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Psychometric Characteristics of Empowerment Scale for Female-heads of households (ESFHH)

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ABSTRACT

Background: Female-heads of households not only have important roles to support financially families, but also have a critical role in educating children and supporting thousands of families across different countries.
Objectives: This study was designed with the aim of constructing an empowerment scale for female-heads of households and evaluating its psychometric characteristics.
Methods: The sample of this study was selected from two regions from west and south of Tehran. Through purposive sampling, 400 women who were supported by Imam Khomeini Relief Foundation participated voluntarily in this study. The main measure, Empowerment Scale for Female-Heads Households (ESFHH) was constructed by Jafari Roshan and Hajizadeh Moghaddam. This original measure was modified qualitatively in two pilot studies. Both exploratory factor analysis and confirmatory factor analysis were used. In the exploratory factor analysis, principal component analysis with Varimax extraction was used. Convergent validity was studied by correlation of this scale with the Conor-Davidson Resilience Scale.
Results: As the result of exploratory factor analysis, five factors were extracted as follows: Impact/management, General satisfaction, Self-efficacy, Competence and Empathy. Confirmatory factor analysis demonstrated that the structure of this model had an acceptable fit. The Convergent validity of this scale was satisfactory. There was a positive and significant correlation between Empowerment Scale for Female-Heads of Households and the Conor-Davidson Resilience Scale. Reliability as internal consistency of the whole scale was 0.80, which is similar to other individual/psychological empowerment scales. The internal consistency of the subscales were as follows: Impact/Management subscale, 0.75; General satisfaction subscale, 0.72, Self-efficacy subscale, 0.57; Competence subscale 0.58 and Empathy subscale, 0.52.
Conclusion: This scale is a valid and reliable scale, and can be used in fundamental and applied researches in the field of female-heads of households living specially in Tehran/Iran. This scale was constructed based on a construct that had considered both psychological and social aspects of human empowerment, however the final extracted scale was somehow similar to those scales that measure psychological empowerment, but included another important additional factor which was Empathy, a factor that is relevant in the collectivist Iranian context. Thus, this measure could be categorized as a psychosocial empowerment scale for research purposes. This measure should be cautiously used, and it is recommended to be used for similar groups and not to be used for evaluation of professional groups' empowerment.

Keywords: *Female Heads Households, Measure, Empowerment*

1. Background

Psychological empowerment in general plays an important role in improving the individual and social status of people in different countries. This empowerment is more important for female-heads of households for a variety of reasons, such as addiction, death or imprisonment of their husbands. In addition to playing the role of mothers, they also play an important role in providing financial resources for the family and holding out against the psychological pressure of the family.

Zamanimoghadam & Afshani (2021) cite Statistical research and training center and say most of female-heads of households are analphabets, or they have low level educational degrees. Most of them face poverty and some related problems associated with poverty. In the groups of female-heads of households %43.3% of families are located in two first deciles of the expected income. In these families, we could observe that unemployed family members are 5.5 times more than employed family members. The ratio of employment of female-heads of households, is much less compared to the employment of males who are the heads of families (Statistical research and training center, 2013, as cited in Zamanimoghadam & Afshani, 2021). These authors define empowerment in the context of an article titled "Empowerment of Female-heads of households in Iran: A Systematic Review" as follows: "Though, there is no a perfect definition of empowerment; but, generally the concepts such as choosing rights, choosing possibility, control and power and other concepts closed to these are frequently referred in the present definitions of empowerment". In this regard, because of the importance of empowerment, first theoretical frameworks are explained:

Hence, This introduction section is presented in two parts:

- Since there are different theoretical frameworks about empowerment and here, at least three approaches about empowerment are explained in the following paragraphs.
- In the second part, three types of instruments constructed about empowerment are explained. Their validity and reliability and the construction methods. At the end of this section, the general aim of this paper is described.

Theoretical issues. Currently, one of the most well-known theories is Zimmerman's theory in the field of psychological empowerment.

Zimmerman mentions three dimensions of empowerment, which are individual, organizational and local empowerment (Zimmerman, 2000).

Zimmerman (1995) considers that individual dimension includes three dimensions, which includes:

- Intrapersonal dimension (perceived control and self-efficacy in important life decisions);
- Interpersonal dimension (the ability to understand and analyze the social political environment)
- Behavioral dimension (participating in collective, voluntary activities and accompanying efforts to change the social and political environment).

