



Food Security Achievement through Women Empowerment: A Study of Informal Sector in Lahore

Haifa Asif; MSc*¹ & Shahzad Ali; MSc¹

¹ Department of Economics and Commerce, The Superior University, Lahore, Pakistan.

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*Corresponding author:

haifaasif1976@gmail.com

The Superior University,
Department of Economics and
Commerce, Lahore, Pakistan.

Postal code: 54000

Tel: +92 3004571940

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ABSTRACT

Background: Women empowerment (WE) in food security is one of the global issues faced by women in all the countries of the world. Achievement of zero-hunger goal of Sustainable Development Goals in 2030 (SDG) still seems to be unachievable because of this food insecurity. This research aims to study the achievement of food security by enhancing WE in the informal sector in Lahore, Pakistan. Moreover, the analysis goals are to determine the contribution of microcredit facilities and management skills in the enhancement of WE which improves food security. **Method:** This study was quantitative and descriptive. Using a primary survey questionnaire on cross-sectional data source by simple random sampling, 495 women borrowers in the informal sector of Lahore, Pakistan were investigated. Data analysis was done using SMART PLS3. **Results:** The results of the study revealed a positive relationship between WE and food security through the active participation of women in production decisions. The utilization of resources within the households is strengthened by familial rights, social support, and the removal of gender disparity. **Conclusion:** Women's capacity to contribute more to the daily household expenditure is increased by the higher income, and eventually, it increases their empowerment and food security.

Introduction

In developing countries, women's production of food is 60 to 80% (Shafieisabet and Mirvahedi, 2021). Females in rural areas have a major part, particularly in catastrophes and in ensuring food security and health security of the generations (Clement *et al.*, 2019). This study is conducted specifically to investigate women as producers, consumers, and social agents to achieve food security. This research also assesses the role of microcredit and proficiency in managing the skills

to exercise the rights to be empowered to gain food security.

Nearly 47% of women are a part of labor force in developing countries (Fanelli, 2022). They experience more food insecurity because of gender inequality that is avoidable mainly because of socioeconomic and cultural factors (Weret, 2021). Nearly, 33.33% of the people around the globe (2.37 billion) did not have access to sufficient food in 2020. This is an addition of almost 320 million

people in just one year as compared to 2019. Gender gap in pervasiveness of severe or moderate food insecurity has grown even larger in one year with food insecurity being 10% higher among females than in men in 2020, compared with 6% in 2019 (Kent *et al.*, 2020).

Food security is the second sustainable development goal (SDG) set by the UN to be achieved by all nations by 2030. A multi-dimensional relationship exists between females and food, as they act as producers, consumers, homemakers as well as social agents (Hossain *et al.*, 2021). According to two current national studies in 2020, the US Survey of Mothers with Young Children reported that 40.9% of mothers with children under the age of 12 fight severe food insecurity. The results of the same survey showed that 17.4% of mothers with children under 12 years old reported that their kids were not eating enough due to financial constraints, compared to 3.1% in 2018 (Paslakis *et al.*, 2021).

Internationally, Pakistan is the fifth most densely populated country with a growth rate of 1.5% (Rasul *et al.*, 2022). The GDP growth rate of Pakistan was 5.37% in 2021-22 against 3.9% in 2020-2021. The GDP per capita increased to US\$ 1666 in 2020-2021 (Mahmood *et al.*, 2022). After this promising increase, food insecurity is still very dominant in Pakistan. The primary source of livelihood for rural people in Pakistan is livestock and the agriculture sector (Ahmad *et al.*, 2020). Surveys conducted by National Nutrition Survey reported that 36.9% of Pakistan's population are food insecure and 18.3% are facing severe food insecurity (Hashmi *et al.*, 2021). According to the World Food Program (2021), the affordability of nutritious food is the major cause of food insecurity in Pakistan. Although Pakistan's economy relies on agriculture, Global Hunger Index reported that Pakistan ranked 92nd among 116 developing countries, with a score of 24.7. The

condition of Pakistan is serious, whereas Pakistan ranked 76th position from 107 nations in the Global Food Security Index. Pakistan is the 8th major producer of cereals in the world, but the countrywide growth of crops does not assure that the rural areas are self-reliant in terms of food security (Hashmi *et al.*, 2021).

