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Determinants of Women's Empowerment and Household Poverty Reduction in Imbulpe DS Division, Sri Lanka

Abstract. Women empowerment and poverty reduction are interrelated key driving forces to achieve the sustainable development of a country. However, most of the women farmers in rural areas have lack of access to adequate assets and resources, credit facilities and freedom of decision making within the households. Therefore, women empowerment is a timely important requirement to reduce the household poverty among them. This study was conducted to identify the determinants of empowerment of women farmers and also roles of them in reduction of poverty in Imbulpe Divisional Secretariat (DS) Division in Sri Lanka. In this study, 238 women farmers were selected using simple random sampling method, from purposively identified seven Grama Niladhari (GN) divisions in this area. Primary data was gathered from a field survey using a pre-tested, self-administered questionnaire from May to July 2019. Descriptive statistics and chi-square analysis were used as the statistical methods in data analyzing process. The result revealed that, age, education, monthly income of the respondents, economic resource accessibility, participation in decision making and freedom of mobility act as the determinants of empowerment of women farmers. The moderately significant positive nature of relationship was showed between the age of the women farmers and their role in poverty reduction. And also, the level of education, monthly income, economic resources accessibility of the respondents and participation of decision making within the household of the women farmers were showed moderately significant positive relationship with their role in poverty reduction. Therefore, encourage women farmers as rural entrepreneurs while performing their farming practices to earn additional income, enhance economic resource accessibility and motivate women farmers to express their ideas for enhance the active participation in the household decision making process are timely important requirements to empower women farmers and enhance their role in poverty reduction.

Key words: empowerment, poverty reduction, women farmers, Imbulpe, Sri Lanka

JEL Classification: Q1, Q19

Introduction

The term women empowerment can be explained as enhancing the freedom of decision making within the family, access to assets and resources, social participation, freedom of mobility and spending ability of women (Rathnachandra and Malkanthi., 2020; Rahman and Naoroze, 2007). Moreover, women empowerment consists of the power of decision making, accessibility to credit facilities, participation in awareness programs and trainings, power of speech, institutional participation, economic participation and freedom of mobility (Purnamawathi., 2019). Hence, women empowerment and poverty reduction are interconnected social phenomena for achieving the sustainable development in most of the developing countries (Weinstein., 2019; Jaka and Shava., 2018).

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Generally, gender difference effect for the use and accessibility of agricultural information sources (Godwin et al., 2018). Gender inequality is one of the prominent features of the most of developing countries (Altuzarra et al., 2021). Therefore, United Nations have identified the gender equity as one of the sustainable development goals. It reduces barriers towards getting agricultural knowledge by the women farmers (Rathnachandra & Malakanthi., 2020; Mojaki & Keregero., 2019; Malkanthi., 2016). In most of the developing countries, male counterparts have highly upgraded their capabilities in the level of education, accessibility to modern farming technologies as well as access to agricultural information (FAO, 2018). Because, women farmers have a very high level of social responsibility to perform in most of the household activities such as caring of family members, poor access to social networks and poor status in their monetary facilities than the male farmers. Hence, male farmers have an opportunity to obtain a satisfactory level of accessibility of agricultural information and participation in extension programs (Medagbe et al., 2020; Bahadurghartimagar, 2011). Therefore, women farmers are needed to be empowered in their capabilities to reduce the gender discrimination in developing countries (Rathnachandra and Malkanthi., 2020; Ibharhokanrhowa., 2016). Women empowerment and poverty reduction act as an important sustainable development goal for the majority of the developing nations around the globe (Khan et al., 2017). In addition to that, women empowerment has the optimum potential to reduce household poverty in rural areas of the country (Wei et al., 2021). Hence, determinants of empowerment of women farmers need to be identified to reduce household poverty in rural areas in most of the developing countries (Anderson et al., 2020).

