

1 **Identifying the dimensions of empowerment and their impacts on food**
2 **security in rural women**

3
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5
6 **Abstract**

7 Food security remains a critical issue among rural female-headed households, who often face
8 economic, social, and structural disadvantages. Understanding how empowerment in various
9 dimensions influences food security is essential for developing effective interventions. The
10 present study was conducted to identify the empowerment dimensions of female-headed
11 households in rural areas and their effects on food security in Iran country. Based on the data
12 collected from the Iranian Statistical Center, the statistical population of rural women-headed
13 households of Tehran province included 495 individuals, from which 216 were selected using
14 the stratified random sampling method with proportional allocation. A questionnaire was
15 designed by researchers and its validity and reliability was confirmed by confirmatory factor
16 analysis and Cronbach method, respectively. The data were collected from November 2020 to
17 July 2021. Structural equation modeling was used to analyze and estimate relationships among
18 multiple variables. The results confirmed that grouping work and communication skills,
19 creativity and solving problem, commitment and responsibility, information and specific
20 knowledge, technical skills and operational work, psychological factors, social factors, political
21 factors, economic factors, managerial factors and educational factors as dimensions of
22 empowerment and also their effects on food security. Commitment and responsibility,
23 economic factors and grouping work had the highest effects on food security, respectively. Job
24 empowerment predicted a 75.00% variance in food security and it is suggested to consider job
25 empowerment of female-headed households in rural areas to decrease food insecurity.

26 **Keywords:** Empowerment, Rural women, Food security, Female-headed households, Social
27 and economic empowerment, Gender and food security.

28
29 **INTRODUCTION**

30 Poverty is a global challenge that mainly influences human societies in rural areas, especially
31 in non-developing countries and rural women-headed households (*Abrar ul haq et al.*, 2019).

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32 Women-headed households are usually faced with several challenges and are one of the most
33 vulnerable groups in different societies in terms of poverty and food security (Daoud *et al.*,
34 2019; Dunga, 2020). Food security is defined as permanent physical, social and economic
35 access to sufficient, safe and nutritious food to supply dietary requirements and food
36 preferences for an active and healthy life (Galiè *et al.*, 2019). It is estimated that 800 million
37 people are undernourished across the globe who do not receive adequate nutritional content and
38 calories (Pakravan-Charvadeh *et al.*, 2020). Women-headed households are more vulnerable to
39 food insecurity compared to men-headed households due to low present in the labor market and
40 productive activities, housekeeping and child care (Mallick and Rafi, 2010). A major portion
41 of women-headed households lives in developing countries and in rural regions (Van Eerdewijk
42 *et al.*, 2017). Social and cultural factors and expectations have prevented rural women from
43 participating in the development programs (Sarani *et al.*, 2013). Despite the key role of rural
44 women-headed households as suppliers of food security, income earners, and caretakers of
45 households and children, they have been disempowering in society. Empowerment might be a
46 key factor in improving food security in rural women-headed households in developing
47 countries.

48 Empowerment is defined as controlling decision-making about his and/or her life and giving
49 the ability to intervene in all life challenges (Baig *et al.*, 2018). This conception not only
50 comprises extrinsic control but it also involves the development of intrinsic capabilities (Abrar-
51 ul-Haq *et al.*, 2018). It initiates foundations for understanding available opportunities to
52 women. Although, most studies have emphasized the positive effects of empowerment in
53 increasing food security and decreasing food insecurity (Asitik and Abu, 2020; Galiè *et al.*,
54 2019; Ntenkeh *et al.*, 2022; Sharaunga *et al.*, 2016), factors affecting empowerment are not the
55 same in other countries. It is essential to identify factors empowering women in each country.
56 Rural women in Iran mostly perform housekeeping, care of children, farming, tailoring, carpet
57 weaving, and work at home. It was recently reported that 32% of Iranian families are faced with
58 food insecurity (Pakravan-Charvadeh *et al.*, 2020).

59 Although previous studies have emphasized the role of empowerment in increasing food
60 security, they lack specific focus on the challenges and empowerment dimensions for women-
61 headed households in rural areas, especially in countries like Iran. This study aims to identify
62 the unique empowerment dimensions affecting food security specifically for rural women-
63 headed households in Iran, contributing to a localized understanding of the issue. The research
64 brings an innovative approach by considering not just economic, but other possible dimensions

65 to women's empowerment and food security in rural areas. The study aims to identify
66 empowerment dimensions affecting food security in rural women-headed households in Iran.

