

Roles of women in agriculture: A case study of rural Lahore, Pakistan

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Key Message Women of rural Lahore are actively involved in agriculture, mainly in post harvesting and livestock management practices. They are facing problems due to lack of education, resources and financial services.

ABSTRACT In rural areas of Pakistan, the role of women in agriculture is more pronounced because they contribute a lot to agriculture, but their contribution in agriculture is not acknowledged. The present study was designed in rural union councils of three towns of Lahore, Pakistan namely Nishatar Town, Iqbal Town and Wahga Town. A questionnaire was designed to collect the data from rural women (n=207). Results reveals that a majority of women (42.02%) started the work at 29 to 39 years of age and mostly (86.95%) they were illiterate. A majority of the respondents (81.64%) were getting agricultural information from their own family members, and 56.52% rural women worked 8-10 hours per day. During this study, it was also found that wheat and rice were the major crops sown by all the respondents (100%). Out of all the pre-harvesting activities, 94.2% positive responses were recorded against seed bed preparation. A majority of rural women (85.02, 88.88 and 95.65%) were involved in shed cleaning, dung collection and fodder cutting, respectively. Thirty-one percent of rural women reported that limited agricultural product was the main cause for not being involved in agricultural marketing. Among the problems of household activities, 43.5% rural women reported that husband wife conflicts were the major problem in their life. Need assessment analysis reveals that rural women presented the highest need of trainings (85.5%) to improve their role in agricultural activities. This study suggests that concerted efforts of government and non-government agencies are required to uplift these rural women.

Keywords: Agriculture, Empowerment, Rural constraints, Role of women

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INTRODUCTION

Population is growing at a high speed in Pakistan, and a majority of the population is involved directly or indirectly with agriculture to generate their income (Butt et al., 2010). This sector is playing a key role in reducing poverty and acts as a source of growth in the countries where it is a main source of livelihood for the poor (Food and Agriculture Organization [FAO], 2011a; Cervantes-Godoy & Dewbre, 2010). It provides raw materials to industries and also serves as a market of its product thereby it contributes a lot to the national income (Begum & Yasmeen, 2011). It has several linkages with other non-farm rural activities and hence results in employment generation and income earning opportunities (Fatima, 2012). Both men and women play an important role in this sector. But in rural areas the role of women in agriculture is more pronounced and the most of the agricultural activities revolve around them (Begum & Yasmeen, 2011). In a previous research study by Luqman et al. (2006), it has been reported that women account 36.7% labour force of agriculture in the developed countries, while 43.6% labour force in underdeveloped countries. It has been estimated that more than fifty percent of the world food production has been done by women. Due to their vital role in the huge world food production, women are considered as the sources of knowledge for cultivating, processing as well as preserving of locally adapted nutritious crop varieties. Due to having such

type of knowledge, women may be recognized as the innovation leaders for sustainable development in agriculture (Chung, 2012).

The role of women in agricultural sector cannot be denied. They actively participate in the major field crops production and their intensity of participation is directly linked with their age, social class as well as the type of crop to be cultivated. The rural women work almost 12 to 15 hours a day. During sowing and harvesting of farming system, they look too busy to perform their duties honestly. For the production of wheat, cotton and vegetables, their participation is higher than that of other crops cultivation. A tremendous labour is required to perform various activities of cotton production and this type of labour is provided by the feminization in agriculture sector (FAO, 2015).

The women farmers work very hard. They perform a number of tasks, and remain busy from dawn to dusk (Nazir et al., 2013). Their activities typically include the production of agricultural crops, earning wages through agriculture and other rural business, participating in agricultural marketing as well as maintaining their homes. In economic point of view, most of these activities are not considered as active employment in national records but in actual figure, they are crucial for the welfare of rural households (FAO, 2011b). Batool et al. (2014) conducted a research study on the participatory role of women in dairy farm operations for smallholder system in Punjab-Pakistan and reported that women also take part in animal husbandry especially grazing, fodder cutting, feeding, transportation, milking, butter preparation and preservation, as well as cleanliness of livestock sheds. Besides these activities, women also play a crucial role in general health care, preparation of milk products and the marketing of these products (Ahmad, 2001).