Women who lived in rural areas, usually engaging in agricultural activities for up warding their livelihood status and also to reduce household poverty (Rathnachandra and Malkanthi, 2021). And also, women provide a significant contribution to uplift the rural economies by engaging agricultural and allied activities (Chandra, 2020). Thus, women empowerment is a timely important strategy to reduction of household poverty in rural areas (Jaka and Shava, 2018) and it support to enhance the rural livelihoods through the agricultural activities (Madan et al., 2020).

In Sub-Saharan African countries (SSA), most of the rural women provide their labor contribution for the agricultural production. In Kenya, gender inequality is the prominent feature and women farmers have limited accessibility to agricultural markets, land inheritance, credit access and access to other assets and resources. Thus, women farmers need to empower to overcome the issues associated with household poverty situations (Diiro et al., 2018).

When consider about the South Asian countries, the gender gap and poverty is becoming a most prominent feature (Manjula, 2021). For example, Bangladesh women farmers have poor level of social status and living standards. Most of the women in rural areas are noted as more disadvantageous group in the society due to inequality of economic participation. Hence, they are needed to be empowered in order to improve the livelihoods of them (Wei et al., 2021). An Innovative agricultural forum has created through group farming to empower rural women farmers in India. Because, majority of the rural women farmers are showing conspicuous involvement for the agricultural activities rather than the paid work due to domestic activities and family caring (Agarwal, 2021).

When consider the situation in Sri Lanka, about 14% proportion of women represent the economically active status within the rural sector (Madurawala., 2018; Annual labor force

Reports, 2017). And also, most of the women in rural areas are practicing agricultural activities than the service sector activities (Annual Labor Force Reports, 2017).

Imbulpe area is a hub of agriculture and allied activities and located in Sabaragamuwa Province of Sri Lanka. Furthermore, a considerable proportion of male counterparts are engaging in industrial sector and service sector as their livelihoods. Therefore, women are engaged in agriculture and allied activities. Women farmers have to perform domestic activities, caring of family members and also the farming activities in this area. Most of the women farmers in this area have been reduced their attempt for access to adequate assets and resources, credit facilities and freedom in decision making within the households. Hence, women farmers' have not adequate level of monthly income due lower level of paid work involvement and other entrepreneurial activities. Therefore, farm women empowerment is a potential strategy to overcome the issues associated with the household poverty in this area. This research aimed to identify the determinants of empowerment of women farmers and to assess the association of determinants of empowerment of women farmers with their role in poverty reduction of this area.

Research methodology

The study area of this study was Imbulpe DS division which is situated in Rathnapura district in Sabaragamuwa province of Sri Lanka. In this area, a considerable number of male counterparts have moved to urban areas for their employments. Even though, lot of farming practices are performing, male farmers' involvement is at a lower level. Majority of women are engaging in agricultural activities while performing domestic activities, caring family members and activities associated with the physical and mental well-being of them.

This DS division is administratively distributed into 50 Grama Niladhari (GN) divisions. Among them, seven GN divisions were purposively selected for the study. Namely; Halpe, Seelogama, Kinchigune, Puwakgahawela and Muttettuwegama, Imbulpe and Karagastalawa based on the random selection of women farmers who are registered under the Agrarian Service Center of the area. Then 238 women farmers were randomly selected from those seven GN divisions, as the sample. The pilot study was conducted to make-sure the eligibility of the further data collection process. Thereafter, primary data was gathered from a field survey using a pre-tested, self-administered questionnaire from May to July 2019. Descriptive statistics and chi-square analysis were used as the statistical methods in data analyzing. Descriptive statistics was used to identify the nature of socio-demographic factors of the respondents such as age, marital status, level of education, income, family size, ability to control their economic resources, freedom of decision making ability within the households and freedom of mobility. The determinants of empowerment of women farmers identified by using descriptive statistics. Ability to control their economic resources and participation in decision making within the households were assessed by taking relevant categories based on the identified distribution patterns as; husband, wife, both and others, according to the findings of the pre-testing of the study. And also, freedom of mobility was assessed using the necessity of the permission to go to the market place, friends and relatives houses outside the home village, Agrarian Service Center, the neighboring houses, capital city, other districts and religious places. Chi-square analysis was used to assess the association of socio-demographic factors and determinants of empowerment of women farmers with their role in poverty reduction within the study area. Selected socio-