Regarding the first type of empowerment (individual empowerment), Zimmerman et al. constructed an individual empowerment test (Peterson et al., 2006). For this individual dimension of empowerment, they briefly consider three elements: intrapersonal, interpersonal and behavioral. According to them, the interpersonal dimension includes critical awareness and understanding of the social and political environment, the intrapersonal dimension includes

issues such as perceived control and self-efficacy, and the behavioral dimension includes actions such as participation in collective activities that directly affect the results.
The theory of Thomas and Velthouse is also the basis of Spreitzer's psychological empowerment test and other similar tests (Thomas & Velthouse, 1990; Spreitzer, 1995). However, this cognitive approach is apparently completely intra-individual and includes four parts of cognition: impact, competence, meaningfulness, and choice.

Table 1. A comparison between the definitions of individual empowerment and psychological empowerment in three approaches

	Empowerment theory (Zimmerman, 1995)	**Look (Estéves Lopéz et al., 2011)**	**Intrinsic motivation theory (Thomas & Velthouse, 1990)**
Individual empowerment	Intrapersonal dimension: Competence, efficacy, mastery Interpersonal dimension: includes the ability to understand and analyze the social political environment. Behavioral dimension: includes participating in collective, voluntary activities and accompanying efforts to change the social and political environment.	The components of individual empowerment are: Self-sufficiency, locus of Control, ability to criticize and analyze social events, empathy, self-esteem, life satisfaction,	Psychological empowerment: Empowerment means the motivation to do the task in an internal and improved way and includes: four cognitions are effective in it, competence, sense of impact and choice, meaningfulness.
Other dimensions of empowerment	Organizational and local capability is also effective in overall capability	Organizational and local empowerment is also effective in overall capability	

In this regard, an important point is the distinction between individual empowerment as mentioned by Zimmerman (1995) and psychological empowerment described by Thomas and Velthouse (1990). Although these two are very close to each other, there are some differences between these concepts. Psychological empowerment is equivalent to the intrapersonal dimension of individual empowerment. According to Zimmerman (1995), individual empowerment includes two other dimensions: interpersonal and behavioral dimensions.
Estéves López et al. (2011) approach is closed to Zimmerman point of view, but they highlight certain elements such as empathy and life satisfaction as components of individual empowerment. Apparently, some of these were seen as important elements in the individual empowerment process in Zimmerman's view (Zimmerman, 2000).
To construct this instrument, we focused on Estéves López et al. (2011) approach. They defined empowerment as the process by which the persons, groups, organizations and communities

acquire control over their lives through the access and dominion over the resources. According to them, the components of individual empowerment are:

- Self-efficacy, or belief about one's skills to control and influence one's environment.
- The source of control is causal attribution of events and the consequences of events to internal or external factors. People who have an internal locus of control, value more effort and consider themselves responsible for what happens around them.
- The ability of criticism or skill of understanding and analyzing events and social conditions and value judgment is based on this element.
- The skill of empathy or cognition, understanding and valuing others' feelings and needs.
- Self-esteem or an evaluation a person makes in relation to his/her measurable personal characteristics as positive or negative characteristics.
- Satisfaction with life or general evaluation that a person makes in relation to his/her life path.

We adopted this definition as the central definition in this process of this scale construction. Yet, no measure based on this improved view of Zimmerman's theory proposed by Estéves López et al. (2011) has been developed.

A very important point attracts attention in this theoretical part:

- Both Zimmerman (1995) and Thomas and Velthouse (1990) emphasize the importance of three components of competence, self-efficacy and impact. Estéves López et al. (2011) highlights certain elements such as empathy and life satisfaction as components of individual empowerment.
- Another important point to emphasize is that Zimmerman (1995) and Thomas & Velthouse (1990) are not just two fundamental theorists. Well-known people such as Rappaport (1984, as cited in Zimmerman, 2000) or lesser-known people such as Shuler (1997, as cited in Hernández Sánchez and García Falconí, 2008) should also be referred to regarding the empowerment of women.

Constructed instruments. Individual Empowerment instruments generally could be categorized into three categories based on their emphasis on different dimensions: *sociopolitical, psychological and psychosocial*.