Rural women contribute a lot to agriculture but their contribution in agriculture is not appreciated. Unfortunately, despite their wealth of knowledge and capability, they are ignored by policy makers, often not being acknowledged as "productive" farmers. Their farm work is often unpaid or under-valued and they tend to be debarred from decision-making (Ogunlela & Mukhtar, 2009). They are negatively affected by traditional pattern and economic policies (Amin et al., 2009a). They face more constraints than that of men. They have neither ownership nor control over resources. They are expected to give up their rights in favour of brothers or husbands (Pesticide Action Network UK, 2009). They are denied of their basic rights such as owning property, access to the health cares, getting education, securing bank credits and becoming a part of technology transfer. They are underprivileged to avail the opportunities of socio-economic development. They have lesser access to extension services, technology as well as trainings relative to their male counterparts (Nosheen et al., 2008).

The present study has been designed to highlight the enormous roles of the rural women in agriculture, determine the causes for women participation in agricultural activities, investigate different constraints faced and explore different factors which determine their empowerment. The study would help to bring hidden talents of rural women and would be valuable for the policy makers to formulate future policy guidelines for rural as well as agricultural development. We believe that no such type of study has been conducted in rural Lahore, Pakistan. So the findings of this study would constitute a significant addition to the existing literature.

METHODOLOGY

The study was conducted in rural union councils of three towns of Lahore namely Nishatar Town, Iqbal Town and Wahga Town. The reasons for selecting three towns were time and resources constraints. It was not possible for researcher to include all the rural union councils in given time and resources. At first stage, the simple random sampling technique was used to select nine rural union councils from these three towns through lottery method. At the second stage, the researcher made an effort to distribute 500 questionnaires. The reason for selecting a sample size of 500 for this study was made following (Sekaran and Bougie, 2010) who suggested that the sample size larger than 30 and less than 500 are appropriate for the most research works. The researcher collected the data herself at weekends and mostly in the absence of male households so that they could not influence the respondents. It was very difficult for researchers to collect data as the most of the respondents were illiterate, unable to understand the meaning and context of the questions. Therefore, face to face explanation of the questions was made possible by the researchers. It took three months to complete this extensive phase of data collection and 207 questionnaires were filled from all the selected rural union councils with return rate of 41.4%. The reasons for this low return rate lie behind the

religious values of our society, as well as cultural complexities in this kind of environment. Therefore, the contact with female household individually was very difficult and prohibited. Being a female researcher, I tried with my best to approach women but faced a lot of restrictions. At the last stage, the collected data was analyzed employing Statistical Package for Social Sciences (SPSS) software version 17.0 and both descriptive and inferential statistics were used to obtain the best results.

RESULTS

This study was conducted for the purpose of identifying the role of women in agriculture. For it, women role in rural areas of Lahore, Pakistan was interpreted for crop production and livestock management. Subsequently, the relation of these activities was assessed with household.

Selected characteristics of the rural women

The role of women in agriculture is considered as supporting seraphim in many societies of the world. The women start working in early age as compared to men. In present study, various demographic characteristics including age, educational status, sources of information, reasons for performing agricultural activities and working hours of the respondents were considered. The data regarding demographic characteristics of the respondents have been reported in table 1. Age is a key factor in adoption of an innovation and it has positive or negative impact on individual behavior (Siddiqui et al., 2003). Table 1 shows that a majority of women (42.02%) started the work at 29 to 39 years of age followed by the women (28.5%) who started the work at 18-28 years of age. The most of the women in the study area were illiterate (86.95%), while the educational status of 10.14% respondents was primary, 0.96% and 1.93% respondents were literate up to middle and matric level, respectively. No government or private organization was working in those areas for the rights of women farmers nor do they have information about such agencies. They were just working on their own as the major sources of occupational training and information. An overwhelming majority of the respondents (81.64%) were getting agricultural information from their own family members followed by the respondents (18.35%) that were securing agricultural information from their friends (Table 1). Table 1 also shows that a majority of women (63.76%) started this work to support their families economically. 20.77% of the respondents reported that they started agricultural activities due to family profession, and 11.59% women adapted this profession because no other work was available. However, only 3.9% of the respondents started the profession of agriculture because of personal interest. The data shows that a majority of the women were doing this kind of job only to support their families and they showed little interest in this profession. The study indicated that the most of the respondents were working for long hours in the fields. A majority of the women (56.52%) worked 8-10 hours per day followed by women (19.8 and 16.42%) who worked 11-13 hours and 5-7 hours a day, respectively. Only 7.24% women worked 2-4 hours per day. However, the average working hours of the respondents were calculated as 9 hours per day (Table 1). Hence, age of the respondents, education status, sources of information, reasons for performing the agricultural activities and working hours of the respondents show a mutual relationship with each other.