demographic factors and other determinant factors of empowerment of women farmers were considered as the independent variables and women farmers' role in poverty reduction was used as the dependent variable of the study. Women farmers' role in poverty reduction was measured by using eight dimensions based on the studies of Moussa et al (2011) and Khan et al (2017), with necessary modifications according to the study area. Role in poverty reduction was assessed as categorical manner which are denoted by high (3), moderate (2) and low (1) for the further data analyzing process. Economic resource accessibility and participation in decision making within the households were categorized as high (3), moderate (2) and low (1) based on the study of Khan et al., 2017.

Results and discussion

Socio-demographic profile of the respondents

Descriptive statistics were used to analyze the selected socio-demographic factors of women farmers. Results are shown in table 1.

Table 1. Socio-demographic profile of respondents (n=238)

Factor	Category	Frequency	Percentage (%)
Age	20-39 Years	40	16.8
	40-59 Years	149	62.6
	> 60 Years	49	20.6
Marital status	Single	9	3.8
	Married	215	90.3
	Widowed	14	5.9
Educational level	No Primary education	8	3.4
	Primary education	68	28.6
	Junior secondary education (O/L)	153	64.3
	Senior secondary education (A/L)	9	3.8
Monthly income (LKR)	Less than 20,000	61	25.6
	20,001 – 40,000	156	65.5
	40,001 – 60,000	21	8.8
Number of family members	< 4	79	33.2
	4 – 5	128	53.8
	> 5	31	13.0

Source: Field survey March to July 2019.

Findings of table 1 revealed that, most of the respondents (62.6%) were in between 40-59 years of age. Therefore, we can see that most of them belong to the adult category and in economically active age range. And also, majority of the respondents (90.3%) married and 64.3% of them have studied up to secondary education (GCE Ordinary level). Moreover, 53.8% of the respondents have mentioned that there are 4-5 members within their families. Even though, 65.5% of respondents have earned LKR 20,001 – 40,000 as the monthly income, 25.6% of them have reported their monthly income is less than LKR 20,000. As this is a very lower level of average monthly income, significant level of poverty could be seen among them.

Determinants of empowerment of women farmers

Determinants of empowerment of women farmers were analyzed using distribution patterns of the economic resource accessibility of women farmers, distribution patterns of the participation in decision making within the family and freedom of mobility of the women farmers. More information of these determinants have been studies presented as follows.

Distribution patterns of the economic resource accessibility of women farmers

Distribution patterns of the economic resource accessibility were studied in detail by using eight dimensions. Findings are presented in table 2.

Table 2. Distribution patterns of the economic resource accessibility of women farmers

Dimension	Distribution patterns of the economic resource accessibility								Total	
	Husband		Wife		Both		Other			
	* f	%	f	%	f	%	f	%		
Ability to control day to day household expenses	90	37.8	60	25.2	82	34.4	6	02.5	238	
Ability to maintain bank savings	103	43.3	45	18.9	87	36.6	3	01.3	238	
Purchasing ability of necessary fancy items	60	25.2	55	23.1	58	24.4	65	27.3	238	
Ability to control valuable instruments and machinery	130	54.6	30	12.6	65	27.3	13	05.4	238	
Ability to maintain their lands and farm lands	135	56.7	24	10.1	63	26.5	16	06.7	238	
Ability to perform farm management and budgeting activities	106	44.5	57	23.9	68	28.6	7	02.9	238	
Purchasing ability of necessary farming inputs	72	30.2	93	39.1	56	23.5	17	07.1	238	
Ability to sale, exchange and repurchase of land/ livestock/ house	127	53.4	27	11.3	72	30.3	12	05.0	238	

* - f = frequency, % = percentage

Source: see table 1.