Some Individual empowerment instruments with emphasis on psychological dimension are:

- Measure of psychological empowerment was constructed by Spreitzer (1995) in the United States. It included 12 items (in original version) and 4 subscales-Impact, Meaning, Competence and Self-determination with reliability or internal consistencies of 0.62 to 0.72. The scale was analyzed by two methods of EFA and CFA. The first sample was industrial managers (mainly men,94%) and the second sample average industrial employees, (mostly women, 84%).
- The Same scale of Psychological Empowerment of Spreitzer (1995) was translated into Turkish language by Uner & Turan (2010) (titled Turkish version of measure of Psychological Empowerment) and was analyzed by two methods of EFA and CFA. The result demonstrated the same subscales (Impact, Meaning, Competence and Self-determination)

with internal consistencies of 0.81 to 0.94. The sample was Female Nurses and Male and female Physicians.

- Global psychological Empowerment scale for women was constructed by Batool and Batools (2019) in Pakistan. It includes 21 items and 5 subscales -Impact, Problem-focused coping, Meaningfulness, Self-efficacy and Self-determination; with internal consistencies of 0.64 to 0.80. The whole scale internal consistency was 0.86. The scale was analyzed by two methods of CFA and EFA. The sample included Pakistanian Women.
- Psychological empowerment measure for secondary teachers was constructed by Kaur and Sinagh (2019) in India. It included 19 items and 4 subscales -Impact, meaningfulness, Competence and Self-determination; with internal consistencies of 0.71 to 0.88. The whole scale internal consistency was 0.86. The scale was analyzed by two methods of CFA and EFA. The sample included Indian teachers.

There are other individual empowerment measures such as Boevnik et al. (2017) that measures Empowerment according to Persons with Severe Mental Illness, named Netherlands Empowerment List. Moreover, Acuña Mora et al. (2018) presented Patient empowerment in young persons with chronic conditions, named Gothenburg young persons empowerment scale (GYPES). Another study is Sousa et al. (2020) which aimed to analyze the psychometric properties of the Portuguese version of the Diabetes Empowerment Scale (DES-SF). However, these are very specific health empowerment scales that are dissimilar to this paper's main interest and are not discussed here.

However, there are some Individual empowerment scales with emphasis on socio-political dimensions. Some of these are as follows:

A tool for measuring women's empowerment was designed by Hernández Sánchez and García Falconí (2008) in Mexico. The scale included 34 items and 7 subscales which are Participative empowerment, Temerity, External influences, Independence, Equality, Social satisfaction and Security. The scale was analyzed by EFA and its internal consistency was 0.86.

- Sociopolitical control scale was designed by Peterson et al. (2006) in the United States of America. The scale was analyzed by EFA and CFA. The scale included 17 items and 2 subscales which were Leadership and Policy control. The internal consistencies of the subscales were 0.78 and 0.81. The sample included men and women.

Some psychological scales include some social dimensions (not necessarily political dimensions) which could be named Psychosocial subscales. One of them is:

- A scale for measuring social worker empowerment was constructed by Frans (1993) in the United States of America. It included 34 items and 5 subscales -Collective Identity, Knowledge and skills, Self-concept, Critical awareness and Propensity to act; with internal consistencies of 0.71 to 0.78. The whole scale internal consistency was 0.89. The scale was analyzed by EFA. The sample included male and female social workers.

As it is mentioned in the above section, given the theoretical systematic review (Cyril et al., 2016) in which empowerment measures (20 measures) were reviewed, some other points also could be deduced:

