

The Adaptation of Turkish Health Literacy Scale for Literate Syrian Adult Refugees Living in Turkey: A Reliability-Validity Study

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Abstract

Background

There is a big Syrian refugee population which counts more than 3.5 million since the year 2011, and continuously growing. This situation causes various problems, mainly while obtaining health services. In planning the migrant health services, for the policy makers of host countries, health literacy level of migrants is an important measure. Determination of health literacy level of Syrian refugees in Turkey would be supportive for planning some interventions to increase health services utilization, and health education and health communication programs. An "original health literacy scale" for 18–60 years of age Turkish literate adults (Hacettepe University Health literacy Scale-HLS) was developed to be used as a reference scale in 2018. It would be useful to compare the health literacy level of Turkish adults and Syrian adult refugees resided in Turkey with an originally developed scale. For this reason, it was aimed to adapt the HLS-Short Form in Syrian refugees.

Methods

This methodological study was carried out between 2019–2020 in three provinces of Turkey where the Syrians live intensively. The data was collected by pre-trained, Arabic speaking 12 interviewers and three supervisors via a questionnaire on household basis. At first, the original Scale and questionnaire were translated into Arabic and backtranslated. The questionnaire and the Scale was pre-tested on 30 Syrian refugees in Ankara Province. A total of 1254 refugees were participated to the main part of study; 47 health-worker participants were excluded from the validity-reliability analysis. Confirmatory factor analysis (CFA) was performed. Cronbach's alpha and Spearman-Brown coefficients were calculated.

Results

Of the participants, 52.9% was male; 26.1% had secondary level or less; almost half of them had moderate economic level; 27.5% could not speak Turkish. The Cronbach's Alpha was 0.75, Spearman-Brown Coefficient was 0.76; RMSEA = 0.073, CFI = 0.93, TLI = 0.92 and GFI = 0.95 for the Scale. The Cronbach's Alpha was 0.76, Spearman-Brown Coefficient was 0.77; RMSEA = 0.085, CFI = 0.93, TLI = 0.91 and GFI = 0.95 for self-efficacy part.

Conclusion

In conclusion, the adapted HLS would be a reliable instrument to evaluate the health-literacy level of Syrians living in Turkey and could give an opportunity to compare the host country's HL with the refugees by using the same scale.

Background

After opening the borders of Turkey to Syrians, since 2011, the number have increased 3.6 million registered refugees. Great amount of refugees are living mostly in province centers, with the highest numbers in Istanbul, Gaziantep, Şanlıurfa and Hatay provinces (Mol, 2021). Migrants with legal status could utilize Migrant Health Centers (MHC) and Migrant Health Units (MHU) in order to obtain primary health care services (PHC) free of charge provided by the Government. 175 MHCs and 785 MHUs were established in 29 cities in Turkey. As of August 2020, 2520, Syrian health personnel and 966 patient referral guides (translators) had been trained and are providing services in MHCs/MHUs across the country (MoH, 2020).

Migration involves a much deeper adaptation mechanism than individual adjustments to new environments and is in a negotiation process with social, political and economic forces. In this context, immigration should be considered as a fundamental social determinant of health, since it is a lived experience that directly affects health and well-being (Castañeda et al, 2015).

The continuing growth of refugees in Turkey sources some adaptation problems. According to some studies, problems stated by the migrants while obtaining health services were lack of trust, fear of healthcare personnel, lack of health insurance, lack of communication and consequently not being able to give informed consent, and inability to control privacy (Koçan et al., 2016; Alkan et al., 2016; Demir et al., 2016). Language barrier might lower benefiting refugees from health services which might affect the adherence to the treatment (Meydanlioglu et al., 2015). In some recent studies, it was suggested that migrants utilize less compared with the host community (UN, 2017). Migrants have poorer access to health care services, and use less information, health promotion, disease prevention (WHO, 2013).