According to the findings of table 2, husbands have more accessibility or power regarding the maintenance of their home lands and farm lands (56.7%), to control valuable instruments and machinery (54.6%) and to sale, exchange and repurchase of land/ livestock/ house (53.4%) than the other dimensions. And also, when consider the other dimensions, purchasing ability of necessary farm inputs, ability to performing farm management and budgeting activities, ability to maintain bank savings and ability to control day to day household expenses were showed higher level of accessibility by husbands of the households. Moreover, husbands have considerably lower level accessibility obtained related to the purchasing ability of necessary fancy items. However, women farmers (wives) showed low level of overall accessibility regarding the above dimensions. And also, women farmers showed lowest level of accessibility for ability to manage their home lands and farm lands. Both women farmers and husbands contribute their efforts together to control the day to day household expenses and to maintain their bank savings. Other categories represent by the children, elders and parents of women farmers. Others have considerably higher level of purchasing ability over necessary fancy items.

Distribution patterns of the participation in decision making within the family

Distribution patterns of the participation in decision making were also assessed well. Day to day household expenses, agricultural production activities, selection and buying of agricultural inputs, marketing of agricultural products, family health issues, education of children, Selecting and using family planning methods, constructing and repairing of houses, celebration of social and religious events and giving loans to others are the selected ten dimensions which used to assess the women farmers' participation in decision making within their family. Findings are shown in table 3.

Table 3. Distribution patterns of the participation in decision making within the family

Dimension	Distribution patterns of the participation in decision making								Total	
	Husband		Wife		Both		Others			
	* f	%	f	%	f	%	f	%		
Day to day household expenses	88	36.9	68	28.6	76	31.9	6	02.5	238	
Agricultural production activities	69	28.9	76	31.9	84	35.3	9	03.8	238	
Buying and selection of agricultural inputs	76	31.9	57	23.9	94	39.5	11	04.6	238	
Marketing of agricultural products	135	56.7	26	10.9	73	30.7	4	01.7	238	
Family health issues	97	40.8	86	36.1	46	19.3	9	03.8	238	
Education of children	117	49.2	95	39.9	19	07.9	7	02.9	238	
Selecting and using family planning methods	127	53.4	56	23.5	52	21.8	3	01.3	238	
Constructing and repairing of houses	145	60.9	24	10.1	57	23.9	12	05.0	238	
Celebration of social and religious events	129	54.2	59	24.8	42	17.6	8	03.3	238	
Giving loans to others	132	55.5	26	10.9	76	31.9	4	01.6	238	

* - f = frequency, % = percentage. Source: see table 1.

As per the results of table 3, husbands have more power to take decisions regarding the marketing of agricultural products (56.7%), constructing and repairing of houses (60.9%), selecting and using family planning methods (53.4%), giving loans to others (55.5%) and celebration of social and religious events (54.2%) than the other dimensions. However, women farmers mentioned that they have low level of overall participation regarding the above dimensions. And also, women farmers showed lowest level of power of taking decisions about the constructing and repairing of houses. Both husbands and women farmers together involved for taking decisions for selection and buying of agricultural inputs while performing their agricultural production activities.

Freedom of mobility of the women farmers

Freedom of mobility of the women farmers was studied using seven dimensions. They are going to market place, friends and relatives houses outside the home village, agrarian service center, the neighboring houses, capital city, other districts and religious places. Results of them are presented in table 4.

Table 4. Freedom of mobility of the women farmers

Dimension	Freedom of mobility of the respondents								Total	
	Permission needed				Able to mobility					
	Yes		No		Yes		No			
	* f	%	f	%	f	%	f	%		
Market place	60	25.2	56	23.5	65	27.3	57	23.9	238	
Friends and relatives houses outside the home village	78	32.8	42	17.6	72	30.3	46	19.3	238	
Agrarian Service Center	45	18.9	69	28.9	75	31.5	49	20.6	238	
The neighboring houses	36	15.1	84	35.3	90	37.8	28	11.8	238	
Capital city	74	31.1	35	14.7	28	11.8	101	42.4	238	
Other districts	76	31.9	32	13.4	27	11.3	103	43.3	238	
Religious places	12	05.0	94	39.5	127	53.4	5	02.1	238	

* - f = frequency, % = percentage

Source: see table 1.