Crops sowing in study area

Table 2 reported the crops sown by the respondents in the research area and it is clear from the table that wheat and rice were the major crops sown by all the respondents (100%). It also shows that 74.87% respondents were cultivating vegetables in their fields followed by the respondents (84.54%) who were cultivating folder crops in their fields.

Role of rural women in agricultural activities

Women are dynamic worker not only in farms and fields but they also accomplish such activities as enhancements of agricultural productivity e.g. seed bed preparation, weeding, harvesting threshing, grain cleaning, food storage, cottage industry etc. Jamali (2009) reported that Pakistani rural women are not only involved in household accomplishments but also involved in rural socio-economic activities by adapting services of crop production, cotton industry and livestock management.

Table 3 describes the role of women in two different agricultural activities such as crop production and livestock management. However, out of all the pre-harvesting activities 94.2% positive responses were recorded against seed bed preparation and 47.82% against weeding. While all other activities were related to post-harvesting wherein all the 100% respondents showed positive responses for harvesting, 74.39% for picking of fruits, 74.39% for winnowing, 74.39% for drying and 100% for cleaning to transfer the agricultural produce to the market. Similarly, 85.02% women said that they were employing in making bundles and storing the harvested crops, respectively (Fig. 1). But all of the women said that threshing activities were performed by men.

The data presented in table 3 also shows the role of women in livestock management. It is clear from the table that the women did not perform the livestock activities such as grazing and bathing. A majority of rural women (85.02, 88.88 and 95.65%) were involved in shed cleaning, dung collection and fodder cutting, respectively. More than two-third (84.05%) of them were found to be involved in milking, yogurt preparation, and milk and yogurt storage, respectively. 79.71% women were seen to be involved in shed building. Regarding the ghee making activities of livestock management, 76.32% women were involved to prepare ghee. More than half women (52.65 and 67.63%) were performing the activities of dung cake making and providing the food and water to livestock, respectively (Fig. 1). Hence, the role of women in both crops and livestock activities was found to be higher than that of men in the study area.

Problems faced by rural women

Women contribution is measured to be lower in a country not because of their least possible involvement than that of men but because their involvement goes unacknowledged, unrecorded and unrecognized. In fact, they are mainly accountable for pre-cultivating and post-harvesting operations of food crops compulsory for household livelihood and their struggle goes unrecognized and unpaid (Government of Pakistan [GOP], 2014). Table 4 reports the problems faced by the rural women regarding agriculture marketing. There were four main causes recognized by rural women for problems in agricultural marketing (Table 4). Thirty-one percent of rural women reported that limited agricultural product is the main cause for not being involved in agricultural marketing. Thirty percent of rural women described that family opposition is the primary cause of limited role of women in agricultural marketing. Twenty-four percent of rural women reported that due to lack of transportation, they didn't participate in agricultural marketing. The remaining 13.3% of rural women mentioned that limited business and negotiation skills created problems that obstructed their participation in agricultural marketing. The problems faced by rural women in their household activities have also been reported in table 4. From the table, it is clear that 43.5% rural women reported that husband wife conflicts is the major problem in their life, while 36.6% mentioned the conflicts with in-laws. It was followed by the rural women (14.8%) who described that domestic violence is the major problem of households. The remaining 4.9% revealed that parents-children conflicts are the major problems in their life.