- The group that emphasizes sociopolitical dimensions does not necessarily deny the importance of intrapersonal and cognitive dimensions; for example, when Zimmerman talks about the three dimensions of competence, efficiency, and mastery, almost two dimensions are similar to Spreitzer's questionnaire (i.e., impact and competence).
- Many "empowerment" tests were developed in America.
- The concept of empowerment is broad and complex. This makes it probably very difficult to use one test for all ethnicities and all concepts of empowerment. Sometimes, even among the subscales covered by a test, there may be a negative covariance. For example, the covariance of competence with impact or self-determination in the Psychological Empowerment measure of Singh and Kaur is negative (Singh, & Kaur, 2019).
- A limited number of empowerment tests have been made in the Middle East or the East, and most of them have followed the theoretical model of Thomas and Velthouse (1990) and Spreitzer's cognitive measure and approach (Spreitzer, 1995).
- The internal consistency of the whole scale in most of the empowerment tests (or psychological empowerment) was between 0.81 and 0.86. Although some tests had a reliability of 0.88.
- Many of these tests used both exploratory factor analysis and confirmatory factor analysis.
- Another important point is the multidimensionality of the concept of empowerment and the reflection of theoretical dimensions in the structure of the constructed measures. Generally, in many cases, the tools cannot necessarily cover all the ideas of a constructor of the measure or a theorist, and some dimensions may be omitted for various reasons. For example, a scale was created by Peterson et al., (including Zimmerman himself) (2006) and this test was finally named "Sociopolitical Control Scale (SPCS)" and this test has 17 questions including two subscales of leadership competence and policy control. In other words, this test does not measure even what it sees as a product of individual empowerment (competence, self-efficacy and mastery, it doesn't also assess separately and specifically the ability to critically analyze the environment or social participation) (Zimmerman, 1995). In addition, People such as Hernández Sánchez and García Falconí (2008) have created a tool to measure women's empowerment[1] in Mexico. Shuler (as cited in Hernández Sánchez and García Falconí, 2008) was the main founder of the theoretical dimension of that test, and this theoretical look at things such as a sense of security and vision for the future, the ability to earn a living income, the ability to function effectively in public space, and more ability to make decisions at home, participating in non-family groups and voluntary accompanying groups, and movement (activity) and being visible in the environment. Nevertheless, the final scale constructed was relatively different and included factors such as Cooperative empowerment, sense of fear, External influences, Independence, Equality, Social satisfaction and Security.

- A research gap can be seen in the field of local and organizational dimensions of empowerment.

As it is demonstrated in the above section, there isn't any specific scale to measure the empowerment of female-headed households in Iran. Apparently, the most available instrument in Iran is Psychological Empowerment of Spreitzer (1995), which was constructed considering industrial employees and is used in many Iranian research (for example, Behrouz et al., 2023) in different domains and it does not consider social aspects. Thus, the main aim of this project was to describe the psychometric characteristics of ESFHH.

1. Objectives

This research aimed to describe the validity (by EFA and CFA), the internal consistency and the convergent validity of the Empowerment scale for female-heads of households constructed by Jafariroshan and Hajizadeh Moghadam (2017).

3. Methods

This is a descriptive design that was carried out to describe the psychometric characteristics (validity and reliability) of the above-mentioned measure.

The most important instrument is the present empowerment scale for female-heads of households, Jafariroshan and Hajizadeh Moghadam (2017). In the process of Construction of this measure the following steps were carried out which are explained in continue. Although this paper is mostly focused on describing the validity, the internal consistency and the convergent validity of ESFHH.

Step 1: First, the key contents in the definition of the six dimensions of empowerment from the point of view of Estévez López et al., (2011) were carefully evaluated.

Step 2: At the second step, the 35 items were generated for the Empowerment scale for female-heads of households. These were designed based on the contents of the above-mentioned authors. 5-point Likert type format was assigned to questions (1= very disagreement, 2= low disagreement, 3=medium agreement, 4=much agreement, 5=very much agreement). Thus, the higher score indicated higher individual empowerment and lower score indicated lower individual empowerment.

Step 3: Other experts in the field of qualitative modification of the questionnaire were interviewed and consulted with.

Step 4: The measure was piloted and modified at least twice.

Step 5: Then, at the step 5 the measure was given to participants. Through purposive sampling, 400 female-heads of households who were supported by Imam Khomeini Relief Foundation participated in this research. There was not any specific criterion to exclude or include specific subjects. These subject collaborated voluntarily with the present research. The number of samples was determined by the widely known rule of thumb of ten subject per item of the primary questionnaire. However, the adequacy of number of the sample was determined by Kaiser-Mayar-Olkin index of sampling adequacy and Bartelet test, which are precisely explained in the result section . Their average age was 43.13 with a standard deviation of 5.82. A total of 207 (51.7%) of them were married at the time of filling this questionnaire, and 193 people (48.3%) did not have a husband at this time. 15% of them had 4 to 7 children, 19.6% of them had three children, 36.1% had two children, 27.6% had one child, and 1.8% of these women had no children. Also, 155 (43.8%) of these women were below high school diplomas, 128 (28%) of them had high school diplomas, 92 (23%) of them were students