As it is stated in the WHO document related to health promotion, "health literacy promotes empowerment, which in turn is vital for achieving the internationally agreed health and development goals as well as the emerging threats such as from the pandemic influenza, climate change and non-communicable diseases" (WHO 2020 Track 2). Unsuccessful health literacy is highly related to reduced access to health services, trouble in managing health problems, limited understanding health-related information and ability in making logical decisions interrelated health issues (Naus 2018). At the end, limited health literacy provokes ineffectual use of health-care resources, resulting with increased personal and public

expenditures. Health literacy level of migrants is an important indicator for the policy makers of host countries in planning the migrant health services. Determination of health literacy level of Syrian refugees in Turkey would be supportive for health services utilization as well as health education and health communication programs that will change the health behaviors. Health literacy scales are valuable tools to determine the health literacy level.

An "original health literacy scale" for Turkish literate adults between 18–60 years of age (Hacettepe University Health literacy Scale-HLS) was developed to be used as a reference scale in 2018 (Bahar Özvarış et al, 2018). After developing the 72 items long form, a short form (24 health literacy related items + 16 self-efficacy statements) was also validated. The analysis showed that Scale could be used as a reference scale to assess the health literacy level for Turkish literate adults. In order to compare the health literacy level of Turkish adults and Syrian adult refugees resided in Turkey with an originally developed scale, it was aimed to adapt the HLS-Short Form in Syrian refugees.

Methods

Participants and procedure

This methodological study was carried out in Hatay, Mersin and Gaziantep provinces where the Syrians live intensively in Turkey between 2019–2020. The data was gathered by pre-trained 12 Arabic speaking interviewers (half female) and three supervisors. The validity-reliability study was carried out on the Syrian refugees in the same age group. The data were collected via a questionnaire (including questions related to some socio-demographical characteristics and HLS) on household basis. Approximately 400 Syrian refugees, equal number from each gender in each age group (18–29, n = 459, 38%; 30–44, n = 422, 35%; 45–60, n = 326, 27%) were randomly recruited from each province (Gaziantep n = 382, Hatay n = 431, Mersin n = 395). A total of 1,254 refugees were participated to the study. Forty-seven health worker participants were excluded from the validity-reliability analysis in order not to ruin the results as was done in the validity analysis of the original scale. Final analysis was performed with 1207 participants.

Instruments

The short form of the HLS-Turkish version consisted of two parts: A 24-items knowledge-based health literacy part (one dimension) and a 16-statements self-efficacy part. Every item of the health literacy part was scored as "1": true answer, "0": wrong answer. The minimum-maximum scores could be obtained are 0–24. The self-efficacy part of the scale has one-dimension also. The statements were scored as 1: never, 2: sometimes, 3: always. The minimum-maximum scores could be obtained are 16–48. Due to the different scoring system of the parts, a total score could not be calculated.

The reliability-validity results showed that HLS-Short Form is a valid and reliable tool. The reliability results of the Health Literacy Scale are as follows: Cronbach's alpha = 0.84 for internal consistency and Spearman-Brown = 0.78 for split-half reliability; Root Mean Square Error of Approximation (RMSEA) = 0.049, Goodness of fit (GFI) = 0.94, Adjusted Goodness of Fit (AGFI) = 0.93 and Normed Fit Index (NFI) = 0.94. The reliability results of the Self-Efficacy part are Cronbach's alpha = 0.83 and for internal consistency and Spearman-Brown = 0.73 for split-half reliability; RMSEA = 0.068, GFI = 0.94, AGFI = 0.91 and NFI = 0.94 (Bahar Özvarış et al, 2018).

