

ORIGINAL ARTICLE

DEVELOPMENT AND VALIDATION OF A QUESTIONNAIRE ON SOCIO-CULTURAL FACTORS AMONG THE ORANG ASLI AND GENERAL POPULATION IN SELANGOR

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ABSTRACT

Cultural attitudes of the societies have long been identified as one of the important determinants of Quality of Life (QoL). Yet there is a dearth of socio-culturally validated instruments for local population to assess the impact of socio-cultural practice on health. The aim of this validation study is to develop and test the validity and reliability of a questionnaire on culture dimensions. Respondents were asked about their engagement in socio-cultural aspects including beliefs and practice of traditional customs and culture using a set of newly developed questionnaire. A total of 275 eligible respondents participated with 150 (54.5%) from the general population and 125 (45.5%) from the Orang Asli population. Kaiser-Meyer Olkin measure of Sampling Adequacy (KMO) was 0.791 and 0.677 for the general and Orang Asli population respectively. Bartlett's test for both population was significant ($p < 0.001$). By Principal Component Analysis, four factors were extracted (Eigen values > 1.0) that jointly accounted for 54.7% and 52.0% of the total variance among the general population and Orang Asli respectively. The Cronbach alpha value score was 0.785 and 0.730 for the general population and Orang Asli population respectively. The Cronbach alpha values for each of the four domains ranged from 0.477-0.865 and 0.543-0.758 for the general population and Orang Asli population respectively. These results suggest that the newly developed questionnaire appeared to have adequate validity and reliability in measuring socio-cultural factors in the population.

Keywords: validity, reliability, general population & Orang Asli, cultural beliefs & practice

INTRODUCTION

The term 'culture' has a wide range of interpretations depending upon the discipline from which it is considered¹. Anthropology, the discipline from which the term 'culture' originated, offers many definitions but most refers to 'a system of shared meanings or guidelines that are inherited which provide a lens through which the world is viewed'². It is emphasized that culture must be defined in sufficiently concrete terms to meaningfully contribute to our understanding of its role and outcomes³. Thus another adopted definition is deliberately narrow, defined as '...those customary beliefs and values that ethnic, religious and social groups transmit fairly unchanged from generation to generation'³. In turn, culture acts as tools and ideas that are embedded and transmitted to succeeding generations because they were once practiced at some point in time⁴. Social scientists stress that cultures are dynamic and intricately connected to the social context of people's lives⁵. As culture is central to human approach, individual behaviour is influenced by preconceptions, particularly factors related to illness⁶. Hence, culture represents a significant force in shaping the values, beliefs, norms

and practices of individuals⁷ including the way a person reacts to their own health needs.

People around the world have beliefs and behaviors related to health and illness that stem from cultural forces, experiences and perceptions⁸. These have resulted in variation of subjective well-being⁹ which explains different outcomes in Quality of Life (QoL) between societies. However, while the measurement of culture is necessary for empirical analyses of the links between culture and their outcomes, literature remains relatively undeveloped¹⁰. Very few studies explore and explicitly state the causal mechanisms through which culture is thought to impact on health of the society³. This is perhaps due to lack of clarity of the concept of culture⁵ and difficulties in measuring the outcome in a more objective way.

Culture practice in Malaysia

Malaysia with a population of 28.3 millions¹¹ is pluralistic and multicultural. Thus, Malaysia is a fertile ground for studies on culture¹². The Malays, Chinese and Indians were the three major ethnic groups made up the Malaysian population by the proportions of about 51%, 23%, and 7% respectively¹³. The diversity of

these ethnic groups with their own unique culture and heritage, such as language, belief system, tradition and religion underlie the differences in their values and expectations¹⁴. Without exception, the *Orang Asli* of Peninsular Malaysia or literally translated as 'Original people' own unique cultural practices as well. The *Orang Asli* constitute a minority community making up approximately 178,197 (0.6 per cent)¹⁵ of the total population of Malaysia (28.31 million in 2009) in 2010¹¹. They are an ethnic group that is heterogeneous in terms of different psycho-cultural and psycho-cognitive among different types of ethnics namely, the *Senoi*, *Proto-Malays* or Aboriginal Malays and the *Negritos*, each consisting of several dialectic sub-groups¹⁵. Each of the sub-groups portrays unique culture characteristics in contrast to the rest of the general population in Peninsular Malaysia¹⁶. Practicing exclusive customs, they maintain their social, cultural, economic and political characteristics that are distinctive from those of the dominant societies in which they live¹⁷.