or had a bachelor's degree, and 14 of them (5.2%) had a master's degree or higher. This sample was taken from female-heads of households in Tehran and its suburbs who were supported by Imam Khomeini Relief Committee and were sampled from the 18th and 9th districts of Tehran in 2016. To explain the procedure of data collection, it is necessary to explain that the subjects were given a questionnaire while they were ensured that this questionnaire didn't have any importance in receiving the pension and services of the relief committee for them, and it was only for research purposes.

Step 6: At the end of these steps, exploratory factor analysis and convergent validity of this test were studied (Hajizadeh Moghadam, 2017), using Persian version of Conor Davidson scale of Resilience. This measure is a valid with 5 factors and is reliable (Sharif Nia et al., 2023), though, these researches suggest 2 items be deleted. But, Kuiper et al. (2019) report the internal consistency of (25 item version) this test is 0.90. This version with 25 items was used in this study.

Step 7: This measure was used in two other types of research at different times. The correlation between the Empowerment scale for female-heads of households and the emotional intelligence of their children (using the Bar-On scale), Ismailabadi and Jafari Roshan (2021) and the anxiety of their children (using the Spence Children Anxiety Scale: SCAS), Yousefi Rad (2019) were studied. These studies could relatively and satisfactorily report convergent and divergent validity too, which are explained better in the discussion section.

Step 8: In 2021, the exploratory factor analysis was performed again more precisely (by removing 6 cases of the participants farthest from the center using the Mahalanobis distance method) (fifth step repeated), and in addition, the confirmatory factor analysis of this scale was also carried out, and the current results were concordant to the exploratory factor analysis.

4. Results

In response to the first two questions of the research about construct validity, in other words, determining the internal structure of this Empowerment Scale and determining whether this factor structure illustrates a good fit, the following steps were carried out.

Exploratory factor analysis was used to determine the internal structure of the test. To demonstrate the adequacy of sampling, Kaiser-Mayar-Olkin index was used. This index was 0.816 and the Bartlett's test of sphericity chi-square was 1793.176 (df=190, P<0.001). The adequacy index of Bartlett's sphericity sampling was higher than the adequacy limit and was significant.

Exploratory factor analysis was carried out in a context that the assumption of normality of data and absence of collinearity between the input variables was controlled. All the items were in the range of normal distribution, and the skewness or kurtosis of the questions was in the range of -1 and +1. First, the codes of the negatively worded items were reversed. These items were: 3-5-8-9-11-12-14-15-16-19-20-23-26-28-29-30-35. Then, exploratory factor analysis was performed with principal factor analysis and varimax rotation. Some items (1-3-5-6-8-9-10-12-15-17-18-20-21-22-27) were removed due to the presence of low commonalities and the analysis was done by limiting factors to 6 based on which the scale was built theoretically, but due to the fact that some factors had less than 3 items, the factors were reduced to five. The five extracted factors accounted for 53.21% of the total variance.

Table 2 Factor load of each item on the extracted factors

No	Objects	Factor load				
		1	2	3	4	5
34	I can be influential in my environment.	0.73				
33	I can be effective in different situations in my life.	0.686				
32	I can learn the subject I need if necessary.	0.608				
31	I make my own destiny.	0.57				
25	I have been able to achieve what I wanted in life.	0.555				
24	I am satisfied with my ability to manage my life	0.54				
26	I am not successful in managing financial matters in my life.		0.755			
28	I am not satisfied with my life.		0.664			
23	I feel that I am not in relatively good mental health.		0.688			
19	I often doubt my own abilities.		0.581			
30	I am very unlucky.		0.51			
13	I rely on myself			0.678		
14	In general, I am confident in carrying out my responsibilities.			0.628		
11	I don't handle it well when unexpected problems happen to me		0.523	0.583		
29	Many problems in my life are the responsibility of the people around me.				0.734	
35	Many important issues in my life are determined by others.				0.735	
16	I often wish I was someone else.				0.628	
2	I often feel concern for others who are not happy.					0.734
4	When I see failed people, I try to understand them.					0.561
7	I usually understand other people's discomfort.					0.574

