Psychometric properties of SDHQ-53, the Persian version of social development and health questionnaire within Iranian samples

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A R T I C L E   I N F O

A B S T R A C T

The modernity and social development is an important issue within developing societies like the Middle Eastern countries. The SDHQ-53 is self-constructed scale measuring tendency to health and social development upon Iranian-based society. Psychometric properties of SDHQ-53 across urban dwellers in the northwest Iran and discuss its role in the detection of quality of development. About 876 respondents (Mean= 36.3±3.71) were sampled from the eight municipal zones in Tabriz city and replied to SDHQ-53. External and criterion validity was calculated by correlation to the four questionnaires. The SDHQ-53 includes 11 subscales: life satisfaction and health, fatalism, socio-cultural alienation, need for achievement, using media, innovation and creative personality, limited good, individualism, socio-economic participation, dependency, particularism. There was significant difference within sample groups regarding main variables (ρ<.05). The coefficients of Cronbach's alpha (α=.89), convergent validity (.81), divergent validity (-.21), external validity with overall score of five external scales (Mean=.87), and criterion validity (.78) were estimated, which were significant at ρ<.01. The exploratory factor analysis demonstrated that the SDHQ-53 is organized into 11 factors, which clarifies 92 per cent of the scale's variance. Second-order confirmatory factor analysis pointed out that the factor is well matched up onto a principal factor. Consequently, the 11-factors model was well appropriate for the data by the fit index techniques (AGFI=.88, GFI= .95, RMSEA=.002, IFI=.93, NFI= .96, CFI=.96). The results pointed to the well-adjusted reliability and psychometric properties of the SDHQ-53 and its usefulness for the relevant studies as well.

1. Introduction

"Tradition" and "modernity" are widely used as polar opposites in a linear theory of social change. It is incorrect to view traditional societies as static, normatively consist, or structurally homogeneous. The relations between the traditional and the modern do not necessarily involve displacement, conflict, or exclusiveness. Modernity does not necessarily weaken tradition. Both tradition and modernity form the bases of ideologies and movements in which the polar opposites are converted into aspirations, but traditional forms may supply support for, as well as against, change (Marston, 2000).

The social and cultural aspects of development are a striking degree, the same syndrome of attitudes, values, and ways of acting-such as openness to new experience, independence from parental authority, and taking an active part in civic affairs-defines the modern man in each of the communities and in all the occupational groups of cultivator, craftsman, and industrial worker. Education is the most powerful factor in making men modern, but occupational experience in large-scale organizations, and especially in factory work, makes a significant contribution in "schooling" men in modern attitudes and in teaching them to act like modern men (Asadollahi et al., 2011). Modern men in developing countries not only have modern attitudes, but they can be shown to behave differently. Despite popular impressions to the contrary, exposure to the influence of migration and

modern institutions does not lead to psychic distress (Lobao and Hooks, 2015).

Sociologists have long studied subnational development across the globe focusing on community and modern human that contribute to spatial inequality and uneven development. Subnational research is central to development sociology's concern with the present neoliberal stage of capitalism and to numerous theoretical, substantive, cultural and social development, and policy issues that revolve around poverty and prosperity within the nation (Lobao and Hooks, 2015). Yet the body of work faces a number of challenges. Research is fragmented and its potential for building development of an instrument has overlooking on social and cultural progress. It provides a critical and statistical analysis of this modern and tradition focusing on its theoretical development on modernity and identifying a wave of shifts in social and cultural structure. Over the recent years, scholars in development studies have been paying increasing theoretical and empirical attention to understanding the ways in which the developing scale in measurement the human modernity and life (Asadollahi et al., 2016; Armer and Schnaiberg, 1972). Overwhelmingly, this work reflects on operational approach. In this article we develop and emphasis on the necessity of scale construction and argue for enlarging our scope for understanding scale to include the complex processes of social and cultural development. The study was investigated to the standards of social development and health inventory in the human life, the adequate version (SDHQ-53) (2015) within young and adults to introduce a relevant criterion. The measurement of external validity had contained correlating relation of the five scales with SDHQ-53 Inventory, to check the properties of the development specific dimensions.