Culture and Health

To understand the cultural context of health, it is essential to understand someone else's view of concepts which refers to the meaning of how people attach to things from their cultural perspective⁸. It is no doubt that the values and beliefs individuals hold have significant impacts upon their health outcomes. For example, some cultures view worms (*Ascaris*) in children as normal and believe they are caused by eating too many sweets⁸. Food taboo is another form of culture practice that closely related to health. For example, many traditional dietary practices are based on belief there are foods that should be avoided because they are 'cold', 'sharp' or 'itchy'^{18,19}. Particularly in Asia, supernatural is another cultural perspective that frequently viewed as source of illness. For example, demons are viewed as cause of illness in Chinese culture²⁰. Similarly, the *Orang Asli* have long perceived disease as being the result of a spirit attack, or of soul being detached and lost in the supernatural world²¹. The *Orang Asli* believes that such illnesses are better treated by incantations and ritual, rather than by modern medical practices²². In addition, the two most common areas where Indigenous culture has been linked to inferior outcomes as compared to the general population were health and housing¹. In health, for instance, the Indigenous people with diabetes continue to eat high quantities of salt and fat even when warned they are at risk because of the cultural importance of family meals and inappropriateness of requesting an individualized meal²³.

One of the means to 'measure' culture was by measuring series of attitudes and belief held by those individuals²⁴. In order to discover the number of

factors influencing variables and to analyze which variables 'go together'²⁵, Exploratory factor Analysis (EFA) is useful for placing variables into meaningful categories and facilitate interpretations rather than having to consider too many variables that may be trivial²⁶. Due to the importance of cultural concepts in health, this study intends to construct and validate a questionnaire suitable to assess dimensions of culture and its impact on quality of life in the context of Malaysia population. Its development and validation are reported in this article.

METHODOLOGY

Literature Review and Statement Development

The initial part of research was an extensive search of available scientific literature through an electronic search of Medline (PubMed and Ovid), EBSCO and SAGE. In addition, Journal of ISOQOL was also searched. Literatures such as practice of traditional medicine, customary practices and cultural beliefs were included. Several keywords were used during the search, such as socio-cultural believe, engagement in customary practice, health beliefs and traditional medicine practice of *Orang Asli* (indigenous people).

Instrument Development

Most of the 23 items on this instrument were adapted primarily from a previously validated instrument used in a study by Hasan et al²⁷. However, some of the wordings were changed and restructured for consistency by the authors of this study to adequately address the study objective. Furthermore, the use of a 5-point Likert scale varying from 'strongly disagree' to 'strongly agree' was retained. Besides that, there were questions developed by the authors based on literature search and questions suggested to be incorporated by the expert opinion. The questionnaire items were developed in *Bahasa Melayu* language. The resulting instrument was designed to determine different constructs which consists of practice of traditional medicine, engagement of traditional culture, degree of acceptance on cultural beliefs and external influence. The items ranged from five to eight for each construct, according to the degree of complexity of the construct.