67
68 **THEORETICAL FOUNDATION**

69 **Empowering factors**

70 Empowerment is a multi-dimensional factor and it can influence food security. It comprises
71 intrinsic capabilities such as empowerment factors and job skills and communications that
72 develop empowerment (Asitik and Abu, 2020; Galiè *et al.*, 2019; Ntenkeh *et al.*, 2022;
73 Sharaunga *et al.*, 2016). Economic factors are one of the most important factors in the life of
74 the women-headed households in rural areas (Sharma, 2019). Income generation, financial
75 independence, and control over finances directly improve food security. Another factor
76 affecting women's empowerment is social factors. Social factors allow women to develop their
77 lives in a holistic framework. These factors help women to develop their lives in a holistic
78 framework (Sharma, 2019). Participation in social networks and community involvement
79 enhances access to resources and support and better food security. Psychological factors are
80 another component of empowerment. It was reported that the increase in feelings of self-
81 efficacy among people help to identify intrinsic empowerment (Muduli and Pandya, 2018).
82 Self-efficacy, resilience, and adaptability lead to proactive behavior and greater food security.
83 Political factors may influence women's empowerment. The political empowerment of women
84 is a result of awakening at the individual and social levels to enable women who live with
85 dignity (Sharma, 2020). Involvement in political processes helps women advocate for better
86 governance and policies affecting food access. Women's education and using educational
87 systems is an important strategy for empowering women (Savari *et al.*, 2020). Education and
88 skills development provide better employment opportunities, indirectly improving food
89 security. Women with management ability may have a better feeling of self and their
90 empowerment. Decision-making and resource management strengthen women's ability to
91 ensure household food security.

92 H1: Economic, social, psychological, political, educational and managerial factors
93 (Empowering factors) are dimensions of empowerment and can independently affect food
94 security of women-headed households in rural areas.

95
96 **Job skills and communications**

97 Participation of women in grouping works and using other experiences and opinions may
98 empower rural women. The ability to communicate with others seems to be a strategy for

99 empowering women. Other factors associated with empowerment may be creativity and solving
100 problems. Creativity is the production of new and profitable ideas by persons in a working
101 environment. Empowered people prefer to solve their problems and use creative solutions.
102 Commitment and responsibility are important factors that may influence empowerment.
103 Responsible and committed women try to maintain values in a working environment, correctly
104 perform their tasks, show their interest in learning new subjects and have a positive view of
105 working environments. It was reported that communication channels create several jobs in rural
106 areas for Iranian women (Savari *et al.*, 2020). Thus, access to information and specific
107 knowledge may empower rural women and indirectly food security. Women with technical
108 skills can produce jobs for themselves. Such skills can decrease injuries and damage in working
109 environments. They perform their job tasks in minimum time and decrease their costs.

110 H2: Creativity and solving problems, communication skills and grouping work, commitment
111 and responsibility, information and specific knowledge and practical work and technical skills
112 (Job skills and communications) are dimensions of empowerment and can independently affect
113 food security of women-headed households in rural areas.

114 We hypothesized that job skills and communications and empowering factors influence food
115 security.

116 H3: Empowerment influences food security of women-headed households in rural areas.

117

118 LITERATURE REVIEW

119 A study investigated the effects of women empowerment in rural areas in South Africa and
120 showed that female-headed households with better economic conditions, physical capital
121 empowerment, psychological empowerment and farm financial management skills had better
122 food security (Sharaunga *et al.*, 2016). An original study in Iran investigated the role of
123 educational channels in improving household food security in Iranian rural women (Savari *et*
124 *al.*, 2020). Recently, a study showed a positive relationship between women's empowerment
125 and food security in Cameroon (Ntenkeh *et al.*, 2022). Another study investigated determinants
126 of food security among female-headed households in South Africa and showed that age, race,
127 income and size of the household have significant effects on food security (Dunga, 2020). It
128 was reported a positive relation between women's empowerment and food security and
129 emphasized social, cultural, economic and educational factors for improving empowerment
130 (Meti and Sathish, 2016). Another study found a significant positive relationship between the
131 economic dimension of empowerment and food security in communities in Tanzania (Galiè *et*

132 *al.*, 2019). It was reported that empowered women enhance household food security (Asadullah
 133 and Kambhampati, 2021). A positive link has been found between women’s empowerment and
 134 food security (Aziz *et al.*, 2022). It has been reported that socio-economic factors play
 135 significant roles in women’s food security (Clement *et al.*, 2019). The current study investigates
 136 comprehensive factors affecting empowerment in Iranian women that have not been previously
 137 investigated in female-headed households in rural areas.

138

139 **METHODOLOGY**

140 **Statistical population, sample and sampling method**

141 This applied, descriptive study aimed to explore the empowerment dimensions of female-
 142 headed households in Tehran Province, Iran, and their effects on food security. The statistical
 143 population comprised 495 women, based on data from the Statistical Center of Iran. Tehran
 144 Province was divided into ten rural districts, each treated as a separate stratum. A stratified
 145 sampling method with proportional allocation was used to ensure appropriate representation
 146 from each district. The sample size was determined using Cochran’s formula, and 216 women
 147 were selected to participate in the study.

148 **Measurements**

149 The indicators used in the two self-constructed questionnaires for empowerment and food
 150 security are presented in Table 1.