2. Materials and methods

About 472 men and 404 women with age range of 15 to 67 and with the mean age of 36.3±3.71 were sampled with the cluster-ratio sampling method from the eight municipal zones of Tabriz city, provincial capital of the Eastern Azerbaijan in the northwest Iran. The samples replied to the 53 items of SDHQ-53. The SDHQ-53 questionnaire mainly consists of a 53-item scale regarding cultural and social development that was investigated by authors and literature reviews [2, 4, 7, 12-13, 20, 22, 24, 27, 29) It was developed in one version. The 53 items is most common used version of SDHQ-53. Each item in the scale has several responses i.e. five response option from 1 = strongly agree to 5 = strongly disagree. If the 53 items are completed, a scale score ranging from 53 (having the most agreement to the modernity and social development in society) to 265 (having the most traditional opinions), can be calculated. The SDHQ-53 contains 53 items on the following domains: LSH: Life Satisfaction and Health, F: Fatalism, SCA: Socio-Cultural Alienation, N4A:

Need for Achievement, UM: Using Media, IandC: Innovation and Creative Personality, LG: Limited Good, Individualism and SCP: Socio-Economic Participation, D: Dependency, P: Particularism.

External and Criterion Validity: It was estimated by the correlations of overall scores of SDHQ-53 and its domains to the 5 similar instruments like PSE-Q inventory (Schultheiss et al., 2009), Need to Belong Scale (Leary et al., 2013), Motive Profile for the Zurich Model (MPZM) (Schönbrodt et al., 2009), GOALS inventory (Pöhlmann and Brunstein, 1997), Big Five Inventory (BFI-10) (Rammstedt, 2007). The Pearson's correlation coefficients were used to measure the relationship between scales of SDHQ-53 and the five external scales. Strong correlations were expected between domains and scales with the same content.

a) PSE-Q inventory (Schultheiss et al., 2009). This newly developed questionnaire with its subscales for power, achievement, and affiliation combines the motive stimulating pictures of a classic PSE task with fixed questions that address the participant's reactions to these pictures (e.g., "I would try to influence or persuade the other person(s)" for the power motive). Participants answer with a binary choice (yes/no). The PSE-Q was developed to provide a measure of explicit motives that is structurally as close as possible to the measurement of developing motives using the Picture Story Exercise (PSE) (Winter, 1991).

b) Need to Belong Scale (Leary et al., 2013). The need to belong (NTB) is a prominent construct in social psychology (Baumeister and Leary, 1995). Its definition closely resembles typical definitions of the affiliation and intimacy motives: "a pervasive drives to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships" (Baumeister and Leary, 1995). This strand of theorizing usually focuses on the general tendency and the fundamentality of the need to belong for any person. Interindividual differences, specifically the dissociation of the fundamental motivational tendencies of approach and avoidance, have rarely been taken into consideration (Gere and MacDonald, 2010; Gable, 2006; Barber et al., 2012). Some researchers, however, have used a questionnaire to measure interindividual differences in the need to belong scale (NTBS) (Leary et al., 2013; Renner, 2006). This scale assesses the NTB on 10 items such as "My feelings are easily hurt when I feel that others do not accept me."

c) GOALS inventory (Pöhlmann and Brunstein, 1997). In addition to the scales already employed in the study, the additional scales were included: enterprise and altruism.

d) Motive Profile for the Zurich Model (MPZM) Schönbrodt et al., 2009). This inventory provides five motive scales based on the Zurich model of social development (Gubler and Bischof, 1991): dependency, enterprise, power, prestige, and achievement. Each scale consists of six items.

e) Big Five Inventory (BFI-10) (Rammstedt, 2007). Finally, a short measure with two items for each dimension of the Big Five personality factors was included.