Need assessment of rural women

The need assessment highlights the suggestions of working women in order to improve their working and living conditions. The respondents were asked to select from a pre-prepared list of suggestions for their empowerment in agricultural activities to boost up their living standard. The suggestions were then graded according to the responses of the participants, and are presented in table 5. The table shows the needs of respondents in the form of percentages and the highest rankings are considered the most important need of the rural women. Analysis of need assessment reveals that rural women presented the highest need of trainings (85.5%) to improve their role in agricultural activities. While rural women play an essential role in agricultural production, thereby awareness should be created among rural women about the modern agricultural technologies which mean to educate them about these innovations. More or less 167 respondents (80%) expressed a need for awareness about modern agricultural technologies. This indicates that they have more space to increase the agricultural production by availing innovative information about agriculture. The main problem that rural women face in performing the agricultural activities is the lack of credit facilities. The microcredit programs should be arranged to promote the access of rural women to the micro credit and other financial services with subsidized loans or interest-free loans so that they actively participate in agricultural activities and may enhance the agricultural productivity. During this study, more than half of the

respondents (70%) expressed the need of micro credits and other financial services. The basic concept of market is any type of structure that permits the buyers and sellers to interchange any type of information, goods and services. The women are efficient decision makers and they show quick response to demands and supplies of the markets (Malik et al., 2015). A perusal of the table 5 reveals that more than half of the respondents (63.3%) considered that rural women should be given access to the markets. Information is an essential ingredient of integrated rural development that strengthens the link among various social groups to develop together as a well-organized society. The mass media such as TV, radio and newspapers is indispensable for disseminating information and educating the rural women (Lane, 2007). During this study, 59.4% respondents suggested that role of rural women should be highlighted through TV, radio and newspapers which will be helpful in the motivation of women to be actively participated in agricultural activities.

Table 1 Selected characteristics of the respondents

Selected characteristics	Frequency	Percentage
Age		
18-28	59	28.50
29-39	87	42.02
40-50	46	22.22
51-61	15	7.24
Educational status		
Illiterate	180	86.95
Primary	21	10.14
Middle	2	0.96
Matriculation	4	1.93
Sources of information		
Family	169	81.64
Friends	38	18.35
Reasons for performing the agricultural activities		
Family profession	43	20.77
Personal interest	8	3.86
Supporting the family economically	132	63.76
No availability of any other work	24	11.59
Working hours of the respondents		
2-4	15	7.24
5-7	34	16.42
8-10	117	56.52
11-13	41	19.80

Table 2 Description of the crops sown by the respondents

Crops	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Wheat	207	100	0	0.00
Rice	207	100	0	0.00
Vegetables	155	74.87	52	25.12
Fodder	175	84.54	32	15.45

Table 3 Description of the role of women in agricultural activities

Activities	Yes		No	
	Frequency	%	Frequency	%
Crop production activities				
Seed bed preparation	195	94.2	12	5.79
Weeding	99	47.82	108	52.17
Harvesting	207	100	0	0.00
Picking of fruits	154	74.39	53	25.6
Threshing	0	0.00	207	100
Winnowing	154	74.39	53	25.6
Drying	154	74.39	53	25.6
Cleaning	207	100	0	0.00
Making bundles	176	85.02	31	14.97
Storing	176	85.02	31	14.97
Livestock management activities				
Fodder cutting	198	95.65	9	4.34
Feeding	140	67.63	67	32.36
Watering	140	67.63	67	32.36
Shed cleaning	176	85.02	31	14.97
Shed building	165	79.71	42	20.28
Grazing	0	0.00	207	100
Bathing	0	0.00	207	100
Dung collection	184	88.88	23	11.11
Dung cake making	109	52.65	98	47.34
Milking	174	84.05	33	15.94
Yogurt preparation	174	84.05	33	15.94
Ghee making	158	76.32	49	23.67
Milk and yogurt storage	174	84.05	33	15.94

Table 4 Distribution of the respondents according to their problems faced in agricultural and household activities

Problems faced by rural women	Frequency	Percentage
In agricultural marketing		
Lack of transportation	24	24.5
Limited business and negotiation skills	13	13.3
Family opposition	30	30.6
Limited product	31	31.6
In household activities		
Husband wife conflicts	44	43.5
Parent children conflicts	5	4.9
Conflicts with in-laws	37	36.6
Domestic violence	15	14.8