Entitlement to Food Theory puts more stress upon the ownership of materials which can be used to exchange food or can be utilized to obtain food through other sources (Pawlak and Kołodziejczak, 2020). Entitlement approach focuses on every individual's entitlement to an article of trade packages, including food, and also arguments upon starvation resulting from failure to get a bundle including enough food (Kansanga *et al.*, 2022).

Research conducted in the past has addressed the achievement of women empowerment (WE) and food security by being involved in the agricultural sector and playing the role of food growers, and therefore, consuming food as well (Asadullah and Kambhampati, 2021, Aziz *et al.*, 2020, Galiè *et al.*, 2019). These studies mainly focus on rural WE, and very few studies have been conducted on food security for women in urban areas. Moreover, past research has mainly highlighted gender inequality as the main hindrance to the achievement of WE and food security (Adegbite and Machethe, 2020, Clement *et al.*, 2019, World Health Organization, 2019). There exists a gap in the study of food insecurity regarding urban women and the gain of WE by establishing their startups and enhancing management skills. This study has provided a solution for the achievement of WE and food security. This has been made possible by microfinance facilities by government and non-government agencies and training for the enhancement of management skills. This study is an effort towards filling up this gap.

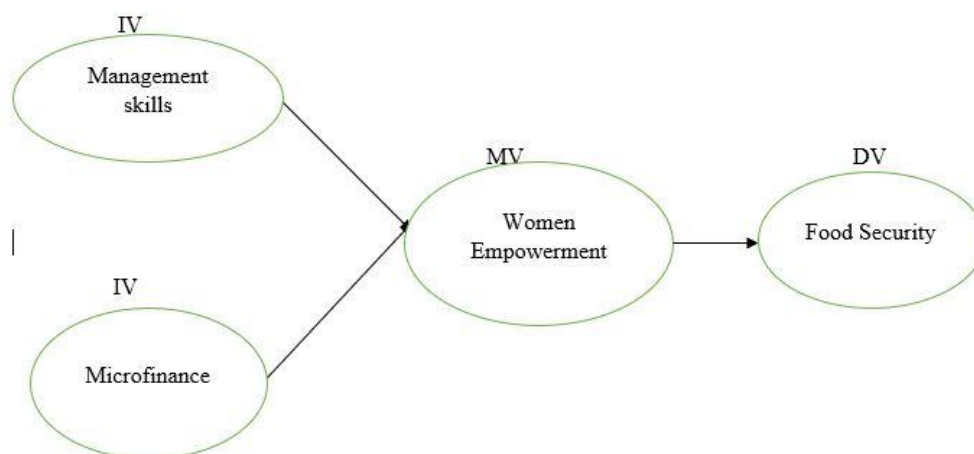


Figure 1. Conceptual framework

Note: Independent Variable (IV), Mediating Variable (MV), Dependent Variable (DV)

Materials and Methods

Design and participants

This research has been done to achieve zero-hunger goal of SDG and food security through WE in the informal sector in Lahore, Pakistan. Data on food security through WE were collected from two categories of females: first, the women who had a startup and organized their business for more than one year, and second, the women who borrowed microfinance from microfinance institutions (MFI). There are four major MFI facilitating customers in Lahore; Kashf foundation, Akhuwat foundation, FINCA, and Daman foundation. The percentage of the customers who borrowed loans from Kashf foundation was 32%, the Akhuwat foundation, 49%, FINCA Microfinance Bank 13%, and the Daman foundation was 6%.