According to the findings of table 4, most of the women farmers needed permission to move capital city (31.1%), other districts (31.9%), friends and relative's houses outside the home village (32.8%) and market place (25.5%). Women farmers needed least level of permission when moving to the religious places (5%). However, majority of the respondents did not need permission to move to the neighboring houses (35.3%) and religious places (39.5%). And also, most of the women farmers have an ability to move to the religious places (53.4%), neighboring houses (37.8%), Agrarian Service Center (31.5%) and friends and relatives houses outside the home village (30.3%). Moreover, women farmers have least amount of mobility to the capital city (42.4%) and other districts (43.3%).

Women farmers' role in poverty reduction

Women farmers' role in poverty reduction was investigated with the support of eight dimensions such as, ability to earn considerable monthly income from the marketing of agricultural products, ability to use home garden products in meal preparation, ability to preserve excess home garden products for off season, ability to home garden medicine in simple health disorders, ability to share excess home garden products among neighbors, Ability to do day to day household expenses, ability obtain a own bank saving with a considerable deposited amount and ability to bear the household shocks by getting support from neighbor farm women. The relevant findings are presented in table 5.

Table 5. Women farmers' role in poverty reduction

Dimension	Role in poverty reduction					
	High		Moderate		Low	
	* f	%	f	%	f	%
Ability to earn considerable monthly income from the marketing of agricultural products	11	4.6	107	44.9	120	50.4
Ability to use home garden products in meal preparation	28	11.8	121	50.8	89	37.4
Ability to preserve excess home garden products for off season	13	5.5	119	50.0	106	44.9
Ability to use home garden medicine in simple health disorders	32	13.4	138	57.9	68	28.6
Ability to share excess home garden products among neighbors	78	32.8	136	57.1	24	10.1
Ability to do day to day household expenses	36	15.1	142	59.7	60	25.2
Ability to obtain a own bank saving with a considerable deposited amount	48	20.2	152	63.9	38	15.9
Ability to bear the household shocks by getting support from neighbor farm women	37	15.5	137	57.6	64	26.9

* - f = frequency, % = percentage

Source: see table 1.

Based on the results of the table 5, women farmers have a significant potential to enhance their role in poverty reduction by sharing excess home garden products among neighbors and having some level of monthly income from marketing of home garden products. Based on the calculated weighted average, while 35 women farmers have showed higher level of role in poverty reduction, only 71 respondents showed low level of ability in their role in poverty reduction. Moreover, 132 women farmers obtained in moderate status in their role in poverty reduction.

Impact of socio-demographic factors and women's role in poverty reduction

Testing Hypothesis

Hypotheses were formulated as follows.

- (H0a) There is no significant relationship between age of the women farmers and their role in poverty reduction.
- (H0b) There is no significant relationship between level of education of the women farmers and their role in poverty reduction.
- (H0c) There is no significant relationship between monthly income of the women farmers and their role in poverty reduction.
- (H0d) There is no significant relationship between economic resource accessibility of the women farmers and their role in poverty reduction.
- (H0e) There is no significant relationship between participation in decision making of the women farmers and their role in poverty reduction.

Relationship between socio-demographic factors and their role in poverty reduction were identified by using the descriptive analysis and chi-square analysis. Selected socio-demographic factors were taken as the independent variables and role in poverty reduction was used as the dependent variable of the study. The results are shown in table 6.

