority language in their daily life were likely to be more acculturated. The presence of correlation showed the instrument's ability to capture the social characteristic of the participants and further strengthened its validity. However, the current study found that the other commonly used indicators, residence index and duration of residence, only had a weak relationship with acculturation. The finding was consistent with the results of a previous study on Chinese Americans.^[13] The possible reasons for this could be the migrant's purposes in moving to Hong Kong, which could include looking for a better life, more employment opportunities, family union, more comprehensive health care, or even better education. To integrate into the local society and work for good living, it is always important to learn the language

Table 2: Factor loading in CFA of first-order factors of SAS-U

Subscales	Items	Factor loadings
Language	In general, what language(s) do you read and speak?	0.90
	What was the language(s) you used as a child?	0.92
	What language(s) do you usually speak at home?	0.93
	In what language(s) do you usually think?	0.89
	What language(s) do you usually speak with your friends?	0.95
Media	In what language(s) are the TV programmes you usually watch?	0.94
	In what language(s) are the radio programmes you usually listen to?	0.95
	In general, in what language(s) are the movies, TV and radio programmes you prefer to watch and listen to?	0.96
Ethnic social relations	Your close friends are:	0.94
	You prefer going to social gatherings/parties at which the people are:	0.94
	The persons you visit or who visit you are:	0.93
	If you should choose your children's friends, you would want them to be:	0.67

CFA: Confirmatory Factor Analysis; SAS-U: Short Acculturation Scale-Urdu

and understand the cultural practices of the majority population. Such an adaptation process can occur rapidly or over a longer period of time, depending on individual experience. For this reason, the duration of residence and residence index are not necessarily associated with the acculturation.^[28]

The current study established the reliability of the SAS-U, in which Cronbach's alphas for the overall scale and subscales were all above 0.8 and comparable to the original scale.^[9] These results provided evidence for the homogeneity of the scale. The weighted kappa of the 12 items in the scale showed substantial to almost perfect agreement in the test and retest period, which reflected the stability of the scale. Items 6 and 12 in the scale of SAS-U had comparatively lower weighted kappa of 0.68. Consistent with the result obtained in CFA in item 12, the results in test-retest reliability could be influenced by the thought to strike a balance between retaining cultural affiliation and integrating into the community. For item 6 in SAS-U, which asks "In what language(s) are used for the TV programs you usually watch?," 38% of the women reported watching only or mostly Urdu TV programs and 58% would watch both Urdu and English/Cantonese TV programs during the first assessment period. Only 4% indicated that they watched mostly English TV programs. In the reassessment period, 46% of them reported to watch only Urdu or mostly Urdu TV programs, while 46% of the women reported to watch

both Urdu and English/Cantonese TV programs equally. However, the change in response could be related to the TV program broadcast during the study period. Women may be affected and spent more time in the program that interested them.

There are limitations to the current study. Since it explores the level of acculturation among Pakistani women, only females are included, and the generalizability of the findings is limited in this way. With no male group is included in current psychometric testing, further studies may be considered of male populations, and differences perhaps revealed. Another limitation is that acculturation may also be affected by other factors such as diet and smoking status. In view of this, further studies may be considered to explore the effects of these factors on the level of acculturation.

There are implications for practice. The study results provided support for the SAS-U as a promising tool to assess the acculturation level of those Pakistani women in the community who had no history of cervical cancer. By providing vital information to health professionals in the design of linguistically appropriate cancer screening programs, the study attracted people of appropriate ethnic backgrounds to join together, thereby improving their participation and encouraging them to adopt regular cancer screening behaviors.

Conclusion

SAS-U is a valid and reliable instrument that helps health-care providers to identify Pakistani women's level of acculturation in a short time and so develop a relevant intervention based on their acculturation characteristics to improve quality client care.

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Conflicts of interest

There are no conflicts of interest.

Table 3: Cronbach's alpha for internal consistency and weighted kappa for test-retest reliability of SAS-U

Subscales	Items	Cronbach's alpha	Weighted kappa
Language	1	0.92	0.87
	2		0.93
	3		0.87
	4		0.84
	5		0.81
Media	6	0.93	0.68
	7	0.87	0.75
	8		0.73
Ethnic social relations	9	0.96	0.92
	10		0.91
	11		0.91
Overall score	12		0.68

SAS-U: Short Acculturation Scale-Urdu

Table 4: Correlation between proxy indicators and SAS-U

	SAS-U			
	Overall	Factor 1: Language use	Factor 2: Media	Factor 3: Ethnic social relations
Duration of residence	0.13*	0.13*	0.12	0.13*
Residence index	0.24**	0.24**	0.24**	0.21**
Language preference	0.76**	0.81**	0.70**	0.63**

SAS-U: Short Acculturation Scale-Urdu. *Correlation is significant at the 0.05 level (2-tailed), **Correlation is significant at the 0.01 level (2-tailed)

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