Data collection

For the current study, the primary data were collected using survey questionnaires. For measuring the independent variable of management skills, the scale with 8-items were adopted (Asif, 2022, Crittenden *et al.*, 2019). To measure the other independent variable, microfinance, a scale of 3 items was adopted (Pitt *et al.*, 2006). WE, the mediating variable, was measured by a 12-item scale designed by Fayyaz *et al.* (Fayyaz *et al.*, 2016). The dependent variable of food security was measured by a 9-item scale

drawn by (Coates *et al.*, 2006).

This study used a random sampling method, and the sample size was determined based on Roscoe's rule of thumb, and a sample size between 30 and 500 was selected. A total of 800 questionnaires were circulated among the women entrepreneurs in the informal sector of Lahore, Pakistan. The women entrepreneurs were engaged in the businesses of art and handicraft, baking, catering, beauty parlors, and stitching. The data were collected from the area of Amir Town, Mughal Pura, DHA-Phase I-V, and Gulberg III. The reason for the selection of these areas was the high concentration of women entrepreneurs in these areas, who borrowed loans from MFIs for more than one year. Out of the 800 questionnaires distributed, 515 were returned. However, 20 cases were omitted, as their questionnaires were found to be incomplete. Hence, only 495 questionnaires which signified a valid response rate of 61.875% were used for the analysis of the data.

Questionnaire design and pre-testing

The measurement scale and the questionnaire were adapted from the research studies of several researchers. The questionnaire included closed-ended questions calculated against a 5-point Likert scale ranging from strongly agree (5) to strongly disagree (1). The questionnaire has been divided into two sections. Section 1

questions were based on the population's demographic characteristics such as age, qualification of the entrepreneur, nature of the business, length of the business, family size, and marital status. Section 2 questions were based on the variables of this research study, namely, managerial skills, microfinance, female empowerment, and food security. The content and the validity of the scales of the questionnaire were approved by The Superior University, Lahore, Punjab, Pakistan, Department of Economics and Commerce. Moreover, a trial was conducted with twenty women entrepreneurs for face validity and the final questionnaire was distributed with minor alterations.

Data analysis

Partial least squares structural equation modeling (PLS-SEM) was used for data analysis. Detailed analysis and graphical output of the results were derived by the application of Smart PLS 3. PLS-SEM is appropriate to use when there are fewer requirements regarding the sample number and normality of data (Hair and Alamer, 2022). Additionally, the PLS algorithm and bootstrapping techniques were used to determine internal consistency reliability and factor loadings for the construct of validity, path coefficients, and corresponding significant levels to test the hypothesis (Mia *et al.*, 2022).

Results

Table 1 shows that concerning age, women from the age group of 31-38 (32.5%) are more involved in entrepreneurship followed by young women in the age group of 24-30 (26.9%), who are also more interested in setting up and running up their businesses. The size of the business was dependent upon various factors like the capital invested, profit earned during the year, and the number of employees. 37.9% of women were involved in small size businesses, 36.3%, in operating medium-sized businesses and 25.1% in large-scale business.

Data reliability and validity

Table 2 shows convergent validity. AVE cut-off values of > 0.5, Cronbach's alpha (CA) > 0.7 and

CR values between 0.9-0.95 ensure the internal reliability of the data. To assess discriminant validity using HTMT ratio, the cut-off value is 0.9 (Franke & Sarstedt, 2019).

Table 1. Demographic variables of data collected from 495 participants.

Demographic category	n	%
Age (years)		
24-30	134	26.9
31-38	162	32.5
39-45	119	23.8
46<	80	16.0
Education (years)		
5	2	0.4
8	9	1.8
10	60	12.0
12	150	30.1
14	120	24.0
16	117	23.4
Technical education	37	7.4
Size of the business		
Small	189	37.9
Beauty parlor	47	9.50
General store	55	11.11
Tuition center	32	6.46
Pottery	20	4.04
Art and painting	15	3.03
Freelancing	20	4.04
Medium	181	36.3
Large	125	25.1
Life of business(years)		
<5	171	34.5
5-10	105	21
11-15	112	22.4
15<	107	21.4
Family size		
<3	59	11.7
3-4	114	22.8
5-6	120	24
7-8	115	23
9<	87	17.4
Marital status		
Married	219	43.9
Unmarried	64	12.8
Divorced	67	13.4
Separation	85	17.0
Widow	60	12.0
Yearly income (Rs.)	2	4.0
<50000		
50001-100000	19	3.8
100000-150000	119	23.8
150000-200000	159	31.9
200000<	196	39.5

Table 2. Results of convergent validity of the data.

