



The Validity and Reliability Study of the Social Support Structure (Main Effect Model) In the Iranian Population: Exploratory/Confirmatory Factor Analysis

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ABSTRACT

A sample of 877 individuals (57% women and 43% men) were selected randomly to study the validity and reliability structure of the social support that answered the researcher's-made questionnaire of the social support. The result of validity study of the final questionnaire show that the calculated Chronbach alpha coefficient is 0.738. The opinion of the authorities in the psychological field concerning content validity of the questionnaire was positive. The result of exploratory/confirmatory factor analysis showed that all fitness indexes were in a very desirable limit (RMSEA = 0.055), and the model had a good fit with data. This was suggestive of the questions being in line with the theoretical structure.

Keywords: Validity, Reliability, Social Support, Main Effect Model, Factor Analysis

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INTRODUCTION

Human-beings have tendency in group living from biological point of view. If this tendency and need did not materialized, they would involve in anxiety and stress and show non-adjustment (Hall, 1985). One of the factors which have a very important role in an individual's adjustment with his environment is social support (Cohen, 1984). Social supports are protection, affection, respect, consolation and the help which are given to the individual by the other individuals or groups (Cobb, 1976). These supports may be done through various sources such as spouse, fiancé, family members, relatives, friends, colleagues, the doctor or social organizations. According to Cobb's view, those who enjoy social supports feel that somebody loves and cares about them, and the others consider them as respectful and worthy individuals. They know themselves as part of the social networks such as family or social organizations who can be

as the source of material and spiritual helps and mutual services when needed. Numerous (Cohen, 1984) believe that there are only five types of social supports: 1-Emotional support includes sympathy, attention, affection and love toward the individual. In this case, the individual feels comfort, confidence and belonging to somewhere when in stress. 2-Esteem support which is expressed through respect, encouragement or agreement with the individual's opinions and feelings and the positive evaluation of him/her in comparison with those who have worse situation than him/her. This kind of support causes increase in the individual's feeling of being a worthy, competent and creditable person. 3-Instrumental support which includes direct supports such as doing the house work or lending money to the individual. 4-Information support includes recommendation, suggestion or giving direction and feedback to the individual. For example, it is possible that the doctor or

the friends give some information to the sick person. 5- Network support which gives the individual the feeling of being a member of a group with common interests and social activities. The main effect model is among the most famous models of social supports. This model suggests that having just social support is for being healthy. For example, those who enjoy a high social support report more self-esteem. Such a situation that brings about a positive attitude might be useful for the individual by making him/her resistant against infection, regardless of the stress degree. Some observations indicate that the high amount social support encourage people to choose the healthier ways of life (Broman, 1993). Most of the questionnaires relating to social supports are a combination of main effect model with other models especially the stress buffering model or the shield. The researcher would like to design a questionnaire in which the questions only measure the main effect model.

METHODOLOGY

The main instrument to gather data for the analysis and design of a social support model (main effect model) was a questionnaire with 22 questions based on the study of resources in the library and interviews with the experts and authorities in the field of social psychology and health. To finalize the questionnaire, cases such as analysis of the questions and the study of reliability and validity tests were considered. To obtain the content validity and face validity of the questionnaire, the views of the authorities in this field were sought. They had positive views about it. The researcher studied the internal consistency of the questions through reliability calculation to verify the validity structure. Then the parameters of the main effect model of social support were

analyzed by the exploratory and confirmatory factors. A sample with 877 individuals (57% women, 43% men) was selected randomly and answered the questions in the questionnaire. For analysis of the research statistical data, the information obtained from the questionnaires was extracted and put in the general data table. Then all data were analyzed using computer by the statistical software, especially STATISTICA, SPSS, and Lisrel.

FINDINGS

In this research, in order to estimate the reliability of the questionnaire, the internal consistency of the test has been calculated through Chronbach alpha coefficient. The reliability coefficient of the questions relating to the social support parameters (main effect model has been calculated separately and reported in the following table. The acceptability coefficient and the reliability coefficient of the social support parameters of main effect model after deletion of the factors

Table 1. The Reliability of questions

Main effect model	Support	Question correlation	Reliability with Question
$\alpha=0.738$	instrumental	0.61	0.593
	esteem-emotional	0.61	0.627
	information	0.55	0.631
	network	0.33	0.732

The descriptive indexes of all measured variables such as average, mean and etc esteem-emotional support, instrumental, network and informational indexes in Table 2.