The first factor (named Impact and management) include accounted for 23.35 of the total variance. The second factor (named General satisfaction), third factor (named Self-efficacy), fourth factor (named Competence) and fifth factor (named Empathy) accounted for 10.09, 7.84, 6.19 and 5.74 of the total variance, respectively. The factor loading of each of the questions on each of the extracted factors can be seen in Table 1. Regarding the confirmatory factor analysis, the factor structure illustrated a good fit (Table 3) in relation to the data. Chi-square = 299.147 (df = 147) and (P < 0.001) and normalized chi-square (CMIN/df) was equal to 2.008 and RMSEA was equal to 0.051. Also, GFI was equal to 0.932 and the AGFI was equal to 0.903. In addition, the CFI was also acceptable and equal to 0.908, IFI was equal to 0.911.

Table 3. Fit indexes of Empowerment scale for female-heads households (ESFHH)

Index	Value	Limit
Chi-square	147	P<0.05
Chi-square/df	2.008	5≥
RMSEA	0.051	≤0.08
GFI	0.932	≥0.90
AGFI	0.903	≥0.90
CFI	0.908	≥0.90
IFI	0.911	≥0.90

Factor loading of each item on each factor can be seen in Figure 1. All factor loading between 0.35 and maximum 0.72 are acceptable and meaningful, and all factors had positive covariance with each other, except in two cases related to the Competence factor. The Competence factor had an inverse covariance with Empathy. However, this negative covariance of the relationship has been reported in the margin of significance (P=0.05), and it is worthy to think about. The correlation between the factors can be observed in Table 5.

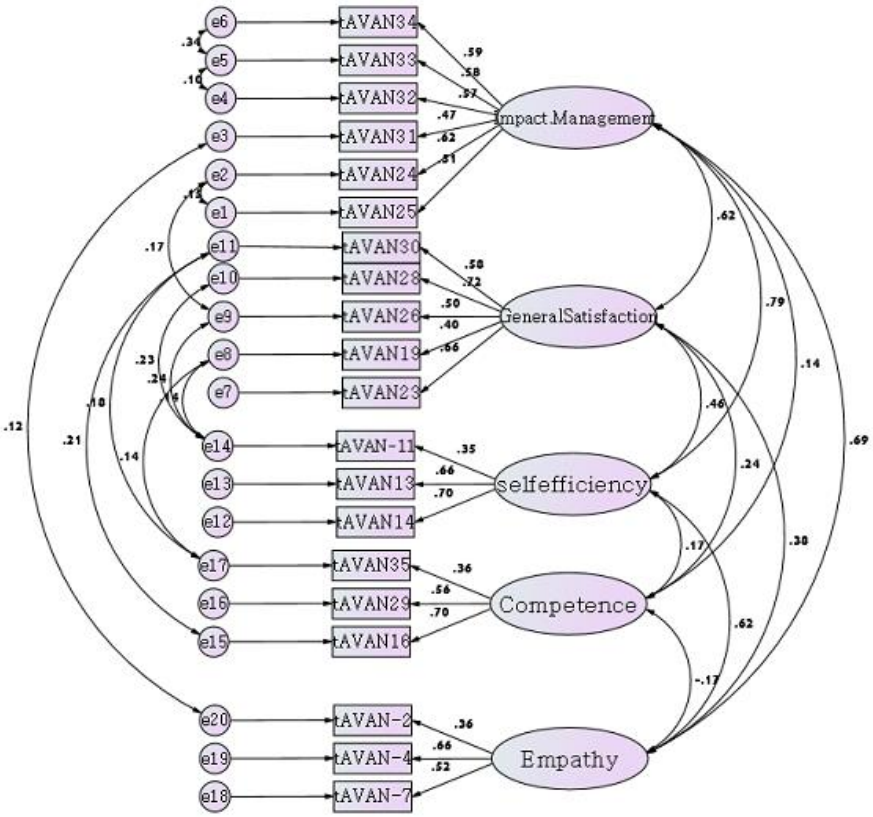

Figure 1. Standard factor loading of each item on the five factors of ESFHH

Also, the Competence factor has a marginally significant covariance with the Impact & management factor (P=0.079) and it can be observed that the significance of the Pearson

correlation coefficient between the two factors is not significant at all. However, it is explained in the discussion section.