Table 5 Description of the suggestions for empowerment of the rural women

Suggestions	Yes		No	
	Frequency	%	Frequency	%
Role of rural women should be highlighted through TV, radio and newspapers	123	59.4	84	40.6
Awareness should be created among rural women about the modern agricultural technologies	167	80	40	19
Rural women should be given access to the markets	131	63.3	76	36.7
Micro credits and other financial services should be provided to the rural women	145	70	62	30
Trainings should be arranged for rural women	177	85.5	30	14.5

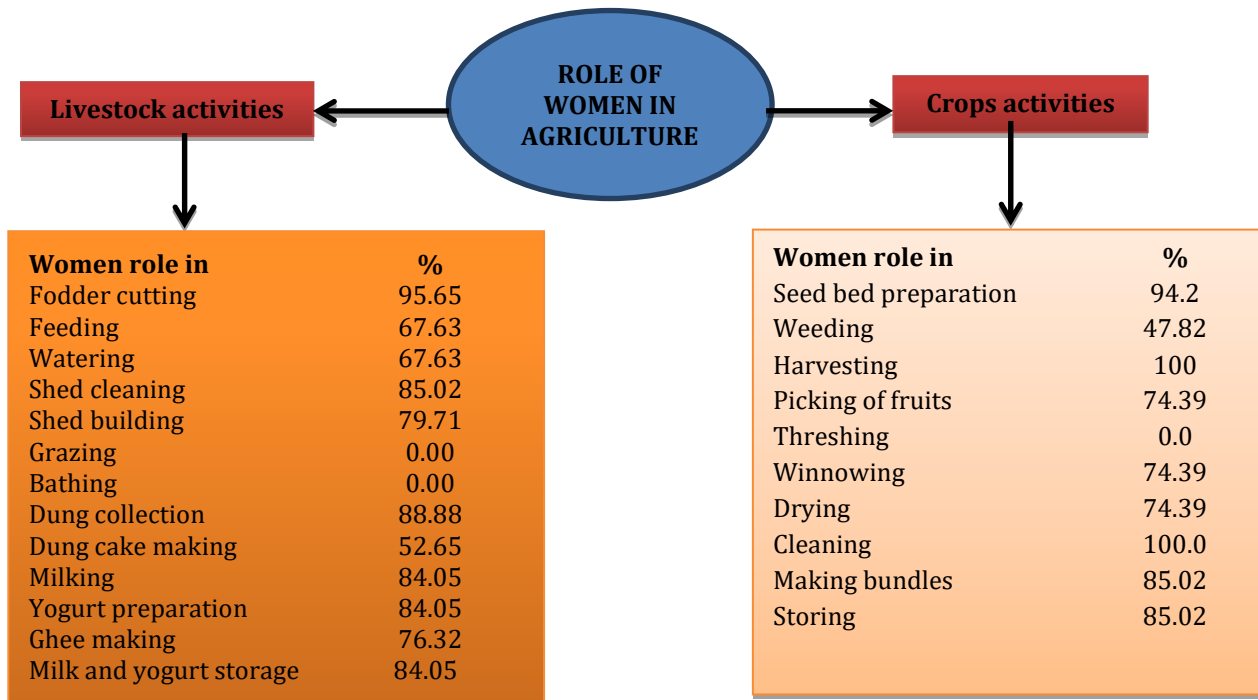


Fig. 1 Role of women in agricultural activities

DISCUSSION

Women carry out almost all the domestic work on the top priorities and their roles in outdoor productive activities are inevitable. This implies that women work very hard, but their work is invisible and unfortunately unpaid (Prakash, 2003). Our research study reveals that a majority of the respondents belonged to the low income groups and illiterate. They reported that they could not get education due to the lack of resources and even they were not able to send their children to schools due to poverty. In order to combat with the lack of resources/poverty, they were trying very hard. Our findings are supported by the findings of Nosheen et al. (2008) who conducted a study in Chakwal district, Pakistan to explore the gender role in decision making of agriculture. Their study reveals that 60.1% women were involved in management activities of livestock and they were also engaged with other agricultural activities including poultry husbandry, animal production and crop production and their share was 26.5%, 28% and 58.5% in poultry husbandry, animal production and crop production, respectively. They were in argument that 72% women were illiterate and their efforts were not appreciated in spite of putting equal efforts for farming activities.