Administration Procedure for Face and Content Validity

Based on suggestions by experts in the field of content validation^{28,29}, five experts were identified and invited to review the instrument for face and content validity. The selection and inclusion of these experts include experience in the field of health of the *Orang Asli* and familiarity with the thematic concept in evidence-based practice. A medical doctor and a nurse from the *Orang Asli* Public Health Unit, Ministry of Health with more than 10 years experience have been consulted

for adequacy of the topic coverage. A language teacher with 20 years experience teaching *Bahasa Melayu* was involved to review the language comprehensibility aspect of the questionnaire. Two academicians from two different public Universities and with more than 15 years experience were consulted for the suitability of objective and dimensionality of the psychometric properties of the questionnaire items. All the experts were also requested to identify deficient areas and provide recommendations on ways to improve the sentence structure to ensure clarity and conciseness based on any difficulties encountered in deciphering the instructions in filling up the instrument³⁰. The meaning of the items was clarified, and the cultural appropriateness of some items was discussed. Further refinements in wordings were made by the research team to enhance the questionnaire's appropriateness to the current population sample.

Construct Validity

The method used to determine construct validity in this study was principal component analysis with varimax rotation method (PCA), as it is by far the most common factor extraction method used³¹. This was evidenced by the use of principal component analysis method with varimax rotation in half of the analysis from over 1,700 listed studies in PsycINFO³¹. There were however arguments for restricted use of component analysis in favour of other factor analysis extraction methods^{32,33}. Some pointed out that there is almost no difference between principal component analysis (PCA) and factor analysis hence PCA is preferable³⁴. Furthermore, information on the strengths and weaknesses of other techniques is scarce and only available in obscure references and this probably explains the popularity of principal component analysis³¹.

Study background

The respondents are from the district of Kuala Langat, Selangor. Kuala Langat is under the jurisdiction of Kuala Langat District Council which covers the area of 62,924 km sq, with a total population of 220,214¹¹, including 5,053 of *Orang Asli*. It is located 67 km from Kuala Lumpur and consists of nine subdistrict with four of them were settlements of the *Orang Asli*. The major ethnic groups are Malay, Chinese, Indian and a minority of *Orang Asli*. The Kuala Langat district is governed by six municipals that are *Mukim Tanjung 12 (1)*, *Mukim Tanjung 12 (2)*, *Mukim Teluk Panglima Garang*, *Mukim Bandar*, *Mukim Morib* and *Mukim Batu*. However,

the villages of *Orang Asli* were only located in five *mukim* that are *Mukim Tanjung 12 (1) and Tanjung 12 (2)*, *Mukim Morib*, *Mukim Batu* and *Mukim Teluk Panglima Garang*. The *Orang Asli* and general population has their own customary village that are separated in term of locality, but situated in the same municipal.

Sampling of Population

It has been decided that the best method for standardizing sample size of a data was by subject to item ratio³¹. Rule-of thumb that are still being used prevalently in determining a priori sample size is subject to item ratio of 10:1³¹. In this study, since there are 23 questions, panel of experts have agreed that number of respondents to be include are 230. An empirical study was study was carried out in Kuala Langat district. For the general population, the questionnaire was self administered while for the *Orang Asli* population face-to-face interviewed were being conducted due to high portion of illiteracy among them. In view of that respondents were from two different population that differs in background in term of socio-demography, socio-economy and socio-cultural, Exploratory Factor Analysis (EFA) was conducted separately.

The sampling method used for both population was multistage sampling. In the first stage, cluster sampling was used, whereby cluster of *Orang Asli* respondents were chosen from 7 *Orang Asli* villages whereas cluster of general population respondents were chosen from 11 villages. In the second stage, one respondent were chosen conveniently from each households. Based on the population profile in 2013³⁵, there were 5,964 of *Orang Asli* population and 252,009 of general population in Kuala Langat. Formula used for sample size determination based on proportionate to population size (PPS) for both population are as follows:

$$\frac{\text{Number of population in the villages}}{\text{Number of population in each group}} \times 230$$

Table 1 show sampling distribution for the *Orang Asli* and the general population.