Statistical Analysis

Data entry and evaluation were conducted through statistical package program IBM SPSS 23.0. The validity and reliability analysis were performed using The R Project for Statistical Computing (ver. 4.0.0) program. Confirmatory factor analysis (CFA) based on polychoric correlations diagonally was applied to confirm the factor structure of the scale. Diagonally weighted least squares (DWLS) method was used to get more accurate parameter estimates. In addition, modification indices were also obtained. If needed, the correlation between error terms was added to the model according to high modification indices. In order to demonstrate the reliability, the Cronbach's alpha reliability coefficient, which shows internal consistency, and Spearman-Brown coefficients, which shows the two-half reliability, were calculated. The difficulty and discrimination coefficients and Cronbach's alpha if item deleted statistics calculated when the item was deleted. To demonstrate criterion validity, the average scores of Health-Literacy part and Self-Efficacy part of the health workers and non-health workers were compared via independent samples t test; $p < 0.05$ was accepted as significance level.

Results

Of the participants, 52.9% was male; almost half of them was university graduated; 60.7% was married and living with spouse; 47.6% currently working; one-fourth stated their economic status as below moderate or poor. Mother tongue was Arabic in 98.4% of the participants; another 1.5% stated thir mother tongue as Kurdish or Turkish, and 27.5% did not speak Turkish. One-fifth of the participants had at least one chronic disease and 48.2% had health insurance (Table 1).

Table 1
Some Characteristics of Participants (Turkey, 2019)

Characteristics	n*	%
Sex (n = 1207)		
Male	639	52.9
Female	569	47.1
Educational Status (n = 1200)		
Primary school	80	6.7
Secondary school	233	19.4
High school	297	24.8
University	590	49.2
Marital Status (n = 1205)		
Never married	386	32.0
Married and living with spouse	731	60.7
Widowed/Divorced/Separated	88	7.4
Working status in Turkey (n = 1206)		
No	628	52.4
Yes	573	47.6
Economic Status (n = 1205)		
Very good	57	4.7
Good	278	23.1
Moderate	566	47.0
Below Moderate	203	16.8
Poor	101	8.4
Speaking Turkish (n = 1202)		
No	330	27.5
Moderate	493	41.0
Yes	379	31.5
Health insurance (n = 1186)		
No	604	50.1
Yes	582	48.3
Having Any Chronic Disease (n = 1203)		
No	951	79.1
Yes	252	20.9
* There are various number of missings for every variable.		

Adaptation Process Of The Scale

Language Validity

As the first stage, the Scale and questionnaire were translated into Arabic by an expert whose native language is Arabic and speaks Turkish at a good level. Another expert whose mother tongue is Arabic and speaks Turkish fluently made the back translation. The back translated Scale

was compared to the original Scale by the research team and Turkish Language experts, and the process of Arabic translation of the Scale was ended.

The questionnaire and the first draft of the Scale was pre-tested through an Arabic speaking interviewer on 30 Syrian refugees from different age groups (18–29, 30–44, 45–60) in Ankara Province. The results of the pilot study were evaluated by the research team with the help of the Arabic-Turkish translators and the final version of the Scale was obtained.

The Validity-Reliability Results of Health Literacy part of the Scale

Item Analysis Results

Cronbach's alpha statistics when item deleted, difficulty and discrimination values of items were obtained. The difficulty levels of items ranged between 0.29 and 0.93. All of the items were positively correlated with the total score and ranged between 0.14 and 0.69. Item 9 and Item 12 were excluded by taking experts' opinions, since item-total correlation were less than 0.20. After that, reliability analysis was performed again and the item statistics for remaining items were given in Table 2. According to item analysis result, difficulty levels of items varied between 0.29–0.93 and item-total correlation values varied between 0.22–0.72 for the one-dimension Health Literacy part of the Scale with 22 items.