151 **Table 1.** The indicators used in the two self-constructed questionnaires.

Indicators	Number of items	Scoring	References
Empowerment		Likert scale (1-5)	
Grouping work and communication skills	7		Authors
Creativity and solving problem	6		Authors
Commitment and responsibility	6		Authors
Information and specific knowledge	5		Authors
Technical skills and operational work	5		Naseri <i>et al.</i> , (2020)
Psychological factors	9		Naseri <i>et al.</i> , (2020)
Social factors	9		Naseri <i>et al.</i> , (2020)
Political factors	5		Naseri <i>et al.</i> , (2020)
Economic factors	6		Naseri <i>et al.</i> , (2020)
Managerial factors	7		Authors
Educational factors	7		Authors
Food security		Likert scale (0-5)	
Accessibility	6		FAO (2016) WFP (2018)
Availability	6		Coates <i>et al.</i> , (2007) FAO (2016) USDA (2020)
Utilization	7		WHO (2019)
Stability	4		FAO (2016) WFP (2018)

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153 Additionally, demographic variables such as age, education, employment status, family size,
154 and annual income were collected to provide context for the analysis. The data were collected
155 from November 2020 to July 2021.

156

157 **Validity and reliability of questionnaires**

158 To ensure the validity and reliability of the instruments, confirmatory factor analysis (CFA)
159 was conducted on all theoretical constructs. CFA was employed to validate the measurement
160 models of both empowerment and food security, following the guidelines of previous studies
161 (Magnier-Watanabe et al., 2020; Yang & Hsu, 2018). Reliability was assessed using
162 Cronbach's alpha, ensuring internal consistency of the scales.

163

164 **Data analysis**

165 Structural equation modeling (SEM) was used to analyze the relationships between the
166 empowerment dimensions and food security. Both CFA and SEM were conducted using AMOS
167 software (version 24). SEM allowed for the estimation of direct and indirect effects among
168 multiple variables, providing a comprehensive understanding of how different dimensions of
169 empowerment influence food security outcomes.

170

171 **RESULTS**

172 **Descriptive statistics**

173 The results indicated that the average age of female-headed households in rural areas was
174 48.28 years, with a standard deviation of 11.55 years. The majority of the women were between
175 31 and 60 years old. Most had only primary education (41.20%), while a smaller proportion
176 had attained a high school diploma or higher education. A significant portion of the women
177 were unemployed (24.53%), with the remainder engaged in various occupations, including
178 service work (18.51%), tailoring (15.27%), peddling (13.88%), carpet weaving (11.57%),
179 farming (2.31%), and other jobs (13.93%). The average annual income of these households was
180 85 million IRR. It is also noteworthy that unemployed women were under the supervision of
181 supporting institutions.

182 The means and standard deviations for the constructs were as follows: grouping work and
183 communication skills (2.77 ± 0.88), creativity and solving problem (3.01 ± 0.90), commitment
184 and responsibility (3.26 ± 1.02), information and specific knowledge (2.94 ± 0.94), technical
185 skills and operational work (3.22 ± 1.00), psychological factors (3.16 ± 0.86), social factors
186 (3.08 ± 0.78), political factors (2.63 ± 1.01), economic factors (2.24 ± 0.86), managerial factors

187 (2.75±0.81), educational factors (2.70±0.99), access (2.23±0.84), availability (2.42±0.80),
188 utilization (2.69±1.10) and stability (2.57±0.74).

189 Table 2 displays the correlations between these constructs. The analysis revealed positive
190 correlations among all variables.

191

192 **Analysis of the measurement models**

193 The validity and reliability of the individual measurement models were assessed following the
194 methodologies outlined by Yang and Hsu (2018). The results are summarized in Table 3. CFA
195 and model fit indices confirmed that all items appropriately fit their respective constructs.
196 According to previous research (Magnier-Watanabe et al., 2020), the recommended fit indices
197 are as follows: normed chi-square less than 3.00, RMR less than 0.09, NFI greater than 0.90,
198 and IFI and TLI greater than 0.95. Hair et al. (2010) suggest that the values for each construct
199 should fall between 0.5 and 0.9, with reliability values exceeding 0.7. The obtained values in
200 this study were all above 0.7, confirming the internal consistency and reliability of each scale.

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Table 2. Correlation between constructs.

	GC	CS	CR	IS	TS	PF	SF	POF	EF	MF	EDF	ACC	AVA	UTI	ST	
GC		0.893***														
CS			0.836***													
CR				0.798***												
IS					0.773***											
TS						0.886***										
PF							0.506***									
SF								0.509***								
POF									0.298*							
EF										0.363***						
MF											0.389***					
EDF												0.360***				
ACC													0.373***			
AVA														0.133*		
UTI															0.523***	
ST																0.383***

203 Constructs as follows; Grouping work and communication skills (GC), creativity and solving problem (CS), commitment and responsibility (CR), information and specific
 204 knowledge (IS), technical skills and operational work (TS), psychological factors (PF), social factors (SF), political factors (POF), economic factors (EF), managerial factors
 205 (MF), educational factors (EF), accessibility (ACC), availability (AVA), Utilization (UTI) and stability (ST). Superscripts *, and *** show significant correlation at P<0.05 and
 206 P<0.0001, respectively.