Table 1 Sampling distribution of *Orang Asli* and general population based on PPS

Municipal (<i>Mukim</i>)	Villages of <i>Orang Asli</i>	Total Population	PPS	Villages of general population	Total Population	PPS
Tanjung12 (1) & (2)	Kg. Pulau Banting	231	9	Kg. Jenjarom	5,623	5
	Kg. Bukit Cheding	433	17	Kg. Seri Cheding	3,926	4
	Tmn Bukit Kemandol	1,124	43	Kg. Banting	61,800	56
				Kg. Sg. Lang	3,205	3
Morib	Kg. PermatangBuah	34	2	Kg. Kanchong	10,235	9
	Kg. Tongkah	193	7	Kg. Kelanang	3,079	3
Batu	Kg.Tg. Sepat	685	28	Kg BatuLaut	4,052	4
Telok		505	19	Kg. Sijangkang	19,473	18
				Kg. Batu 10	10,287	9
				Kg. Sg. Rambai	28,075	26
				Kg. TelokPanglima	14,134	13
Total		125			150	

Statistical Analysis

Kaiser-Meyer-Olkin (KMO) test and Bartlett’s test of sphericity were used to examine the adequacy of the data for factor analysis. The closer the KMO value is to 1, the stronger the correlation is between variables. Eigenvalue >1 and scree plot have been used to determine the number of factors to be extracted. Cronbach’s α statistics was used in the assessment of internal consistency of the domains. An α coefficient score > 0.7 was considered to be satisfactory³⁶. Statistical Package for Social Science (SPSS) program (version 20; SPSS Inc., Chicago, IL, USA) was used for data analysis.

Ethics Approval

Ethical approval (FF-2014-121) for this study was obtained from the National University of Malaysia Medical Centre (UKMMC). Ethical approval from the Medical Ethics Research Committee (MREC) was also obtained and approved. Written informed consent was obtained from each participant after explanation of the study objectives and guarantee of confidentiality.

RESULTS

Participants Characteristics

A number of 275 questionnaires were completed by the households in this study which comprised of 125 (45.5%) of *Orang Asli* and 150 (54.5%) of general population. The demographic characteristics of the respondents were summarized in Table 2.

Table 2 Demographic characteristics of respondents (n= 275)

Demographic characteristics	n (%)
Age Mean *(sd)	38.13 *(13.65)
Median income **(IQR)	RM 1,900 (800, 4,000)
Gender	
Male	116 (42.2)
Female	159 (57.8)
Ethnicity	
Malay	110 (40.0)
Chinese	21 (7.6)
Indian	19 (6.9)
<i>Orang Asli</i>	125 (45.5)
Highest education level	
No schooling	14 (5.1)
Primary	73 (26.5)
Secondary	111(40.4)
Tertiary	77 (28.0)
Marital status	
Single	55 (20.0)
Widowed/Divorced	25 (9.1)
Married	195 (70.9)

** *inter-quartile range*

Construct Validity

The Keiser-Meyer-Olkin (KMO) test and Bartlett’s test were carried out to assess the appropriateness of using factor analysis on the data set. The Keiser-Meyer-Olkin (KMO) value for the general population and *Orang Asli* population was 0.802 and 0.710 respectively indicating good correlation between variables, such that Exploratory Factor Analysis (EFA) could be carried out. The Bartlett’s test of sphericity was found to be

significant with a p value < 0.001. All 23 items were subjected to a principal component analysis with varimax rotation. Under the criterion of eigenvalues greater than 1 and supported by the scree test³⁷, the loadings in the rotated coefficient matrix provide four readily interpretable factors henceforth termed practice of traditional medicine, attachment to traditional culture, external influence factors and acceptance towards culture. However, loading factor for three questions fail to load indicating low factor loading (less than 0.3) and subsequently omitted from the original version of the questionnaire. The omitted item question was from the domain of 'practice of traditional medicine' which finally left with 6 questions. One item question each were omitted from domain 'external influence factors' and 'acceptance towards culture' which left with 6 and 4 questions respectively. Finally, re-analysis of the remaining 20 items was done and the formed factors in the questionnaire were found to be similar for both population. Higher factor loadings after removal of the 3 items, indicating that the remaining question items are more comprehensive and that the final questionnaire items contributed more to the factor as compared to the original set of questionnaire. The initial factor loadings and Cronbach alpha of the analysis are as in table 3 and re-analysis of factor loadings and Cronbach alpha after removal of the 3 items are as in table 4.