Table 2
Item Statistics and Reliability Values of Health Literacy part of the Scale

	Difficulty	Discrimination Values (Point Biserial Correlation)	Cronbach's Alpha (when item deleted)
Item1	0.93	0.37	0.75
Item2	0.84	0.46	0.74
Item3	0.93	0.31	0.75
Item4	0.76	0.45	0.74
Item5	0.67	0.48	0.74
Item6	0.72	0.42	0.74
Item7	0.87	0.56	0.74
Item8	0.89	0.56	0.74
Item10	0.76	0.52	0.74
Item11	0.55	0.36	0.75
Item13	0.40	0.29	0.75
Item14	0.77	0.22	0.75
Item15	0.93	0.72	0.74
Item16	0.79	0.51	0.74
Item17	0.29	0.25	0.75
Item18	0.85	0.60	0.74
Item19	0.91	0.45	0.75
Item20	0.80	0.70	0.73
Item21	0.78	0.68	0.73
Item22	0.73	0.61	0.73
Item23	0.78	0.26	0.75
Item24	0.74	0.22	0.76
Cronbach's Alpha		0.75	
Spearman-Brown Coefficient		0.76	

The internal consistency was 0.75, which showed a high level of reliability. The Spearman-Brown coefficient result showed that split-half reliability was sufficient.

Confirmatory Factor Analysis Results

In order to confirm the construct validity, confirmatory factor analysis (CFA) based on polychoric correlations was applied since there was a theoretical basis for one-dimensionality with 22 items, which was formed by item analysis and experts' opinions. The path diagram was given in Fig. 1.

As seen in Fig. 1, standardized factor loadings ranged between 0.12 and 0.55. As the fit indices, RMSEA was 0.083, CFI (Comparative Fit Index) was 0.91, TLI (Tucker-Lewis Index) was 0.90 and GFI was 0.93. According to the modification indices, the results suggested to add correlation between the error terms of Item 20 and Item 21. After taking experts' opinions, it was decided that this modification was appropriate. The analysis was repeated again and fit indices were calculated. The RMSEA was found as 0.073 which reflects a good fitness. The other fit indices were CFI = 0.93, TLI = 0.92 and GFI = 0.95. The results demonstrated that model had a very good fitness and the construct validity was confirmed.

The Validity-Reliability Results of Self-Efficacy Part of the Scale

Item Analysis Results

Cronbach's alpha statistics when item deleted, difficulty and discrimination values of items were obtained. All of the items were positively correlated with the total score and ranged between 0.12 and 0.62. Item 14 was excluded by taking experts' opinions, since item-total correlation was less than 0.20. Reliability analysis was performed again and the item statistics for remaining items were given in Table 3. As seen from the table, item-total correlation values of Item 15 and Item 16 were less than 0.20. After taking expert's opinions, it was decided to keep these items that they could negatively affect the content validity if excluded. Item-total correlation values varied between 0.12–0.63 for the one-dimension Self-Efficacy part of the Scale with 15 items.

Table 3
Item Statistics and Reliability Values of Self-Efficacy Part of the Scale

	Difficulty	Discrimination Values (Point Biserial Correlation)	Cronbach's Alpha (when item deleted)
Item1	2.02	0.48	0.74
Item2	2.02	0.60	0.73
Item3	1.75	0.54	0.74
Item4	2.18	0.60	0.73
Item5	1.80	0.63	0.73
Item6	2.30	0.31	0.76
Item7	2.30	0.61	0.73
Item8	2.49	0.33	0.76
Item9	2.04	0.53	0.74
Item10	1.86	0.27	0.76
Item11	1.92	0.49	0.74
Item12	2.33	0.21	0.76
Item13	2.12	0.26	0.76
Item15	2.58	0.17	0.77
Item16	2.53	0.12	0.77
Cronbach's Alpha		0.76	
Spearman-Brown Coefficient		0.77	

The internal consistency was 0.76, which signed a high level of reliability. The Spearman-Brown coefficient showed that split-half reliability was sufficient.

Confirmatory Factor Analysis Results

In order to confirm the construct validity, confirmatory factor analysis (CFA) based on polychoric correlations was applied since there was a theoretical basis for one-dimensionality with 15 items, which was formed by item analysis and experts' opinions. The path diagram was given in Fig. 2.