Constructs	Items	Loadings	CA	CR	AVE
Management skills	MS 1	0.881	0.92	0.93	0.65
	MS 2	0.883			
	MS 3	0.865			
	MS 4	0.841			
	MS 5	0.827			
	MS 6	0.780			
	MS 7	0.728			
	MS 8	0.616			
Microcredit	MC 1	0.863	0.86	0.91	0.78
	MC 2	0.937			
	MC 3	0.856			
Women empowerment	WE 1	0.573	0.94	0.95	0.62
	WE 2	0.725			
	WE 3	0.863			
	WE 4	0.847			
	WE 5	0.822			
	WE 6	0.785			
	WE 7	0.799			
	WE 8	0.821			
	WE 9	0.831			
	WE 10	0.824			
	WE 11	0.811			
	WE 12	0.760			
Food security	FS 1	0.830	0.94	0.95	0.71
	FS 2	0.859			
	FS 3	0.862			
	FS 4	0.835			
	FS 5	0.836			
	FS 6	0.839			
	FS 7	0.854			
	FS 8	0.861			
	FS 9	0.813			

AVE: Average variance extract; *CR*: Composite Reliability; *CA*: Cronbach's Alpha; 8 items of management skills; 3 items of microcredit; 12 items of women empowerment; and 9 items of food security; Indicators > 0.5 reflect the reliability and validity of data.

Hypothesis testing

Hypothesis 1: Management skills are directly related to women's empowerment.

Results of the algorithm and bootstrapping PLS-SEM showed a significant and positive relationship between management skills and WE ($\beta=0.314$, $t=6.821$, $LL=0.239$, $UL=0.392$, $P<0.05$). Therefore, hypothesis 1 is supported. This meant that women entrepreneurs who are expert managers can create efficient policies and expand their businesses and thus achieve empowerment.

Hypothesis 2: Microcredit has a positive relationship with women's empowerment.

The second hypothesis was also confirmed as a positive association between microcredit and WE

($\beta=0.203$, $t=3.771$, $LL=0.111$, $UL=0.282$, $P<0.05$). This showed that hypothesis 2 is supported. The results proved that by taking microcredit, investment makes women work independently for the progression of the business. This makes them gain empowerment.

Hypothesis 3: Women empowerment has a positive relationship with food security

The third hypothesis has also been supported as a positive relationship between WE and food security ($\beta=0.886$, $t=6.632$, $LL=0.867$, $UL=0.906$, $P<0.05$); thus, hypothesis 3 is supported. The most significant result of the research study as it proves WE to have a positive relationship with food security. Therefore, WE make women enjoy their share of assets and income and make their food secure.

Hypothesis 4: Women empowerment mediates the relationship between management skills, microcredit, and food security.

As shown in **Table 5** and **Figure 2**, bootstrapping analysis showed that the indirect effect ($\beta=0.278$) was found to be significant with a t-value of 6.58. Additionally, the 95% bootstrapped confidence interval for the indirect effect [$LL=0.213$, $UL=0.353$] did not contain 0, indicating that WE mediated the relationship between management skills, microcredit, and food security. The bootstrapping analysis showed that the indirect effect ($\beta=0.18$) was significant with a t-value of 3.65 as presented in **Table 4** and **Figure 2**. The indirect effect 95% Boot CI: [$LL=0.099$, $UL=0.261$] the interval does not include a zero between indicating there is mediation. For that reason, hypothesis 4 was supported. Therefore, it can be concluded from the above result that the availability of microcredit and management skills enhancement makes women empowered, which plays an integral role in providing food security.