^aData extraction using Principle Component Analysis & Varimax rotation; The factor loading <.30 is suppressed for presentation; ITC= Corrected item-total correlation; Alpha= Cronbach's alpha; GP= general population

*Factor 1: Practice of traditional medicine, Factor 2: Attachment to traditional culture, Factor 3: External influence factors, Factor 4: Acceptance towards culture

- Factor 1 consists of seven traditional medicinal practice items that explained 15.7 % and 19.9 % of the total variance among the *Orang Asli* and general population respectively and was labeled as "Practice of traditional medicine".
- Factor 2 included four customary practice items that explained 13.2 % and 13.1 % of the total variance among the *Orang Asli* and general population respectively and was labeled as "Attachment to traditional culture"
- Factor 3 included seven external factors items which explained 11.9% and 9.3 % of the total variance among the *Orang Asli* and general population respectively and was labeled as "External influence factors"
- Factor 4 included five customary acceptance items which explained 9.3% and 8.9 % of the total variance among the *Orang Asli* and general population respectively and was labeled as "Acceptance towards culture"

*Factor 1: Practice of traditional medicine, Factor 2: Attachment to traditional culture, Factor 3: External influence factors, Factor 4: Acceptance towards culture

- Factor 1 consists of six traditional medicinal practice items that explained 15.1% and 22.3 % of the total variance among the *Orang Asli* and general population respectively and was labeled as "Practice of traditional medicine".
- Factor 2 included four customary practice items that explained 13.4 % and 13.5 % of the total variance among the *Orang Asli* and general population respectively and was labeled as "Attachment to traditional culture"
- Factor 3 included six external factors items which explained 13.0% and 10.0 % of the total variance among the *Orang Asli* and general population respectively and was labeled as "External influence factors"
- Factor 4 included four customary acceptance items which explained 10.6% and 8.9 % of the total variance among the *Orang Asli* and general population respectively and was labeled as "Acceptance towards culture"

^aData extraction using Principle Component Analysis & Varimax rotation; The factor loading <.30 is suppressed for presentation; ITC= Corrected item-total correlation; Alpha= Cronbach's alpha ;GP= general population.

DISCUSSION

In this study we describe the development and validation of a socio-cultural questionnaire. The final questionnaire that was developed had adequate psychometric properties, as well as internal consistency among the *Orang Asli* and general population. To the best of our knowledge, this study was the first to explore into cultural dimensions and its impact on population's quality of life. An important and unique finding of this study was that the *Orang Asli* appeared to attach to their traditional culture and heritage and preserve their traditional medicine practice as compared to general population counterpart as evidenced by higher mean value in almost all of the questionnaire items. While higher mean score is obtained in domain 'Acceptance towards culture' among the *Orang Asli*, indicating strong affinity for their culture, domain 'External influence factors' shows lower mean score which revealed that the *Orang Asli* disagreed that external influence erode their culture. This proved that the process of integration of indigenous culture into the mainstream culture has taken place while the retention of heritage cultural norms shed light towards multiculturalism³⁸. In the present study, Bartlett's test result and the KMO value for both population were significantly high indicating that the use of factor analysis (Principal

Component Analysis with Varimax rotation) to test the construct validity was suitable³⁹.

The factor loading for all the four factors are acceptably good (higher than 0.4) for both populations indicating that they were statistically significant and higher than the recommended level. The essence of factor load was to give us idea about how much the variable has contributed to the factor. In other words, the larger the factor loading value, the more the variable has contributed to the factor⁴⁰. However, higher factor loading value were obtained after removal of three items that failed to load, indicate that the dimensions of the factors in the final questionnaire yielded better result that accounted for by the variables⁴¹ as compared to the earlier questionnaire. This study documented that the concept of culture represented by the four domains are relevant in the target population, indicating that the concept of validity is acceptable. Moreover, each factor seemed to be coherent and may represent as a tool to measure cultural dimensions of the instrument.