Table 3. Constructs and reflective indicators.

Constructs and reflective indicators	Loading
Empowerment ($\chi^2= 42.47$, $df= 24$; CFI= 0.93; RMR= 0.031; IFI= 0.96; TLI= 0.97)	
Grouping work and communication skills (Cronbach's $\alpha= 0.759$; CR= 0.865; AVE= 0.623)	
Reflection of facts in presenting feedback is common in my work environment	0.523
I express my opinion in relation to job issues	0.598
I receive a good reaction along with patience from others.	0.502
I am interested in the transformation of information and experiences to others.	0.523
I have a devotion to solving challenges in the working environment.	0.589
Coordination and integrity are found between my colleagues.	0.569
I use my supervisor's ideas and my colleague's for solving problems.	0.567
Creativity and solving problem (Cronbach's $\alpha= 0.796$; CR= 0.802; AVE= 0.551)	
I solve working issues through data collection and analysis.	0.509
I consider various aspects of a problem.	0.521
I use opportunities for creating positive changes in my life.	0.598
I am interested in new experiences and experiments	0.595
I present new strategies for job issues.	0.569
I suggest new strategies for performing job tasks.	0.567
Commitment and responsibility (Cronbach's $\alpha= 0.899$; CR= 0.815; AVE= 0.665)	
I am on time in the working environment.	0.595
I try to maintain values in the working environment.	0.502
I correctly conduct working tasks.	0.685
I am interested to increase knowledge and job skills.	0.672
I have a positive view of the working environment.	0.621
I have actively participation in educational periods for improving technical skills.	0.512
Information and specific knowledge (Cronbach's $\alpha= 0.752$; CR= 0.785; AVE= 0.515)	
I have sufficient information for equipment and tools in working environment.	0.526
I have obtained general knowledge for my job.	0.612
Job purposes are achieved by required knowledge.	0.570
I need a presence in educational periods for improving information and specific knowledge.	0.572
I have sufficient information for quality and activity standards.	0.525
Technical skills and practical work (Cronbach's $\alpha= 0.717$; CR= 0.709; AVE= 0.589)	
I correctly use equipment in the working environment.	0.599
I have standardized job skills.	0.597
Damages and injuries have decreased in the working environment.	0.598
I perform job tasks in minimum time and for improving working quality.	0.602
I use raw materials in a true way.	0.707
Psychological factors (Cronbach's $\alpha= 0.717$; CR= 0.741; AVE= 0.576)	
I feel myself to be a valuable human.	0.712
I feel to have several good characteristics.	0.511
I can well conduct several works.	0.541
I have a good view of myself.	0.539
I have abilities for the expression of opinions in family meetings.	0.614
My member family uses my opinions.	0.647
I am a determiner of interactions of my member family with others.	0.615
I have abilities for changing the conditions of my life based on current possibilities.	0.523
I am independent in solving problems.	0.516
Social factors (Cronbach's $\alpha= 0.802$; CR= 0.773; AVE= 0.562)	
I am interested in participation in grouping works.	0.506
I have interactions with kinfolk and neighbors.	0.501
I participate in different meetings.	0.605
I consult others for different problems.	0.712
I participate in community-oriented educational classes.	0.597
I have the ability for finding new friends.	0.522
Political factors (Cronbach's $\alpha= 0.739$; CR= 0.752; AVE= 0.562)	
The services given by the village council are efficient for improving my job.	0.553
Political decisions influence my life.	0.552
I participate in elections.	0.551
Decisions of local agents for rural regions influence my life.	0.514