Procedures: The printed version of the SDHQ-53 was mailed to the samples as part of an assessment battery with a postage-paid business-reply envelope. The samples whose ethnicity was classified as Azeri at society received both an Azeri and a Persian version of the SDHQ-53 in their mailing. It may help them to simply recognise and understand the scientific words, as a research has acclaimed it is necessity while research in minority groups with bilingual language (Asadollahi et al., 2013). The respondents were paid $10 for completing the assessment packet. The filled questionnaires were gathered during 5 months from December 2015 to May 2016.

Setting and Participants: From the eight municipal zones of Tabriz city, provincial capital of the Eastern Azerbaijan in the northwest Iran, about 880 women and men responded to the SDHQ-53. Of the 880 responders, 876 had responded to all of the 53 items used in the inventory and included in the analysis. The mean age of the samples was 36.3±3.71 (range 15–671) years of age.

3. Results

About 876 urban dwellers were the samples of the study, 472 men (55.88%) and 404 women (46.02%) with a mean age of 36.3 years of old (SD=3.71). All of patients were replied to the 6 inventories of study, SDHQ-53 PSE-Q, need to belong scale, motive profile for the Zurich model, goals inventory, and big five inventory. The demographic characteristics are shown in Table 1.

Table 1: Frequency distribution and comparison of samples' demographic and background profiles by gender (N=876, $\rho \leq 0.05$.)

Categories	Sub Items	N	%	Male	Female	χ^2/ρ
Gender	Male	472	53.88	-	-	1.205/.000
	Female	404	46.02	-	-	
Age (Mean= 36.3, SD=3.71)	15-30 (Youths)	299	49.32	20	16	2.105/.000
	31-50 (Middle-aged)	361	28.77	13	8	
	≥ 51 (Older adults)	216	21.92	8	8	
Ethnicity	Persian	285	41.10	15	15	3.112/.000
	Azeri	554	30.14	18	4	
	Others	37	28.77	16	5	
Educational status	No formal school	34	3.8	12	22	17.5/.001
	Only reading	78	8.9	40	38	
	Primary	138	15.75	111	27	
	Middle school	136	15.75	78	58	
	High school	379	43.26	210	169	
	Graduated	111	12.67	71	40	
Marital status	Divorced	56	7.31	26	30	38.4/.002
	Widowed	39	3.72	9	30	
	Separated	12	1.02	2	10	
	Married	685	78.19	248	437	
	Never married	8	.81	8	0	
	Living with other	76	8.9	16	60	
Family members (Mean= 5.7, SD=1.34)	≤ 5 persons	635	71.58	956	279	23.8/.005
	≥ 6 persons	241	28.42	132	109	
Economic support and pensioning	Nothing	52	7.31	10	42	31.3/.000
	Public	685	78.19	421	264	
	Private	139	15.75	89	50	
Range of Financial Support upon Urban Poverty Ratio [a] (Mean= 936439.79, SD=1.48)	Nothing	52	7.31	10	42	25.5/.000
	$\leq 990,000$	238	28.30	112	126	
	1000000-4500000	328	28.04	204	124	
	4510000-7990000	157	16.56	107	50	
	≥ 8000000	101	12.31	90	11	
Municipal Zones [b]	1= Middle Class	120	12.67	65	55	41.01/.009
	2= Developed	129	15.20	100	29	
	3= Developed	109	12.22	90	19	
	4= Undeveloped	112	12.29	80	32	
	5= Undeveloped	104	12.18	70	34	
	6= Middle Class	101	12.01	81	20	
	7= Middle Class	103	12.01	73	30	
	8= Undeveloped	98	9.02	62	36	

a. Based on Iranian Rials currency and 1 US$= 32060 IR Rials in 2016. b. They are economically divided into three parts i.e. poor and undeveloped = 29.6% (zone 4, 5, and 8), middle class= 48.6% (zone 1, 6, and 7), wealthy and developed= 21.8% (zone 2 and 3) regarding income of citizens and urban facilities based on Provincial Report of AzSCC (2011)

The comparing SDHQ-53 overall score made between males and females regarding their attitude on modernity, intimacy, social and cultural development in the community within samples.