In this study, the loading factor for variable 'Attachment to traditional culture' ranges from 0.434 to 0.832 and 0.557 to 0.858 among the *Orang Asli* and general population respectively. Other similar studies have also identified the relevance of cultural attachment among Indigenous Australia in general⁴² with factor loading ranges from 0.489 to 0.687. Another study on economic-related cultural adherence that attributed to poverty among *Orang Asli* in Malaysia⁴³ resulted in factor loading ranges from 0.624 to 0.755.

The percentage variance tells us how much each factor contributed to the total variance⁴¹. This study showed that the overall explained variance of scale improved after removal of three items with low loading factors. The explained variance was 52.0 % and 54.7% among the *Orang Asli* and general population respectively as compared to the initial questionnaire which was 50.0% and 51.2% respectively. This explains that the final set of questionnaire produce more variance which means higher communalities between variables, as compared to the initial questionnaire items.

Factor one included the six variables of traditional medicine practice that explained 15.1% and 22.3% of the total variance among the *Orang Asli* and the general population respectively. Different indicators were used to define 'Practice of traditional medicine' from respondent's preference and perspective, such as believe more in traditional medicine as compared to modern medicine, health seeking preference, believe that disease are caused by evil spirits, generation practice of traditional medicines, use of plant

substances, and believe that traditional medicine are needed in the community.

The second factor comprised of four variables of attachment to traditional culture that explained 13.4% and 13.5% of the total variance among the *Orang Asli* and the general population respectively. In this factor, respondents shows degree of attachment in variables such as adherence to taboos, cultural practice by generations, the need of culture to adapt with environment social culture and finally, individual practice of culture.

Factor third factor comprised of six variables of external influence factors that explained 13.0% and 10.0% of the total variance among the *Orang Asli* and the general population respectively. In general, respondents viewed whether or not adherence to culture may cause backwardness in economic aspects, traditional medicine do more harm than modern medicine, foreign culture may erode their cultural beliefs, acceptance of other races culture, contradiction of cultural believe with health facts and social tolerance.

Finally, factor four which comprised of four variables of acceptance towards culture explained 10.55% and 9.0% of the total variance among the *Orang Asli* and the general population respectively. This factor assess respondent's acceptance towards their own culture from questions such as modern culture improve quality of life, degree of agreement to reconcile with other races culture, culture contradict with health facts and whether or not education influence health life style.

It has been well documented that the strength of any study is directly proportional with the increase of instruments reliability and its ability to detect significant correlations in the study⁴⁴. Fundamentally, internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence connected to the inter-relatedness of the items within the test⁴⁵. There are different reports about the acceptable values of alpha, ranging from 0.70 to 0.9536,⁴⁵. In this study, the internal consistency of the scale was fairly acceptable, ranging from 0.543 to 0.758 and 0.477 to 0.865 for the *Orang Asli* and general population respectively.

Table 3Socio-cultural variablewith its loading factors and Cronbach alpha for *Orang Asli*&general population(n=275)