Table 6. Relationship between selected socio-demographic factors and their role in poverty reduction

Factor	Category	Their role in poverty reduction					
		High		Moderate		Low	
		* f	%	f	%	F	%
Age	20-39 Years	26	10.9	11	04.6	03	01.3
	40-59 Years	87	36.6	53	22.2	09	03.8
	> 60 Years	08	03.3	22	09.2	19	07.9
	Chi-square = 48.07 Gamma value = 0.451			df = 4		p value = 0.00	
Educational level	No Primary education	1	0.42	2	00.8	5	02.1
	Primary education	5	02.1	26	10.9	37	15.5
	Junior secondary education (O/L)	62	26.1	69	28.9	22	09.2
	Senior secondary education (A/L)	4	01.7	3	01.3	2	00.8
	Chi-square = 50.72 Gamma value = 0.64			df = 6		p value = 0.00	
	Less than 20,000	13	05.5	22	09.2	26	10.9
Monthly income (LKR)	20,001 - 40,000	88	36.9	62	26.1	6	02.5
	40,001 - 60,000	12	05.0	7	02.9	2	00.8
	Chi-square = 58.65 Gamma value = 0.56			df = 4		p value = 0.00	

* - f = frequency, % = percentage

Source: Authors' own calculations.

As per the results of table 6, women farmers in 40-59 years age range were showed higher role in their poverty reduction. However, respondents who were below 60 year age range, shows moderate and lower role in their poverty reduction. Its gamma value is 0.451 and p value is less than 0.05 confidence level. Therefore, (H0a) null hypothesis was rejected and it is clear that there is a moderately significant positive relationship between the age of the respondents and their role in poverty reduction.

Respondents who have educated up to secondary level have shown a higher role in their poverty reduction. However, when the respondents have educated up to primary education, lower level of role in poverty reduction could be seen. The gamma value is 0.64 and p value is less than 0.05 confidence level. Therefore, H0b was rejected. Thus there is a moderately significant positive relationship between the level of education of the respondents and their role in poverty reduction.

Women farmers who have earned more than LKR 20,000 of monthly income showed higher role in their poverty reduction, while respondents who obtained monthly income below LKR 20,000 of monthly income, shows lower level of role in their poverty reduction. Gamma value is 0.56 and p value is less than 0.05 confidence level. Thus, the figure confirmed moderately significant positive relationship between the monthly income of the respondents and their role in poverty reduction.

Factors affecting for poverty reduction of women farmers

In this context, a few important aspects: economic resource accessibility of women farmers and their role in poverty reduction and women farmers' participation in decision making within the household and their role in poverty reduction were analyzed in detail.

Economic resource accessibility of women farmers and their role in poverty reduction

The relationship between economic resource accessibility and their role in poverty reduction was assessed by using chi-square analysis. Economic resource accessibility was taken as the independent variable and women's role in poverty reduction was used as the dependent variable. The independent variable was studied in detail by using eight dimensions as, ability to control day to day household expenses, ability to maintain bank savings, purchasing ability of necessary fancy items, ability to control valuable instruments and machinery, ability to maintain their lands and farm lands, ability to performing farm management and budgeting activities, purchasing ability of necessary farming inputs and ability to sale, exchange and repurchase of land/ livestock/ house. Also, the dependent variable was investigated with the support of eight dimensions as, ability to earn considerable monthly income from the marketing of agricultural products, ability to use home garden products in meal preparation, ability to preserve excess home garden products for off season, ability to home garden medicine in simple health disorders, ability to share excess home garden products among neighbors, ability to do day to day household expenses, ability obtain a own bank saving with a considerable deposited amount and ability to bear the household shocks by getting support from neighbor farm women. The findings are presented in table 7 and 8.

Table 7. Chi-square analysis of the economic resource accessibility of women farmers and their role in poverty reduction

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	31.480 ^a	2	.000
Likelihood Ratio	47.010	2	.000
Linear-by-Linear Association	25.034	1	.000
N of Valid Cases	238		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.38.

Source: Authors' own calculations.

Table 8. Symmetric measures of the economic resource accessibility of women farmers and their role in poverty reduction

Symmetric Measures				
	Value	Asymptotic Standardized Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	.683	.071	6.436	.000
N of Valid Cases	238			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Source: Authors' own calculations.

According to the results of the table 7 and 8, gamma value is 0.68 and p value is less than 0.05 confidence level. Therefore, (H0d) null hypothesis was rejected.