I participate in meetings of people agents and managers.	0.595
Economic factors (Cronbach's $\alpha= 0.702$; CR= 0.717; AVE= 0.645)	
I have access to facilities and a bank loan.	0.516
I participate in the microfinance credits fund.	0.667
I participate in activities of consumers' co-operative.	0.547
I provide the required equipment and facilities for myself and member family.	0.702
I decide on financial resources and ways for spending them.	0.502
I feel to be valuable women activities in society.	0.540
Managerial factors (Cronbach's $\alpha= 0.751$; CR= 0.820; AVE= 0.598)	
I have abilities for handling my job.	0.589
I participate in local meetings.	0.597
I have enough ability for supplying local products.	0.606
My job is affecting society.	0.641
I can manage crises in my life.	0.578
I manage economic issues in my life.	0.641
I can manage my assets.	0.529
Educational factors (Cronbach's $\alpha= 0.796$; CR= 0.824; AVE= 0.591)	
I feel rural women appreciate educational periods.	0.532
I feel that potential trainers educate us.	0.541
Educational contents are in agreement with my requirements.	0.537
It is possible to combine science and practice	0.536
All skills and educations are various.	0.541
I have the ability for learning professional skills.	0.546
I feel educational classes are in agreement with my requirements.	0.527
Food security ($\chi^2= 43.12$, $df= 24$; CFI= 0.98; RMR= 0.033; IFI= 0.97; TLI= 0.98)	
Access (Cronbach's $\alpha= 0.741$; CR= 0.736; AVE= 0.565)	
My required food is in access.	0.632
My required food for my children is in access.	0.541
Various foods are in access to us.	0.571
Food supplier centers are in access.	0.569
Food supplier centers supply enough food.	0.502
Food supplier centers supply high-quality foods.	0.622
Availability (Cronbach's $\alpha= 0.741$; CR= 0.751; AVE= 0.598)	
I have enough income for purchasing the required foods for my body.	0.571
I have enough income for purchasing the required foods for my children.	0.533
I have enough income for providing dietary diversity.	0.625
Price fluctuations influence dietary diversity.	0.593
My income is one important factor in purchasing interesting foods.	0.576
My saving is affected by purchasing in an emergency condition.	0.588
Utilization (Cronbach's $\alpha= 0.912$; CR= 0.755; AVE= 0.717)	
Knowing quality affects food utilization.	0.555
Knowing calories affects food utilization.	0.575
Foods with low waste influence their utilization.	0.632
Knowing diets influence food utilization.	0.509
Knowing food benefit influences food utilization.	0.707
An appropriate food program for family members influences food utilization.	0.812
Having an appropriate food program for children influences food utilization.	0.589
Stability (Cronbach's $\alpha= 0.763$; CR= 0.751; AVE= 0.613)	
Required foods are constantly supplied in the market.	0.645
Foods are scarce in undetermined and unpredictable times.	0.512
Suppliers immediately supply scarce foods.	0.507
Precise mechanisms are considered and performed for keeping stability.	0.596

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Structural equation modeling

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To avoid ambiguity and complexity, we considered the mean of constructs and did not use

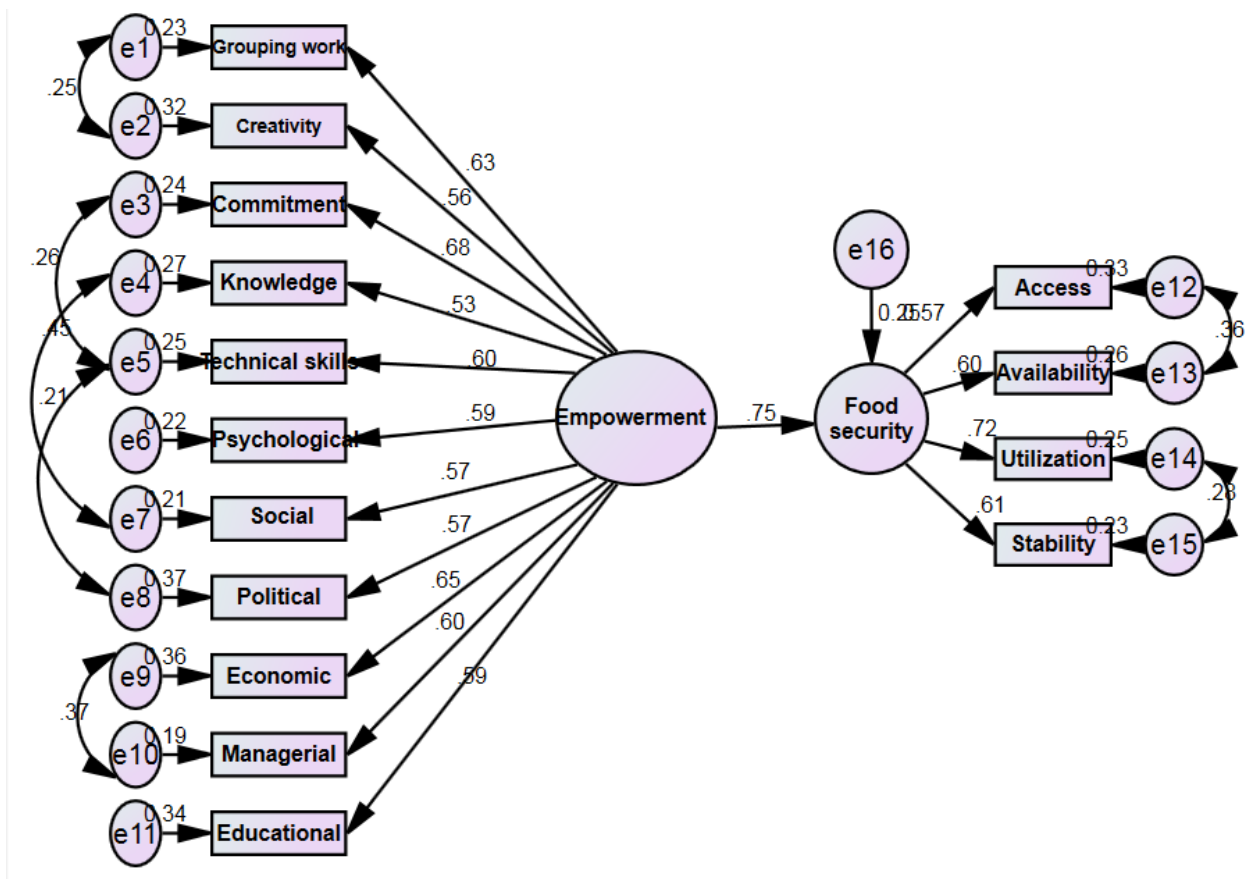
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items for SEM. A SEM was built and the results are shown in Figure 1. The results for model-