In order to answer the second question regarding determining the internal consistency of the entire scale and the subscales, Cronbach Alpha indexes were as follows: Impact and management, 0.75; general satisfaction, 0.72; self-efficacy, 0.57; competence 0.58 and empathy 0.52, respectively (Table 4).

Table 4 Internal consistency of the empowerment scale and its subscales

	Total scale of empowerment	Impact/ management	General satisfaction	self-efficacy	competence	empathy
Internal consistency (Cronbach Alpha)	0.80	0.75	0.72	0.57	0.58	0.52

The following table (5) demonstrates that the highest correlation with the total score of the scale belongs to impact/management (r=0.80, P<0.01) and also the lowest correlation related to the total scale is for the competence subscale (r=0.35, P<0.01).

Table 5. Correlation between the total score and factors of ESFHH

Title	Total score	Impact and management	General satisfaction	self-efficacy	competence	empathy
Total score	1	0.80**	0.74**	0.69**	0.35**	0.37**
Impact / management	-	1	0.40**	0.47**	0.03	0.42**
General satisfaction	-	-	1	0.39**	0.17**	0.23**
Self-efficacy	-	-	-	1	0.12*	0.32**
Competence	-	-	-	-	1	-0.05
Empathy	-	-	-	-	-	1

**= P<0/01 & * = P<0/05

Regarding convergent validity, the most important correlation was the correlation of resilience with empowerment. As it is observed in table 6 was There was a significant correlation between the total score of empowerment of female-heads of households and their resilience (r=0.37, P<0.01) (Hajizadeh Moghadam, 2017). In addition, regarding subscales, the highest correlation is with the Impact and management and the lowest correlation with subscale of Competence.

5. Discussion

This research was designed in relation to female-heads of households and the construction of a test for them. The sample of this study were low educated and had the great responsibility of raising children and (98% of them had 1 to 7 children and about 72% of them had a high school diploma or high school sub-diploma education). It can be deduced that such participants had a stressful situation.

To construct the test, the perspective of Estéves López et al. (2011) was used, who developed and improved Zimmerman's (1995) approach.

Although it was planned to measure six components of self-sufficiency, source of control, power to criticize and analyze social events, empathy skills, self-esteem and life satisfaction based on Estéves López et al. (2011) approach, five factors were extracted. One of the most important reasons, may be the stressful and difficult life of these women who needed to solve their own economic problems and probably did not pay attention and were not enough prepared to criticize social or political events.

Three of these five factors were: Competence, Self-efficacy and Impact & management. These three factors were very close to what Peterson et al., (including Zimmerman himself) (2006) called Competence, Self-efficacy, and Mastery. The other two factors were Empathy and General satisfaction (which represents life satisfaction introduced by Estéves López et al., 2011).

These factors (Competency/power, Self-efficacy and Impact & management, Empathy and General satisfaction) are close to the two factors (Competence and Impact) of Spreitzer's psychological empowerment measure (1995). Competence and Impact are similar to Competence and Impact/management subscales of the present scale

As already explained, Empathy, is one of the factors and it is an important social skill. Thus, this can be considered as a psychosocial empowerment measure for female-heads of households. This measure is generally similar to the Frans scale (1993) because both measures psychological empowerment along with the tendency to impact the society. But, as already explained, we need to admit that the social impact of a female-heads of households (generally having limited education) living in an economically challenging country is very limited. Since, a female-head of household needs to solve her own family problems before involving in social issues. Hence, this psychosocial empowerment measure is not adequate for other professionals (for example social workers, university lecturers and other educated professionals), since it measures a limited number of psychosocial empowerment elements.