The findings indicate a moderately significant positive relationship between the economic resources accessibility of the respondents and their role in poverty reduction.

Women farmers' participation in decision making within the household and their role in poverty reduction

The relationship between women farmers' participation in decision making within the household and their role in poverty reduction was assessed by using chi-square analysis. Women farmers' participation in decision making within the household were taken as the independent variable and role in poverty reduction was used as the dependent variable. while independent variable was measured using ten dimensions, dependent variable was assessed using eight dimensions that are shown in table 5. The results are presented in table 9 and 10.

Table 9. Chi-square analysis of the women farmers' participation in decision making within the household and their role in poverty reduction

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	93.590 ^a	2	.000
Likelihood Ratio	120.398	2	.000
Linear-by-Linear Association	33.277	1	.000
N of Valid Cases	238		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 15.74.

Source: Authors' own calculations.

Table 10. Symmetric measures of the women farmers' participation in decision making within the household and their role in poverty reduction

Symmetric Measures				
	Value	Asymptotic Standardized Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Gamma	.589	.081	6.702
N of Valid Cases	238			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Source: own Authors' calculations.

According to the results of the table 9 and 10, gamma value is 0.59 and p value is less than 0.05 confidence level. Therefore, H0e was rejected. The results indicate a moderately positive significant relationship between the women farmers' participation of decision making within the household and their role in poverty reduction.

Based on the study of Khan et al (2017), age of the respondents and participation in decision making within the household have showed a moderate positive relationship with the women's role in poverty reduction. However, educational level of the respondents has shown a moderately significant positive relationship with their role in poverty reduction. Based on the findings of the Nadim & Nurlukman (2017), education, monthly income, institutional participation and participation in training programs by women farmers have caused to increase the women's role in household poverty reduction.

According to the findings of the Wei et al., (2021), education, husband's level of education, monthly income, access to assets and resources, inheritance property rights and decision making ability of women farmers have shown a significant contribution to enhance the women's role in household poverty reduction.

Moreover, credit accessibility, decision making ability and technology adoption of women farmers have reported a positive and significant association with the women's role in household poverty reduction (Meinzen-Dick et al., 2019).

Also, decision making ability, resource accessibility, level of education and monthly income have shown a positive association between women's role in poverty reduction (Sell and Minot, 2018).

Conclusions

According to the findings of the study, majority of the women farmers are in middle age, married and studied up to secondary education. Women farmers show lower level of accessibility regarding maintaining their home lands and farm lands and higher level of accessibility regarding the purchasing of necessary farming inputs. Both women farmers and husbands contribute their efforts together to control the day to day household expenses and to maintain their bank savings.

Women farmers obtain higher level of participation regarding the decisions associated with the education of children and lowest level of power obtain when taking decisions about the constructing and repairing of houses.

Most of the women farmers need permission to move capital city, other districts, friends and relatives houses outside the home village and market places. Women farmers need least level of permission when moving into the religious places.

Age, education, monthly income, participation in decision making, economic resources accessibility and freedom of mobility of women farmers act as the determinants of women empowerment.

The relationship between the age of the women farmers and their role in poverty reduction shows moderately significant positive one. And also, the level of education of the respondents and also monthly income of the women farmers were showed moderately significant positive relationships with their role in poverty reduction. Moreover, the findings discovered a moderately significant positive relationship between the economic resources accessibility of the respondents and participation of decision making within the household with their role in poverty reduction.

Recommendations

Based on the conclusions of the study, following recommendations can be drawn.

- Encourage women farmers to participate in workshops and training programs regarding empowerment and enhance their role further more in poverty reduction.
- Enhance economic resource accessibility of women farmers to reduce household poverty of them.
- Establish awareness programs about the farm equipment handling, way of accessibility of quality farming inputs and farm management to enrich the capacity of women farmers and empower them.
- Develop women farmers as rural entrepreneurs to perform well in their farming activities to earn additional income.

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