Discussion

WE are being increasingly observed as a strategy for the enhancement of food security in the household (Galiè *et al.*, 2019). Various research have proved that income-earning women

are empowered and contribute to financial, economic, and social stability of their household which enjoys food security (Cabeza-García *et al.*, 2019, Duvendack and Mader, 2020, Ozili, 2021, Pal *et al.*, 2022). It corroborates with the results of the current research. Women having authority over their personal or household assets and income are more empowered and will acquire higher quality food and conserve the food for their personal and children's consumption (Baker *et al.*, 2023).

Table 3. Results of discriminant validity (HTMT ratio)

	MC	FS	WE	MS
MC				
FS	0.382			
WE	0.459	0.332		
MS	0.445	0.399	0.48	

HTMT: Heterotrait-Monotrait ratio; MC: Microfinance credit; FS: Food security, WE: Women empowerment; MS: Management skills.

From hypothesis H1, this study reflects that the improvement of management skills such as tailoring plans to effectively use the resources of financial, social, and human capital, implicates with the team, motivates them for accomplishing set goals in time and handling tasks under pressures, and empowers women entrepreneurs to continue in the struggling phase with high endeavor and come out of difficult situation successfully (Dwyer, 2019). The study revealed that women entrepreneurs running the business on a large scale were efficient managers as well as proficient people in handling any risky situation. They were running business ventures independently, for the last 5-10 years, so they vigilantly plan to use the available resources and maximize the return out of their human resources as well as finances. This made them more empowered as well where they could raise their voices for their food share and rights as well. The women who were operating small-scale businesses were not efficient enough to get the maximum out of their opportunities and take the risks. Although they were handling their finite resources effectively, they were hesitant to take risks and waste those resources if the plan of action went

unsuccessful. They always had a fear of losing their income and assets as they considered themselves to be less competent and skillful. These results were consistent with the studies done by various researchers (Digan *et al.*, 2019, Gupta, 2021, Kamberidou, 2020, Purnamawati and Utama, 2019). These women entrepreneurs should be supported to become a member of support groups suitable for them and attend leadership-qualities-enhancing training and seminars to improve their performance (Chong & Velez, 2020). In this era of modern technology, it is vital that women to be socially active and be in a partnership business with their family and friends to expand their business network (Gupta, 2020).

In the second hypothesis, H2, microcredit had a positive relationship with WE. Microcredit is a kind of finance that helps women by involving them in small businesses (Al-Amin and Mamun, 2022). Microfinance institutes (MFI) play a significant role in the enhancement of WE. The provision of microfinance reduces poverty among women and increases their economic and social well-being. This result was compatible with the research done by the researchers (Arshad *et al.*, 2021, Lamichhane, 2020, Niaz and Iqbal, 2019, Sinha *et al.*, 2023). It also permits women entrepreneurs to participate in the household's decision-making process which makes them empowered and enhances their food security. This research revealed that the power of decision-making makes women speak publicly and express their views, make an argument, organize and share their emotions and issues within their social groups, and attend women entrepreneur meetings, etc. Moreover, the participants of the study were of the view that their ability to bring about regular income out of their business activities with microcredit has lowered their dependency on male members of the family for money and food. They can now buy food of their choice for themselves and their family. This enhances their status in the family as well as in society and gives them a sense of empowerment. The women entrepreneurs who borrowed microcredit require financial and technical consultancies by the MFIs to expand

their business activities.

Hypothesis 3 proves a positive and significant relationship between WE and food security which is exactly similar to the results of some studies (Asadullah and Kambhampati, 2021, Aziz *et al.*, 2020, Essilfie *et al.*, 2021, Galiè *et al.*, 2019). The results of the quantitative study showed that women entrepreneurs had control over their income and assets and could procure and enjoy high-quality food security. Women invest a higher proportion of their earnings compared with men regarding their family's well-being, mainly in areas including child health, nutrition, and education.