212 fitting showed that empowerment and food security had a good fit for the data with fit indices
 213 ($\chi^2/df=1.86$, CFI=0.98; NFI= 0.98; IFI= 0.97; TLI=0.98; RMR=0.032; RMSEA=0.036).

214 The results in Figure 2 for model-fitting showed that empowerment dimensions and food
 215 security had a good fit for the data with fit indices ($\chi^2/df=1.71$, CFI=0.96; NFI= 0.95; IFI=
 216 0.96; TLI=0.97; RMR=0.036; RMSEA=0.041).

217 The results for the SEM of the effects of empowerment and its dimensions on food security
 218 are shown in Table 4. The results show that empowerment predicts 75% of the variance in food
 219 security. To investigate the hypotheses, we ran another model comprising items and the results
 220 are shown in Table 4 and Figure 2.



221 **Fig. 1** Results of structural equation modeling for the effect of empowerment on food security.
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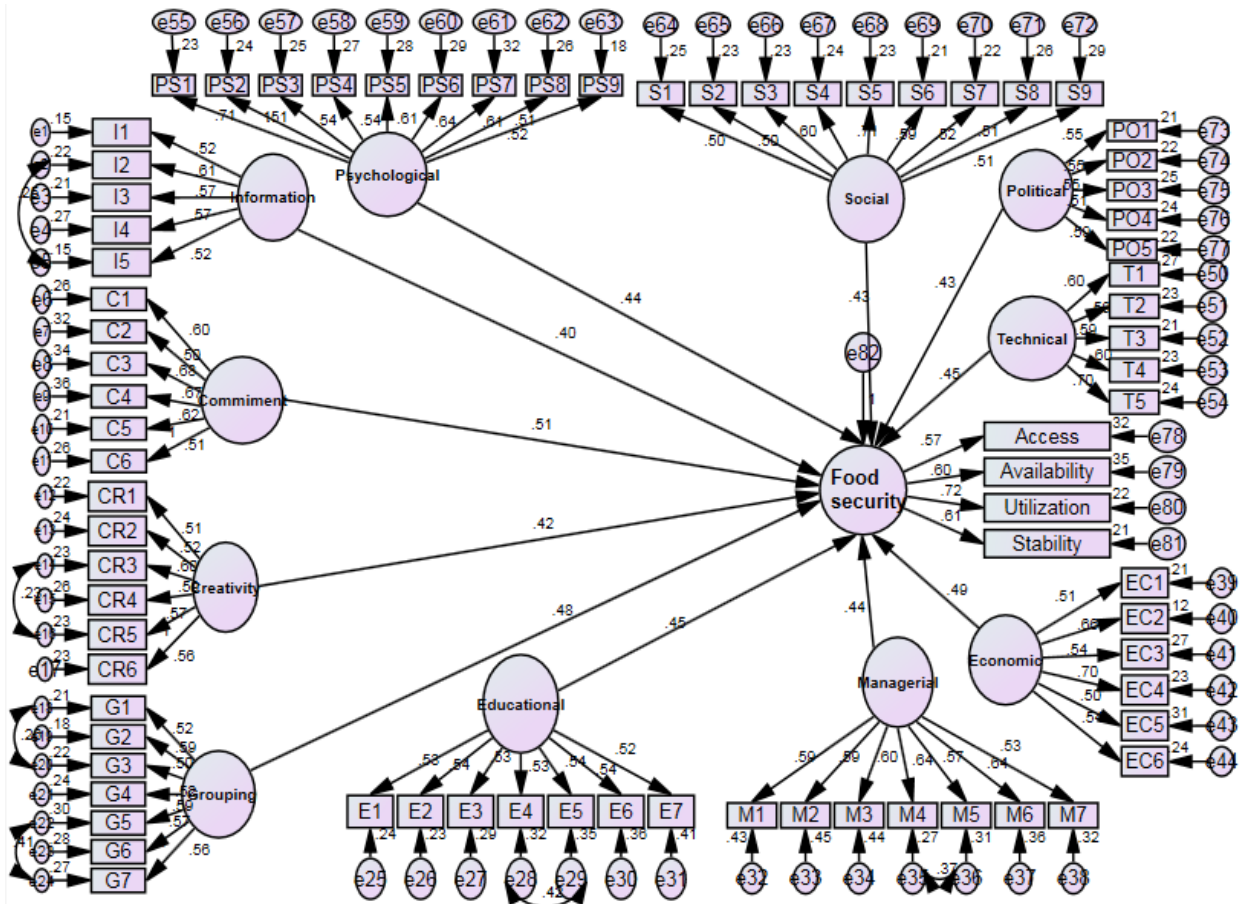