Generally, confirmatory factor analysis demonstrated a good fit of this measure. But it is important to pay attention specifically to the Competence factor in CFA. This subscale has an acceptable internal consistency (0.58); however, is relatively less related to other factors and even has a non-significant negative relationship with Empathy factor. The important point is that this factor is probably a very sensitive one. It describes a person's competence, the ability that a person recognizes in herself or how she evaluates it in her mind. Competence represents items such as "I can/I can't" is sensitive. In other words, saying "I can/I can't" or feeling "being competent/ being not competent" is important in reducing the cognitive dissonance and discomfort that a person has about herself. In other words, saying "I cannot" is a kind of justification for saving one's self-esteem. In this factor, the real power of people is not probably accurately reflected. In this research, this factor has a non-significant negative relationship with the factor of Empathy (in other words, if someone feels less ability in herself, she also has somehow more empathy for others). Interestingly, Singh and Kaur (2019) also reported that his factor (Competence) had a low negative correlation with the Impact factor, or in the work of Batool and Batool (2019), Self-determination (which is similar to the Competence) had the least correlation with the problem-oriented coping method. In other words, this factor is a sensitive factor, and like other mentioned measures, it may have an inverse correlation with other factors of the same measure. Since, this is a sensitive factor and the person is probably involved in a kind of cognitive dissonance or cognitive discomfort, it is difficult to be measured.

The internal consistency of the test was acceptable at 0.80. Most empowerment tests had internal consistency between 0.81 and 0.86. Although there are measures that have an internal consistency of 0.88 or 0.62. The subscales of this empowerment measure had and internal consistency between 0.75 to 0.52, which are suitable for research.

The most important study that could demonstrate convergent validity was the correlation of this measure with the resilience ($r=0.373$, $p<0.01$). In addition, Yousefi Rad (2019) showed that the empowerment score of female-heads of households is inversely significant with their children's anxiety (using Spence children anxiety scale: SCAS) ($r=-0.24$, $P<0.01$). This relationship with the General satisfaction subscale of this measure was also significant ($r=0.18$, $P<0.01$). The relationship with the empathy subscale was marginally significant ($r=0.15$, $P=0.085$). The findings of Ismailabadi and Jafari Roshan (2021) showed that the empowerment of female-heads of households has a significant correlation with the emotional intelligence of their children (using Bar-On scale) ($r=0.40$, $P<0.01$). In addition, the subscale of General satisfaction with a standard coefficient of 0.46 and Empathy subscale with a standard coefficient of 0.24 had the highest Beta among the subscale of ESFHH in predicting the emotional intelligence of the children of female-heads of households.

The evidence related to the convergent validity (and in some extend divergent validity such as correlation with anxiety of their children) of this measure was satisfactory, and it can be used in researches.

6. Limitation and Recommendation

The limitations of this research was having a sample female-heads of households limited to the city of Tehran and belonging to two districts. In relation to future researches, it is recommended that as much as possible random sampling be done from all districts of Tehran or each city separately, although this sampling is very difficult with this group. It is very helpful to benefit from qualitative interview in the process of test construction for different groups of female-heads of households or other different groups or groups of professionals. It is also recommended to take double care in the construction of items of the subscale of Competence, because it is a special and sensitive subscale.

7. Conclusion

The present Empowerment scale for female-heads of households was based on a special theoretical approach (Estéves López et al., 2011) and primarily aimed to measure six components: Self-sufficiency, source of control, power to criticize and analyze social events, empathy skills, self-esteem and life satisfaction.

Although it was planned to measure the above mentioned six components, five factors were extracted in the process of exploratory factor analysis. Three of these five factors were: Competence, Self-efficacy and Impact/management. These are similar to those of psychological empowerment measures (e.g., Spreitzer, 1995). However, the subscales also included General satisfaction subscale and Empathy subscale. Empathy is a social skill subscale, hence this scale can be categorized as a psychosocial Empowerment Scale for Female-Heads of Households. This measure also has an adequate internal consistency and convergent validity and could be used in researches.

8. Author Contributions

Dr Marjan Jafari Roshan was responsible for theoretical content and literature review of this research, she also had collaborated and headed the process of test construction. Mrs, Hajizadeh Moghadam collaborated in the process of test construction, carried out the sampling and the pilot studies and some of the primary analysis of EFA. Dr Marjan Jafari Roshan, supervised the posterior researches related to this project (Ismailabadi and Jafari Roshan, 2021 & Yousefi Rad, 2019) and also carried out the confirmatory factor analysis and wrote the article and edited the English article and was responsible for the publication of the article.

9. Ethical moral issues

Ethical issues had been considered in the process of this study.

10. Acknowledgment

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11. Conflicts of interest

A part of this article is partially taken from a master's thesis at Islamic Azad University, Central Tehran branch, and there is no conflict of interest in it.

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