Internal Consistency: The coefficients of Cronbach's alpha (α=.89), convergent validity (.81), divergent validity (-.21), and criterion validity (.78) were estimated, which were significant at $\rho<.01$. The discriminative power in the SDHQ-53 of sub-scales with overall score using Kolmogorov–Smirnov and Shapiro–Wilk tests of normality demonstrated an almost normal distribution (Table 2). Mean overall score was 112.5 (CI=67-201), Median = 118, and SD = 9.42. Discriminative power testing showed that domains have had an almost normal distribution (Table 2).

Table 2: Descriptive statistics and discriminative power in the SDHQ-53 of sub-scales with overall score

Domains (Item Number)	No. of items	Mean (95%CI) [a]	Median	SD	Cronbach's α	KS[b]	SV[c]	df	ρ
Life Satisfaction and Health	4	14.5 (28-81)	13	6.04	.83	.094	.089	841	.0001
Fatalism	7	23.2 (21-72)	24	8.01	.85	.074	.087	842	.0001
Socio-Cultural Alienation	4	18.7 (39.2-87.2)	17	1.01	.79	.149	.122	842	.0001
Need for Achievement	3	10 (11.25-28.75)	11	9.21	.73	.092	.071	841	.0001
Using Media	4	12.7 (32.8-68.6)	12	3.30	.81	.073	.088	842	.0002
Innovation and Creative Personality	4	12.28 (14.86-74.7)	13	2.82	.87	.147	.133	841	.0001
Limited Good	3	9.84 (37.42-82.26)	9	5.33	.88	.148	.145	841	.0002
Individualism	4	12.32 (13.83-70.7)	12	4.67	.88	.149	.152	841	.0001
Socio-Economic Participation	6	33.18 (13.32-73.2)	32	3.87	.89	.083	.038	841	.0002
Dependency	6	32.28 (13.76-71.7)	32	5.23	.89	.149	.132	842	.0002
Particularism	8	42.28 (13.86-70.7)	43	8.18	.90	.073	.088	841	.0002
Total Score	53	112.5 (67-201)	118	9.42	.89	.083	.091	842	.0001

a. The score range= 53–265. N=876. b. Kolmogorov–Smirnov test of normality. c. Shapiro–Wilk test of normality

Regarding criterion validity, Pearson's correlation coefficients were significant and appropriate for all sub-domains of SDHQ-53 and other five external scales. This finding could suggest some specificity of these domains. Table 3 summarizes the appropriate correlation of the six questionnaires' subscales.

Table 3: Pearson correlations between SDHQ-53 and total scores of criterion-related scales (ρ<.05.)

Domains	TB5I	TMPZM	TGI	TNBS	TPSE-QI
LSH	.561	.474	.572	.501	.506
F	.479	.438	.571	.469	.436
SCA	.498	.585	.484	.349	.514
N4A	.478	.458	.371	.435	.446
UM	.548	.324	.266	.441	.438
IandC	.578	.458	.371	.435	.446
LG	.501	.474	.577	.601	.306
SCP	.479	.438	.471	.569	.486
D	.578	.458	.371	.435	.446
P	.549	.431	.338	.338	.428
TSDHQ-53	.378	.458	.571	.535	.416