Fig. 2 Results of structural equation modeling for the effect of empowerment dimensions on food security.

The results of the effects of the empowerment construct on food security are shown in Table 4. The results in Table 4 confirmed all the hypotheses. All the constructs predicted food security. Commitment and responsibility, economic factors and grouping work predicted 51.00%, 49.00% and 48.00% of the variance of food security, respectively. The results also showed that job skills and communications and empowering factors predicted 61% and 58% of the variance of food security, respectively. The model was run twice. The first run assessed the effects of factors as dimensions of empowerment, which allowed for an evaluation of the overall empowerment effect.

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Table 4. The Results of SEM for the effects of constructs on food security**.

Relationship	Estimates	C.R.	P-value
Empowerment→Food	0.75	6.92	0.001
Grouping work→Food	0.48	4.42	0.001
Creativity→Food	0.42	3.87	0.001
Commitment →Food	0.51	4.70	0.001
Information→Food	0.40	3.68	0.001
Technical skills →Food	0.45	4.14	0.001
Psychological→Food	0.44	4.05	0.001
Social→Food	0.43	3.96	0.001
Political→Food	0.43	3.95	0.001
Economic→Food	0.49	4.51	0.001
Managerial →Food	0.44	4.05	0.001
Educational→Food	0.45	4.15	0.001

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DISCUSSION

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The empirical role of empowerment and its dimensions as independent variables in enhancing food security is newly revealed by this study. In line with previous research, the findings demonstrate that empowerment accounts for a 75.00% variance in food security. (Clement *et al.*, 2019; Sharaunga *et al.*, 2016).

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Group work and communication abilities predicted differences in food security and empowerment by 48.00% and 63.00%, respectively. Through improved decision-making, negotiation, and leadership, communication promotes the sharing of information and experiences, thereby increasing empowerment (Mishra and Mishra, 2020). The ability to articulate ideas clearly enhances women's self-esteem and strengthens their contributions to family or community food security plans. Working in groups offers individuals the opportunity to solve problems and exchange experiences. These social partnerships can promote collective empowerment by addressing issues collaboratively, transforming women's individual abilities into community-based solutions for food security while also providing emotional and practical support.

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Food security and empowerment are influenced by creativity and problem-solving. Women with creative minds can develop innovative ways to raise living standards in rural areas, such as launching new businesses or adopting sustainable farming methods. Women who apply their creativity are better equipped to leverage local resources, reduce risks, and identify new sources of income, thereby strengthening their ability to provide food for their families.

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Food security and empowerment were most impacted by commitment and responsibility ($\beta=0.68$). Commitment represents a strong intrinsic drive to provide sufficient food for families, particularly in female-headed households. Women's sense of duty to their families and children

271 motivates them to take the initiative in developing their skills and ensuring food security by
272 seeking reliable sources of income, improving agricultural yields, or securing high-quality food
273 products.

274 Disparities in food security and empowerment were predicted by specific knowledge and
275 information to be 40.00% and 53.00%, respectively. Women with access to timely and relevant
276 information are better equipped to make informed decisions about nutrition, food production,
277 and household management. Another important factor is women's participation in training
278 programs or knowledge-sharing networks, which help them progress into more empowered and
279 financially stable roles.

280 Technical skills and practical work predicted 60.00% and 45.00% of the variations in
281 empowerment and food security, respectively. These abilities provide women with
282 opportunities to work in occupations that can increase income and improve living standards.
283 Women who possess technical skills in business, crafts, or agriculture are evidently better able
284 to empower themselves and contribute to their households' food security.

285 Both food security ($\beta=0.44$) and empowerment ($\beta=0.59$) were significantly influenced by
286 psychological factors. Long-term food security relies on women's ability to manage risks and
287 seize opportunities, both of which are strengthened by psychological well-being (Ahmed and
288 Malik, 2019). When faced with obstacles, psychologically empowered women are more likely
289 to persist, whether through education, starting a business, or adopting improved farming
290 methods.