Item Wording	Mean(SD)		Factor 1 ^a		Factor 2 ^a		Factor 3 ^a		Factor 4 ^a		ITC		Alpha	
	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP
1.Believe in traditional medicine	2.8(0.83)	2.5(0.86)	0.421	0.854							0.413	0.664		
2.Seek traditional healer	3.2(0.88)	2.5(0.92)	0.785	0.819							0.500	0.556		
3.Diseases caused by ghosts	3.2(0.87)	2.3(0.98)	0.405	0.793							0.273	0.575	0.753	0.846
4.Practice traditional medicine	3.6(0.82)	2.6(0.91)	0.780	0.764							0.655	0.634		
5.Use plant substances as medicine	3.5(0.84)	2.9(0.94)	0.629	0.703							0.371	0.486		
6.Villagers use traditional medicine	3.6(0.79)	2.7(1.0)	0.684	0.541							0.442	0.555		
7.Both medicine should be utilized	4.1(0.74)	3.6(0.83)	0.470	-							0.146	0.216		
8. Adherence to taboos	4.0(0.79)	3.5(0.93)			0.822	0.803					0.436	0.399		
9.Practice of culture by generations	4.0(0.67)	3.7(0.79)			0.805	0.754					0.365	0.329	0.740	0.772
10.Culture to adapt with environment	3.7(0.74)	3.6(0.85)			0.423	0.693					0.195	0.199		
11.Individual practice of culture	4.2(0.72)	3.9(0.79)			0.791	0.685					0.379	0.227		
12.Culture adherence cause poverty	2.9(1.03)	3.3(0.94)					0.523	0.670			0.363	0.051		
13.More harm in traditional medicine	3.0(0.78)	3.0(0.79)					0.593	0.639			0.199	0.143		
14.Seek traditional medicine	3.6(0.82)	3.2(0.88)					0.646	-			0.349	0.348	0.543	0.607
15.External influences erodes culture	3.0(1.03)	3.1(0.98)					0.588	0.615			0.217	0.194		
16.Refuse to accept foreign culture	2.8(1.06)	2.6(0.98)					0.726	0.506			0.153	0.408		
17.Preservation of culture	3.5(0.68)	2.7(0.87)					0.576	0.475			0.037	0.572		
18.Comfortable with same ethnic	2.9(1.13)	2.5(1.0)					0.710	0.435			0.189	0.389		
19.Important to retain culture	4.1(0.63)	3.2(0.96)					-	0.455			0.090	0.475		
20.Modern culture improve QoL	3.6(0.7)	3.3(0.85)							0.460	0.708	0.184	0.399	0.508	0.563
21.Reconcile with other culture	3.3(0.95)	2.9(0.82)							0.546	0.583	0.131	0.286		
22.Culture contradicts health facts	3.1(0.79)	2.9(0.92)							0.671	0.528	0.268	0.274		
23.Education influence healthy life	4.3(0.59)	4.0(0.64)							0.669	0.512	0.178	0.103		
Eigenvalue			3.602	4.583	3.041	3.019	2.728	2.139	2.143	2.046				
Explained Variance (%)			15.660	19.927	13.224	13.124	11.861	9.302	9.317	8.895				
Cumulative Variance (%)			15.660	19.927	28.884	33.051	40.745	42.353	50.062	51.248				

Note: 3 items that fail to load are in bold font

Table 4 Final socio-cultural variable with its loading factors and Cronbach alpha for *Orang Asli* & general population (n=275)