LSH: Life Satisfaction and Health, F: Fatalism, SCA: Socio-Cultural Alienation, N4A: Need for Achievement, UM: Using Media, IandC: Innovation and Creative Personality, LG: Limited Good, Individualism, SCP: Socio-Economic Participation, D: Dependency, P: Particularism, TSDHQ-53: Total scores of overall SDHQ-53, TB5I: Total scores of overall Big Five Inventory (BFI-10) (Rammstedt, 2007), TMPZM: Total scores of overall Motive Profile for the Zurich Model (Schönbrodt et al., 2009), TGI: Total scores of overall GOALS Inventory (Pöhlmann and Brunstein, 1997), TNBS: Total scores of overall Need to Belong Scale (Leary et al., 2006), TPSE-QI: Total scores of overall PSE-Q Inventory (Schultheiss et al., 2009)

Kaiser-Meyer-Olkin Criterion and Bartlett's Test of Sphericity: The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) statistic is the most common test used to determine whether the scale under investigation can be factored (Osborne and Costello, 2005). This test evaluates whether the correlations are chance correlations or are significant enough to be factored (Worthington and Whittaker, 2006). The Kaiser-Meyer-Olkin Measure (KMO) for the data was determined to be .902. Values of .60 and above are required for an appropriate factor analysis, with values closer to 1.0 as better (Worthington and Whittaker, 2006).

Therefore according to the KMO criteria, the SDHQ-53 is able to undergo a factor analysis (Table 4). Another test that can be used to determine the factorability of the scale under investigation is Barlett's test of Sphericity, which determines whether or not variables are, uncorrelated (Kraha et al., 2012).

Table 4: Bartlett's test of Sphericity

Approx. Chi-Square	4500.249
df	865
Sig.	.000
KMO test	.902

Contrast Validity: The exploratory factor analysis demonstrated that the 53-items of SDHQ-53 for the samples are organized into 11 factors (LSH: Life Satisfaction and Health, F: Fatalism, SCA: Socio-Cultural Alienation, N4A: Need for Achievement, UM: Using Media, IandC: Innovation and Creative Personality, LG: Limited Good, Individualism, SCP: Socio-Economic Participation, D: Dependency, P:

Particularism) which clarify 94 per cent of the scale's variance. Second-order confirmatory factor analysis pointed out that the factors were well matched up onto a principal factor. According to the Table 5, the rotated factor matrix pattern of Varimax for the SDHQ-53's subscale questions was considered. Those questions with factor loadings above .85 were selected.

Table 5: Varimax rotated factors matrix of the SDHQ-53 (n= 876, only factor loadings≥.05)

No. of Item	Domains	Mean	SD	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
9	Life Satisfaction and Health	.34		.89							
10		.29	.46	.84							
11		.31	.47	.85							
12		.31	.47	.88	.87						
39	Fatalism	.29	.37		.88						
40		.40	.46		.79						
41		.24	.40		.78						
42		.33	.49		.92						
43		.36	.43		.92						
44		.09	.47		.89						
45		.24	.24		.90						
5	Socio-Cultural Alienation	.28	.47			.87					
6		.17	.43			.87					
7		.09	.38			.88					
8		.09	.28			.89					
17	Need for Achievement	.24	.28				.87				
18		.26	.43				.88				
19		.05	.38				.89	.85			
1	Using Media	.24	.44					.87			
2		.27	.38					.88			
3		.31	.46					.90	.77		
4		.33	.31					.89			
13	Innovation and Creative Personality	.24	.28						.87		
14		.26	.43						.87		
15		.05	.38						.88		
16		.24	.28						.91		
20	Limited Good	.26	.43							.81	.74
21		.05	.38							.87	
22		.24	.24							.79	.80
23	Individualism	.28	.47								.91
24		.17	.43								.92
25		.09	.38								.89
26		.27	.38								.89

There are covariate between some items i.e. item No. 21 between factors No. 6 and 8, item No. 3 between factors No. 6 and 5, item No. 27 between factors No. 10 and 11 in the recent version of SDHQ-53. It may acclaim that covariate item of the factors could be reconstructed as well (Thissen, 2000).