291 Social and political factors alone predicted 43.00% of the variance in food security and
292 57.00% in empowerment. When women participate in community organizations, cooperatives,
293 or political systems, they gain platforms for advocacy, resource access, and mutual support. In
294 rural regions especially, women can influence decisions that shape food security policies
295 through political engagement. Participation in social groups enhances women's agency and
296 voice, opening opportunities for collective action that can improve both community-wide food
297 security and individual empowerment.

298 Economic considerations had a significant impact on both food security ($\beta=0.49$) and
299 empowerment ($\beta=0.65$). These findings align with documented research on the influence of
300 economic factors on food security (Ali *et al.*, 2019; Oni *et al.*, 2010). Food security improves
301 directly when women have access to economic resources, such as land ownership, credit, and
302 financial capital, allowing them to invest in productive assets like business or farming
303 equipment. Additionally, 60% of the variance in empowerment was explained by managerial

304 factors, which enable women to manage resources effectively and balance economic activities
305 with domestic responsibilities, thereby supporting food security.

306 Food security was significantly impacted by educational characteristics, similar to other
307 factors. Education provides women with the technical know-how, social skills, and critical
308 thinking abilities necessary for managing food production, finding employment, and
309 participating in community decision-making. Educational initiatives, particularly those
310 emphasizing employable, real-world skills, can greatly aid in reducing food insecurity.

311 There are limitations to this study. The exclusive emphasis on a specific rural group may
312 restrict the broader applicability of the results to other cultural or regional contexts. Significant
313 differences in socioeconomic and cultural factors influencing empowerment and food security
314 in rural developing nations compared to urban areas or other regions may limit the
315 generalizability of the findings. To better understand how various groups of women perceive
316 empowerment, future research should consider intersectional aspects such as age, ethnicity,
317 class, and disability. Although the study discusses several empowerment-related aspects, it falls
318 short in addressing external factors that can directly impact food security in rural areas, such as
319 market access, government policy, and climate change.

320

321 CONCLUSIONS

322 In summary, empowerment and its components significantly impacted food security
323 individually. To enhance women's empowerment and food security, it is essential to educate
324 them about the largely internal factors involved. We propose that local institutions, NGOs, and
325 government agencies collaborate to establish community-based skill development centers
326 specifically designed for rural women to improve food security and empowerment in these
327 areas. In addition to partnering with local media for educational outreach, they must implement
328 practical technical training that incorporates safety precautions. The centers should also support
329 women-led cooperatives by facilitating peer learning and access to microfinance. Furthermore,
330 strong monitoring and evaluation procedures must be established to track progress and make
331 necessary program adjustments.

332

333 Acknowledgements

334 We appreciate the participants in the study.

335

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شناسایی ابعاد توانمندسازی و تأثیر آن بر امنیت غذایی زنان روستایی

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چکیده

425 امنیت غذایی در میان زنان سرپرست خانوار روستایی که اغلب با آسیب های اقتصادی، اجتماعی و ساختاری مواجه
426 هستند، همچنان یک مسئله حیاتی است. درک اینکه چگونه توانمندسازی در ابعاد مختلف بر امنیت غذایی تأثیر می گذارد
427 برای توسعه مداخلات مؤثر ضروری است. پژوهش حاضر با هدف شناسایی ابعاد توانمندسازی زنان سرپرست خانوار
428 روستایی و تأثیر آن بر امنیت غذایی کشور انجام شد. بر اساس داده های جمع آوری شده از مرکز آمار ایران، جامعه
429 آماری زنان سرپرست خانوار روستایی استان تهران شامل 495 نفر بود که از بین آنها 216 نفر به روش نمونه گیری
430 تصادفی طبقه ای با تخصیص متناسب انتخاب شدند. پرسشنامه ای توسط محققین طراحی شد که روایی و پایایی آن به
431 ترتیب با روش تحلیل عاملی تاییدی و روش کرونیباخ تایید شد. داده ها از نوامبر 2020 تا ژوئیه 2021 جمع آوری شد.
432 از مدل سازی معادلات ساختاری برای تجزیه و تحلیل و برآورد روابط بین متغیرهای چندگانه استفاده شد. نتایج نشان داد
433 که گروه بندی مهارت های کاری و ارتباطی، خلاقیت و حل مسئله، تعهد و مسئولیت، اطلاعات و دانش خاص، مهارت
434 های فنی و کار عملیاتی، عوامل روانی، عوامل اجتماعی، عوامل سیاسی، عوامل اقتصادی، عوامل مدیریتی و عوامل
435 آموزشی به عنوان ابعاد توانمندسازی و همچنین اثرات آنها بر امنیت غذایی. تعهد و مسئولیت، عوامل اقتصادی و کار
436 گروهی به ترتیب بیشترین تأثیر را بر امنیت غذایی داشتند. توانمندسازی شغلی واریانس 75.00 درصدی را در امنیت
437 غذایی پیش بینی کرد و پیشنهاد می شود برای کاهش ناامنی غذایی، توانمندسازی شغلی زنان سرپرست خانوار روستایی
438 در نظر گرفته شود.