Item Wording	Mean(SD)		Factor 1 ^a		Factor 2 ^a		Factor 3 ^a		Factor 4 ^a		ITC		Alpha	
	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP	<i>Orang Asli</i>	GP
1. Believe in traditional medicine	2.8(0.83)	2.5(0.86)	0.434	0.858							0.454	0.665		
2. Seek traditional healer	3.2(0.87)	2.5(0.92)	0.832	0.808							0.448	0.555		
3. Diseases caused by ghosts	3.0(0.84)	2.3(0.98)	0.561	0.797							0.263	0.578		
4. Practice traditional medicine	3.6(0.82)	2.6(0.91)	0.781	0.770							0.594	0.636	0.758	0.865
5. Use plant substances as medicine	3.5(0.84)	2.9(0.94)	0.672	0.692							0.350	0.491		
6. Villagers use traditional medicine	3.6(0.79)	2.7(1.00)	0.620	0.557							0.334	0.525		
7. Adherence to taboos	4.0(0.79)	3.5(0.93)			0.814	0.802					0.388	0.350		
8. Practice of culture by generations	4.0(0.67)	3.7(0.79)			0.835	0.776					0.325	0.310	0.740	0.772
9. Culture to adapt with environment	3.7(0.74)	3.6(0.85)			0.410	0.706					0.147	0.166		
10. Individual practice of culture	4.2(0.72)	3.9(0.79)			0.821	0.700					0.308	0.188		
11. Culture adherence cause poverty	2.9(1.03)	3.3(0.94)					0.531	0.699			0.402	0.084		
12. More harm in traditional medicine	3.0(0.78)	3.0(0.79)					0.631	0.670			0.271	0.110	0.630	0.592
13. External influences erodes culture	3.0(1.03)	3.1(0.98)					0.595	0.579			0.290	0.223		
14. Refuse to accept foreign culture	2.8(1.06)	2.6(0.88)					0.746	0.530			0.255	0.436		
15. Preservation of culture	3.5(0.68)	2.7(0.87)					0.577	0.512			0.053	0.560	0.543	0.477
16. Comfortable with same ethnic	2.9(1.13)	2.5(1.00)					0.723	0.462			0.271	0.385		
17. Modern culture improves QoL	3.6(0.07)	3.3(0.85)							0.483	0.664	0.119	0.337		
18. Reconcile with other culture	3.3(0.95)	2.9(0.83)							0.537	0.607	0.158	0.279		
19. Culture contradict health facts	3.1(0.79)	2.9(0.92)							0.684	0.521	0.296	0.277		
20. Education influence healthy life	4.3(0.59)	4.0(0.64)							0.681	0.58	0.144	0.103		
Eigenvalue			3.017	4.472	2.671	2.710	2.598	1.994	2.111	1.771				
Explained Variance (%)			15.087	22.361	13.355	13.548	12.991	9.969	10.554	8.855				
Cumulative Variance (%)			15.087	22.361	28.442	35.909	41.433	45.878	51.987	54.733				

The Cronbach alpha for domain 'Attachment to traditional culture' found in our study (0.740 and 0.772 for *Orang Asli* and general population respectively) is a bit lower than those in similar study among non-Caucasian youth in Canada (0.83)⁴⁶. Direct comparison however cannot be made due to different sample population, study background and the purpose of the study itself. In our study, Cronbach alpha value for factor 4, namely 'Acceptance towards culture' was invariably low for both populations with value of 0.543 among the *Orang Asli* and 0.477 among the general population. This could be due to low number of questions, poor inter-relatedness between items or heterogeneous constructs⁴⁵ and thus warrant revision and restructuring of the questions in the future.

Strength and limitations

There are some limitations of this study. Interviewer bias may exist because face-to-face interviews were conducted in majority of the *Orang Asli* respondents due to low language literacy. Besides that, the interview session was carried out by more than one interviewer, thus there could be possibility that the interviewers were not asking questions as what the question meant and vice-versa, or possibility that different respondents understood differently on what have been asked by the interviewer. To overcome this weakness, inter-rater reliability analysis should have been done to avoid inter-rater bias, which was lacking in this study. Finally there was relatively low internal reliability and factor loading for few items which resulted in low corrected item-total correlation. Therefore, future researcher should re-phrase, re-structure or even discard the questions with low loading factor to ensure the consistency and stability of the items.

CONCLUSIONS

This new instrument, in its entirety was found to demonstrate an adequate and acceptable measure of cultural dimension to assess its impact on Quality of life. The construct validity was confirmed and the internal consistency reliability was acceptably fair. Future studies should be conducted for further validation and standardization of the scale in various settings with bigger populations. We also suggest that future researcher should conduct Confirmatory Factor Analysis (CFA) in order to establish a more viable association of the construct validity which can provide more informative analytic options.

List of abbreviations

Kaiser-Mayer-Olkin (KMO), Principal Component Analysis (PCA), Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Quality of

Life (QoL), Proportionate to population size (PPS) Medical Research Ethics Committee (MREC).

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