Eigenvalue Rule: Additionally, one of the other main criteria to determine how many factors have been extracted is the eigenvalue rule (DeVellis, 2016). This rule postulates that any factor with an eigenvalues less than 1.0 should not be retained (Wirth and Edwards, 2007). Table 6 depicts the eigenvalues after extraction and according to the eigenvalues, the researcher decided to retain 11 factors.

Consequently, the 11-factor model was appropriate for the data and the fit index techniques for adjusting the scale. The indexes of the model's goodness of fit refer to the integrity of the 11-factor model with data. The χ^2 to degrees of freedom is less than 2 in efficient models. It is closer to zero and will be closer. The root mean square error of approximation (RMSEA) and standardized root mean residual (SRMR) must be less than .05 that indicate to good models. According to the Table 7, the model pointed out the goodness of fit of the model in the study (χ^2/df= 1.055, AGFI=.88, GFI= .95, RMSEA=.002, IFI=.93, NFI= .96, CFI=.96).

As closer measure to 1 in the normed fit index (NFI), the comparative fit index (CFI), goodness-of-fit statistic (GFI), the incremental fit index (IFI), and the adjusted goodness of fit index (AGFI), they refer to the goodness and fit of model. They were more than .90 (Table 7).

4. Discussion and conclusion

The aim of the study is to look for the relevant instrument regarding common achievement to the modernity, social and cultural development within young and adults in the Iranian social context, even the issue still is challengeable. So, the social development and health questionnaire (SDHQ-53, 2016) was used and evaluated. The results stated to the well-adjusted psychometric properties, discriminative statistic, reliability, and validity of SDHQ-53 and usefulness of it in the relevant studies too. Regarding the external validity, correlation coefficients were significant and appropriate all sub-domains of SDHQ-53 with the 5 external scales as well. Therefore, future researchers should not limit themselves to the western scales, but should also consider specific cultural factors (Hofer et al., 2010).

Table 6: the Eigenvalues after extraction, n= 876

Factors	Total Variance	%	Sig.
1	8.89	28.83	.000
2	8.83	19.83	
3	8.80	17.34	
4	8.79	12.54	
5	8.65	11.35	
6	7.90	10.96	
7	7.45	10.45	
8	7.21	9.25	
9	6.34	8.34	
10	3.54	8.14	
11	*1.95*	*7.95*	
12	.904	2.674	
13	.832	2.262	
14	.609	1.629	
15	.601	1.171	
16	.512	.822	

Table 7: The Goodness of fit indexes model

Indexes	χ^2	df	χ^2/df	AGFI	GFI	RMSEA	IFI	NFI	CFI
Value	142.35	86	1.055	.88	.95	.002	.93	.96	.96

The version of SDHQ-53 illustrated appropriate satisfactory psychometric statistics, good reliability, high internal consistency, valuable discriminative characteristics. It has applicable level in the conceptual similarity to the same countries like Tajikistan, Azerbaijan, and Afghanistan. Regarding the findings of the study, the SDHQ-53 is appropriate for validity and reliability in the community of the Iranian society and it can be employed to measure need to achievement and modernity, social and cultural development. Additionally, it is applicable by sociologists, the experts in cultural and developing studies. Regarding the divergent background, it is first time suggested that in the future studies, the gender-related symptoms of modernity and development within minorities groups like Azeri people of Iran, which are compatible with communities like Iran's minority groups and other divergent communities in the Middle East and North Africa, be conducted and evaluated as well.

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Authors' contributions

AI contributed to the design, performed the interviews, interpreted data from the interviews and also has contributed to the design, interpretation, and discussion. AA analysed the data, wrote the draft and has revised the content, scientific writing. Both authors have approved the final manuscript as well.

Conflict of interests

The authors declare that they have no competing interests.

Ethical considerations

Ethical matters, e.g. Plagiarism, uninformed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc., have been totally observed by the authors.

Patient consent

Written and verbal consent of the samples was obtained before participating the study.

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