Table 2. Descriptive indexes of the social support parameters-Main effect model

Support-Main Effect Model	Number	Average	Mean	Min	Max	Standard deviation	Standard average error
Instrumental	877	4.62	4.75	1.00	6.00	1.05	0.04
Esteem-emotional	877	4.67	4.71	1.29	6.00	0.72	0.02
Information	877	4.54	4.67	1.00	6.00	0.97	0.03
Network	877	4.30	4.33	1.00	6.00	1.06	0.04

Since the researcher's goal was the analysis of the exploratory/confirmatory factor, therefore the following three steps were done as, 1-Preparing the correlation matrix. 2-Initial factors extraction. 3-Rotation to access the final solution, seeking discover the simple and interpretational factors (Delavar, 2002). To evaluate the correlation matrix, the Bartlett's test of sphericity has been used. The minimum necessary condition to carry out factor analysis is the meaningfulness of the chi-square. The amount of KMO (Kaiser, McKay, Olkin) and the result of Bartlett's test of sphericity for correlation matrix of the variables (Table 3).

Table 3. The result of correlation matrix

Kaiser-McKay-Olkin's sampling adequacy scale	Chi-square	Freedom degree	Meaningfulness
0.924	6229.35	231	0.000

Therefore, concerning the sampling adequacy and meaningfulness of Bartlett's test, the data correlation matrix is suitable for the factor analysis. Meanwhile, carrying out the factor analysis is another condition which is the study of communalities' degree of each question with the whole questionnaire. In cases which the amount of factors extraction is higher than 30% in the trend of communalities, it is possible to find out the internal compatibility of the variables or the fundamental structures of the measurement instrument. The table below shows the communality amount of each one of the parameters with the whole questionnaire (Table 4).

The main methodology factors analysis was used to extract the factors from correlation matrix. Meanwhile, in the factor analysis only factors are extracted that explain the highest amount of variance. The first main parameter explains the highest amount of variance and the other parameters are extracted in the order of importance based on the amount of variance they explain (Delavar, 2000). The initial statistical indexes using the social support main factor analysis method-main effect model (Table 5).

Table 4. The communality amount of parameters

Questions	Communality	Parameters	Communality
q1	0.391	q12	0.476
q2	0.453	q13	0.453
q3	0.572	q14	0.528
q4	0.376	q15	0.598
q5	0.305	q16	0.531
q6	0.519	q17	0.606
q7	0.496	q18	0.484
q8	0.532	q19	0.536
q9	0.463	q20	0.518
q10	0.618	q21	0.598
q11	0.614	q22	0.502

Table 5. The initial statistical indexes

Parameters	Initial special value			Total of factor loadings square		
	Total	Variance per cent	Cumulative per cent	Total	variance per cent	Cumulative per cent
1	7.198	32.720	32.720	7.198	32.720	32.720
2	1.544	7.018	39.738	1.544	7.018	39.738
3	1.253	5.697	45.435	1.253	5.697	45.435
4	1.177	5.350	50.784	1.177	5.350	50.784
5	0.983	4.468	55.252			
6	0.903	4.106	59.357			
7	0.843	3.833	63.191			
8	0.761	3.458	66.648			
9	0.735	3.341	69.989			
10	0.679	3.085	73.074			
11	0.668	3.038	76.112			
12	0.631	2.866	78.979			
13	0.571	2.595	81.573			
14	0.562	2.553	84.127			
15	0.543	2.467	86.593			
16	0.515	2.340	88.933			
17	0.458	2.083	91.017			
18	0.449	2.042	93.058			
19	0.413	1.877	94.935			
20	0.391	1.775	96.710			
21	0.376	1.711	98.421			
22	0.347	1.579	100.000			

The Warimax rotation method was used to ease the data interpretation and simplify the factors so that to make it possible both the exploration of the overall outlook of the

questionnaire concepts and distinguish a simpler structure which represents the outline and relatively a clear way to reach the effective solutions.

Table 6. The Promax relating to social support variable-main effect model

Questions	Factors			
	1	2	3	4
q2	0.735	-	-	-
q8	0.637	-	-	-
q6	0.625	-	-	-
q7	0.576	-	-	-
q1	0.543	-	-	-
q5	0.481	-	-	-
q4	0.466	-	-	-
q10	-	0.740	-	-
q11	-	0.728	-	-
q9	-	0.720	-	-
q12	-	0.663	-	-
q17	-	-	0.781	-
q15	-	-	0.768	-
q16	-	-	0.548	-
q21	-	-	-	0.791
q22	-	-	-	0.726
q20	-	-	-	0.605

Several fitness factors have been used to evaluate the confirmatory factor analysis which is shown in Table 7.