Standardized factor loadings ranged between 0.07 and 0.72 (Fig. 2). The fit indices were as follows: RMSEA = 0.085, CFI = 0.93, TLI = 0.91 and GFI = 0.95. The model had a very good fitness and the construct validity was confirmed.

Criterion Validity

There were 47 health workers among the participants. In order to demonstrate criterion validity, age and gender distributions of 47 health workers in the study group, who were not included in the reliability-validity analysis, were obtained for each province. From the remaining 1207 participants, 47 non-health workers selected randomly with the same gender and age distribution as health workers selected. The summary statistics were given in Table 4.

Table 4
The summary statistics of the scores for health and non-health workers

	Health Literacy Part Scores		Self-Efficacy Part Scores	
	Non-Health Workers	Health Workers	Non-Health Workers	Health Workers
Mean ± SD	16.36 ± 3.90	18.72 ± 2.80	32.66 ± 5.69	35.2 ± 5.81
Median	18.0	20.0	33.0	37.0
Q₁ – Q₃	14.0–19.0	17.0–21.0	30.0–37.0	31.0–39.0
Min-Max	3–21	13–22	20–42	22–44
Count	47	47	47	47
p-value	0.005*		0.041*	
SD: Standard deviation, Q ₁ :1st quartile, Q ₃ :3rd quartile, Min: Minimum, Max: Maximum				
* Independent Samples t-test result				

The mean total Health Literacy part scores for non-health workers and health workers were 16.36 ± 3.90 and 18.72 ± 2.80, respectively. The mean total Self-Efficacy part scores for non-health workers and health workers were 32.66 ± 5.69 and 35.2 ± 5.81, respectively. When the groups were compared in terms of Health Literacy and Self-Efficacy scores, statistically significant difference was found between health and non-health workers. Thus, the criterion validity of the scale was confirmed.

Discussion

Refugees are transported to host countries with a range of different health and cultural beliefs, and previous experiences. These differences affect their health outcomes at every point of interaction with the host country's healthcare system (Kostareva et al, 2020). Cultural beliefs about health and illness are complement to ability of a patient in understanding and behaving on health-related instructions (Shaw et al, 2009).

Health literacy is significantly and consistently associated with the quality of care. Refugees with adequate health literacy in reading hospital documents reported higher level of quality of medical care compared to with poor health literacy (Calvo, 2016). The language barrier for refugees poses a major problem in health care services related situations that could prevent refugees from seeking and receiving appropriate health services (Mantwill & Schulz, 2017).

It would not be wrong to argue that refugees are affected more by all other social determinants of health than the citizens of the host country. In a study conducted in Canada, education level, employment status and income found to be mediated health literacy and it was stated that efforts to improve health literacy can benefit everyone (Omariba & Ng, 2015). This context reveals how important health literacy studies are for immigrants.

Health literacy scales are important tools for assessing the health literacy level. There are significant differences in which dimensions are taken into consideration regarding health literacy (Sørensen et al., 2012; Poureslami et al., 2017). In different papers, health literacy defined as a combination of skills including the 'print literacy', 'numeracy or quantitative literacy' and 'oral literacy' (Berkman et al., 2010; Altin et al., 2014). In other respect, most widely discussed approaches to literacy classification included 'functional, interactive, and critical literacy' levels. This comprehensive approach indicated that the different levels of literacy progressively allowed for greater autonomy and personal empowerment (Nutbeam, 2000, 2008). TOFHLA evaluates the reading comprehension and numeracy (Parker, 1995); REALM identifies the patient's reading

skills (Davis et al. 1991); REALM-R is only a word recognition test (Bass et al, 2003), Newest Vital Sign (NVS) test, assesses reading and interpretation skills (Weiss et al, 2005). However, the original Turkish HLS which adapted for Arabic language in this study, includes items related to the three levels of cognitive domain of Bloom's Taxonomy ("knowledge", "comprehension" and "application") as well as the self-efficacy statements, based on the affective domain. At the same time, original Turkish HLS assesses "disease prevention and health promotion", and "treatment and access to health services" within the aforementioned context (Bahar Özvarış et al., 2018).