The respondents of the current research were of the view that women's decision-making power increases in the household and in business; they can also spend their income on themselves, such as their health, giving gifts to their relatives, and going for shopping alone to buy things and food of their choice. They are enjoying considerable empowerment in decision-making over the management of their business, community leadership, asset ownership, or control over

income. In this study, there was a group of small women entrepreneurs who were lacking enough confidence to take risks in decision-making because of small investments done through microcredit. They were not trained enough to explore their way into the market and had a fear of failure. This was also confirmed in the studies by Akter (Akter *et al.*, 2017). Experienced women entrepreneurs can assist in crafting training for the new ones entering the market, and help policymakers understand customary systems from their viewpoint. Infrastructural and communication modifications need to be carried out to empower women and handle food insecurity issues. The government should devise a strong policy of equality of rights in access to financial and economic resources by women to improve their purchasing power to get their share of food. There is also an essential need to provide women entrepreneurs with access to and use of the latest means of communication technologies to stay updated. They can also, in this way, introduce themselves to foreign buyers and sell their products in local as well as international markets.

Table 4. Hypothesis path analysis.

Hypothesis		Beta	SE	t	P-value	LL	UL	Decision
H1	MS ->WE	0.314	0.046	6.821	0.000	0.239	0.392	Supported
H2	MC-> WE	0.203	0.054	3.771	0.001	0.111	0.282	Supported
H3	WE -> FS	0.886	0.012	6.632	0.000	0.867	0.906	Supported
H4	MS -> WE -> FS	0.278	0.042	6.587	0.000	0.213	0.353	Supported
H5	MC -> WE -> FS	0.18	0.049	3.654	0.000	0.099	0.261	Supported

SE: Standard error; *LL*: Lower limit; *UL*: Upper limit; *MC*: Microfinance credit; *FS*: Food security, *WE*: Women empowerment; *MS*: Management skills