Table 7. Fitness indexes of the social support parameters-main effect model

Index name	Amount of fitness adequacy
Chi-square statistic (2%) and its meaningfulness	392.75 (P = 0.001)
Root mean square error of approximation (RMSEA)	0.055
Normalized fitness index (NFI)	0.97
Non-normalized fitness index (NNFI)	0.97
Comparative fitness index (CFI)	0.98
Goodness of fitness index (GFI)	0.95
Adjusted goodness of fitness index	0.93

In the end, the researcher presented the factor loadings, determination coefficient and *t* statistic of the social support main effect model questions (Figure 1)

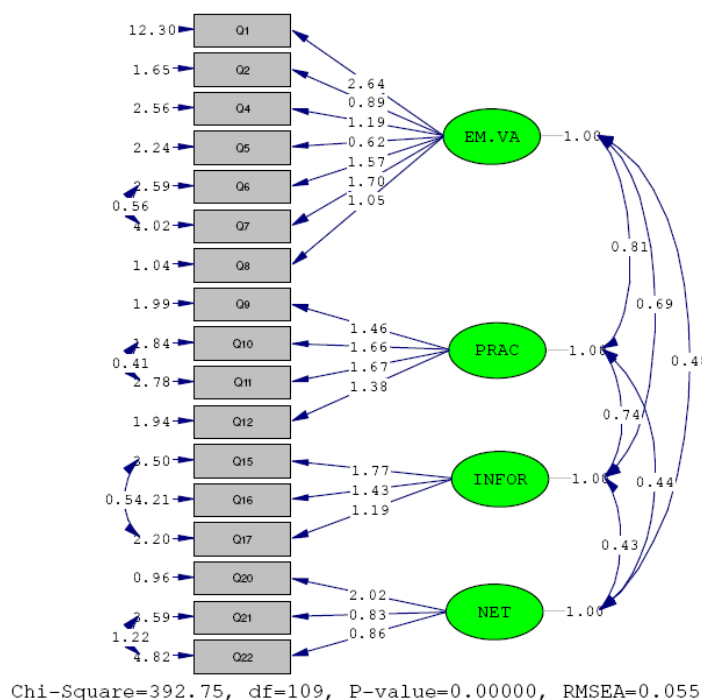


Figure.1 Factor Loadings of Questions

*Significant is at 95% confidence level. **Significant is at 99% confidence level.

DISCUSSION AND RESULT

The findings of the research show that there is a meaningful difference among the social support parameters. In fact, there is an obvious difference among the averages between the network support parameter and the other kinds of support. It indicates this point that the subjects believe that the most support they perceive or receive is the esteem emotional and the least is network support. Considering the cultural context of Iran, it is expected that most of the subjects report they receive support from their family members and relatives, and the social institutes look like less suitable choice to receive support. Meanwhile, more official networks or institutes carry out some duties traditionally and pay less attention to give support, or they do not let the people know properly about themselves. This causes ignorance about these networks and results in lack of confidence towards these organs. Therefore, the subjects refer

to their relatives for help traditionally. It is necessary for the concerned institutes such as welfare office and the others carry out more activities in this field. Since the aim of this research was the constituent factors and factor structure of the questionnaire of social support (main effect model), all 22 questions of the questionnaire were studied. Meanwhile, the correlation of each question with the total mark and subscale was considered. Also, the reliability coefficient of each subscale was calculated after deletion of each question (Loop method). The results showed that the reliability amount decreased when the questions were deleted. This desirability showed these questions suitable for the measurement of social support. Meanwhile, the communality of each one of the 22 questions with the whole questionnaire was reported more than 0.30 which is an indication of high correlation of each one of the parameters with the whole test and its suitability with the factor analysis (Delavar, 2000).

When factor analysis, the researcher considered the amount of variance which the parameters explain and noticed that four factors have a special value more than one. These four factors, generally explain about 51 per cent of the variance of the whole questionnaire. This means that a general factor has been made manifest which most of the questions have a considerable factor loading on it. After Varimax rotation, the factors were identified. For instance, the question No. 2: I feel that I am a strong and determined person from my relatives' point of view). In confirmatory factor analysis, the researcher wanted to determine the fitness indexes to be able to design a model to have the power to explain the experimental data based on several parameters. Therefore, he chose the structural equation modeling which is a comprehensive approach for the test of hypothesis about the

relations of the observed and latent variables and called covariance structure analysis or modeling. In short, it is called SEM (Hooman, 2011).

Thus, all factor loadings of the 22 questions and their degree of errors for the questionnaire of the main effect model social support were determined, and the RMSEA which means root mean square error of approximation was equal to 0.055. We know that this index for the very good models is equal to 0.05 or less than it. The models which their RMSEA are between 0.05 up to 0.08 have a suitable fitness, and if it is up to 0.10 they have a weak fitness (Hooman, 2005). Therefore, it can be said that the designed questionnaire has a good fitness. Considering the other indexes of fitness which all are indicative of a good fit, we can recommend the next researchers to use this questionnaire with a high confidence.

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