There are some adopted Arabic language health literacy scales existing (Al-Jumaili et al., 2015; Wångdahl et al., 2015; WHO, 2020; Siddiqui, 2017). However, there is no comprehensive HLS developed for healthy adults such as the Turkish HLS which is the first Turkish original scale of its kind as mentioned above. The validity study of the original scale was performed on the data collected at community level with household visits opposite of most of the other HLSs developed by interviewing people recruited to the health institutions. Working with a community-based sample by visiting households rather than working with specific patient or service user groups in health care settings, and application of the scale to a geographically and culturally diverse population are among the other significant strengths of the original Turkish scale.

It is important to use a standard tool when it is aimed to compare health literacy levels of different groups. The original Turkish HLS was adopted to Arabic in order to compare the health literacy level of Turkish adults and Syrian adult refugees resided in Turkey. It is also important to use this adopted scale related to the cultural similarity of the two communities' which sources from history of both countries. There are various similar Arabic and Turkish words in two languages also.

The Cronbach's alpha value of the health literacy part of the scale was found as 0.75, and self-efficacy part was 0.76 which was a little lower than Turkish version of HLS (0.84 and 0.83, respectively) (Bahar Özvarış et al., 2018) for Syrian refugees. The reliability-validity results showed that the adopted scale is a valid and reliable tool.

Conclusions

In conclusion, the detection of health literacy level of Syrians living in Turkey with this reliable scale would contribute to plan various activities such as specific health services and trainings for this group.

Limitations

The current study has some limitations. The participants of the study were literate 18–60 aged adults. For this reason, it is not appropriate to use this scale for assessing the health literacy level of adolescents and elderly. Since the scale could only be self-administered, it is not suitable for assessing the illiterate people also. Even the participants were recruited from different regions of Turkey, due to the sampling method (convenience sampling), the external validity of the results were week.

Declarations

Ethics approval and consent to participate

The ethical approval of Hacettepe University Non-Interventional Clinical Researches Ethics Board was obtained; permission from the Ministry of Internal Affairs Provincial Migration Administration was also taken. The participation was volunteer-based and the data was collected anonymously.

Consent for publication

Consent was given by all authors.

Availability of data and materials

The data sets generated and/or analyzed during the current study are not publicly available for now since this study comprises one part of a comprehensive project and other stages are not yet completed, but are available from the corresponding author on reasonable request.

Competing interests

The authors report no conflict of interest.