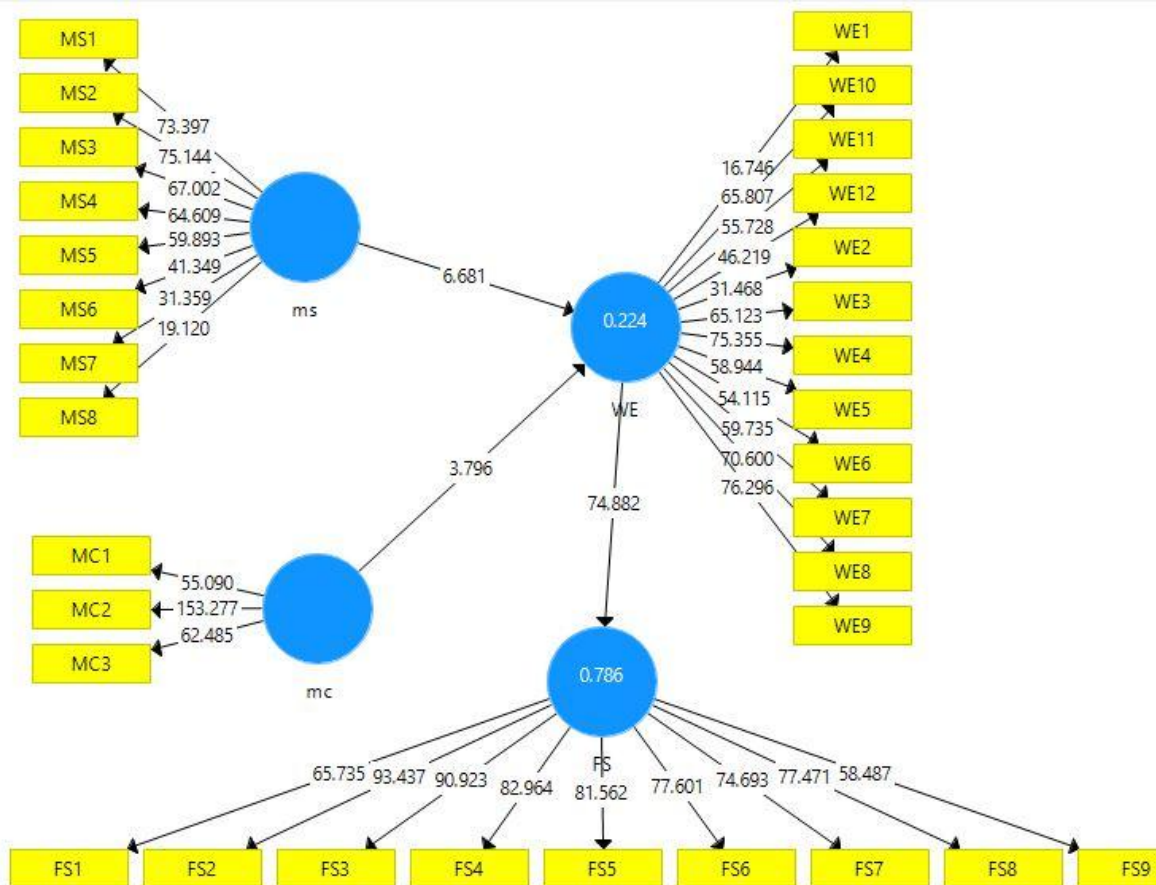


Figure 2. Hypothesis testing using structural modeling method.

The blue circles are variables; the yellow boxes are the items in the questionnaire. MS 1,2,3,4,5,6,7,8 are the 8 items related to management skills, MC 1,2,3, means the three items related to the microcredit in the questionnaire, FS 1,2,3,4,5,6,7,8,9 means the nine items related to food security in the questionnaire, WE 1,2,3,4,5,6,7,8,9,10,11,12 means the twelve items related to women empowerment in the questionnaire,

The results of H4 depict that WE mediates the relationship between management skills, microfinance, and food security which was also supported by some studies (Andriamahery and Qamruzzaman, 2022, Goodman *et al.*, 2022). The management skills of women entrepreneurs and investment of financial capital through microcredit make women empowered and increase their assets and income generation. This provides food security in the household, and the women can actively participate in household activities as well. The respondents of the current study were of the view that the enhancement of management skills and microcredit makes them set up their business ventures and alleviate their poverty. It gives them new opportunities for entrepreneurship and makes them empowered.

They participate in economic activities and become self-sufficient in income generation. This gives them an identity in the family and they have no insecurity regarding food. They can also have the food of their choice and even an equal share.

Women in Pakistan demand the government to allot funds for their developmental programs. Men and women with equal access to developmental programs are significant for national growth and progress, and the government in Pakistan has failed to allocate funds for women because of political issues. Moreover, financial, capital, and human resources are very limited and the distribution of the available resources is not done on an equal basis. The government can manage and allocate more budgets to women’s developmental programs by reducing its

expenditures from other sectors, such as government expenditures on politicians' protocol which can be reduced and utilized in women's development.

The present study also had certain limitations. In the current study, data were collected from specific areas of Lahore not from the major cities of Pakistan because of time limitations and financial constraints. Future studies can take samples of women entrepreneurs from major cities of Pakistan where there are many women entrepreneurship. This study was performed based on cross-sectional data and the results might differ if future researchers employ longitudinal data. This study observed the positive impact of women's empowerment on food security; future researchers can examine the moderating and mediating role of women's empowerment regarding happiness and finance.

Conclusion

Based on the results of the study, it can be concluded that the level of empowerment and food security for women entrepreneurs in the informal sector in Pakistan can be significantly improved by enhancing management skills and getting involved with MFI. It is strongly recommended that the government and NGOs should work in collaboration to address this empowerment with a better application of strategies such as providing training, education, and information for business setup and running and more funds for microfinance. All these plans can stimulate the level of empowerment of women and provide food security in a developing country.

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Conflict of interests

The authors declare that they have no conflict of interests.

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Author's contributions

Asif H was the sole contributor to the writing of the manuscript. Shahzad A has supervised all the work performed.

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