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Figures

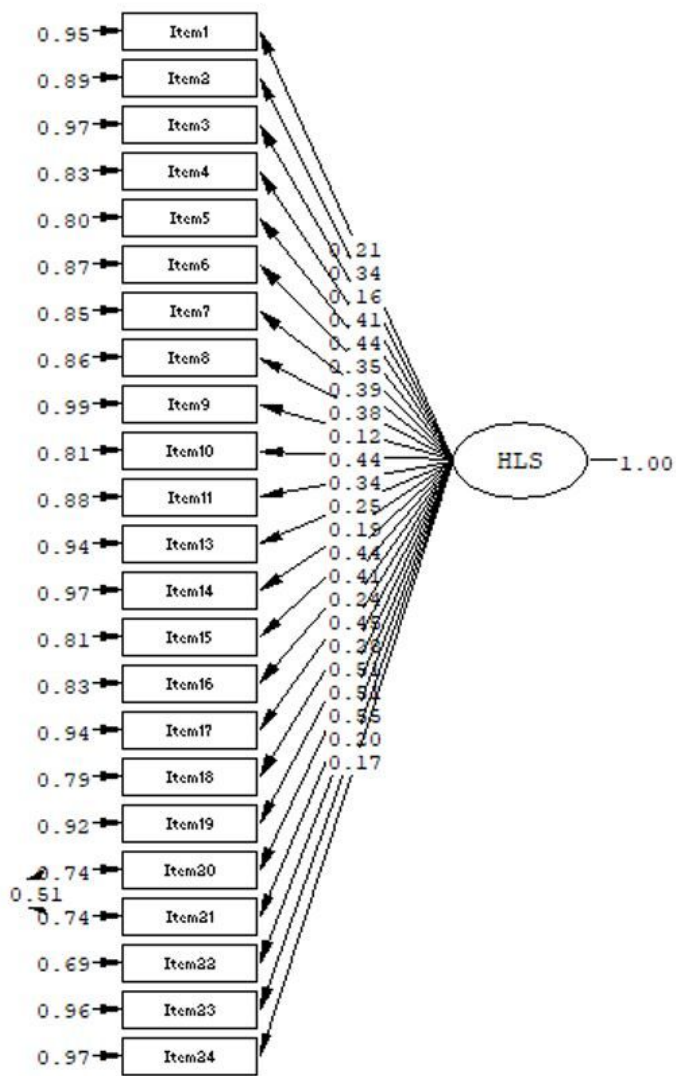


Figure 1

The Path Diagram of Health Literacy part of the Scale

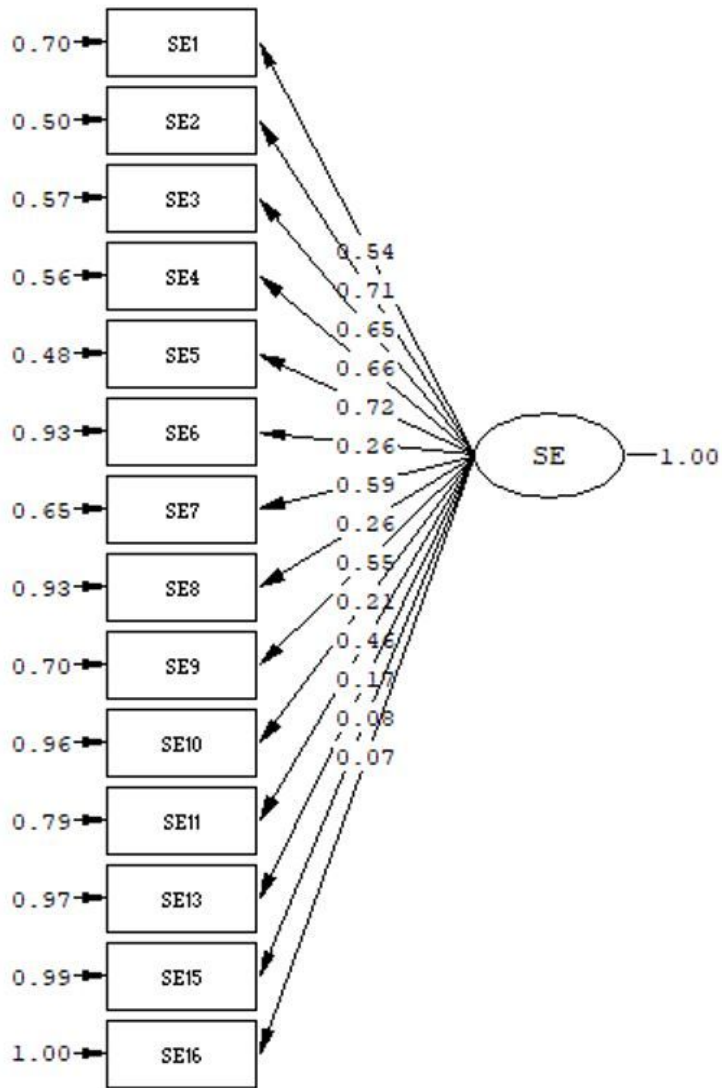


Figure 2

The Path Diagram of Self-Efficacy Part of the Scale