Consistent to our findings, Iftikhar (2010) conducted a study on the involvement of rural women in agriculture sector in district Bahawalpur, Pakistan and found that though those rural women were having strong participation in farm and household activities yet majority of them (54%) were illiterate having little access to the basic infrastructure. A majority of the respondents i.e. 98% reported that they were receiving low income and they were facing a lot of problems due to want of technical experience, resources, technical guidance as well as agricultural information. They lost their life time opportunities of education, security and nutrition due to their diverse preoccupations. They are underdeveloped with respect to crop production and livestock management owing to lack of skills improving trainings causing low crop yields and inferior quality of the produce. Therefore, training and education in crop production, poultry production, fruit drying and livestock management should be arranged in spite of sociological constraints.

Our study found that women were playing a significant role in agriculture and were undertaking a number of activities in farming as well as in livestock such as sowing, weeding, harvesting, picking of fruits, drying, cleaning, winnowing, making bundles & storing and fodder cutting, feeding, watering, milking, building and cleaning sheds, dung collection, making dung cakes, yogurt & ghee making and storage. However, it was noticed that the women were mostly involved in post-harvesting, home activities and livestock management. These findings are in accordance with Hassan (2008) who carried out a study in district Muzaffargarh, Pakistan and concluded that both men and women were performing the activities of crop production except land preparation, fertilizer application, wheat threshing and fruit packing where only male respondents were actively involved. It was found that no woman was utilizing Extension Wing of Agriculture Department, private agencies and pesticide dealers as a source of information.

Congruous to our findings, Ali (2002) conducted a study on “women laborers in the fields of paddy” in tehsil Kamonki, district Gujranwala which revealed that important tasks like land preparation, water management, irrigation and fertilization were done by men, while women were involved in other activities of crop production. The work of males was more acknowledged than that of females by the family. In case of working hours, wages, decision making and availability of facilities, the females were facing discrimination. Our findings were also similar with that of Amin et al. (2009b) who attempted to recognize the women role regarding the post-harvest activities in the rural area of tehsil Faisalabad-Pakistan. They reported that post harvesting was done by rural women. The role of rural women was too important in performing various operations of post-harvesting such as drying, storing and cleaning of grains.

Our findings were in agreement with the previous research study by Khan et al. (2012) who assessed the role of women in agricultural activities in district Peshawar-Pakistan and found that women of the study area were actively participating in agricultural practices and spending a lot of time in performing post-harvesting operations. The major problems that women encountered during the operations of agricultural activities were the lack of extension services and trainings, financial and cultural constraints. Nazir et al. (2013) conducted a study in district Nankana Sahib and reported that rural women were actively participating in various agricultural activities such as sowing, harvesting and picking but facing a lot of problems during these activities.

Our findings indicate that most of the respondents were not involved in agricultural marketing. The reasons behind this fact include family opposition, limited business and negotiation skills, lack of transportation and limited product. It clearly indicated that the women of the study area were bound by cultural traditions and did not have the capacities and skills for marketing. These results are in accordance with the previous research study of Begum and Yasmeen (2011); International Centre for Research on Women (2012). Our findings clearly demonstrated that the most of the respondents were working for long hours in the fields as well as they were managing their households performing a number of duties such as cooking, washing, mopping, child care, fuel fetching, shopping of household necessities. All this shows that they are losing their opportunity of getting education, nutrition, leisure time and security due to their diverse preoccupations. These findings are supported by the findings of Prakash (2003), Iftikhar (2010); FAO (2011b).

This study also shows that there were no training opportunities for the women, no credit facilities and moreover, their sources of information were only the families and friends. A similar type of study was conducted by Haq (2007) in district Multan-Pakistan and indicated that the literacy rate of cotton growers was 76%, while the literacy rate of cotton pickers (women) was only 27%. As far as information sources for cotton pickers are concerned, the most of them used their female's friendships for gaining awareness about pesticides and related issues. They also benefited from neighborhoods and various relations for the same purpose. Neither any government or private organization was working in those areas for the rights of women farmers nor did they have any information about such agencies. Women are considered inferior to men as a large flock reported that they were paid less as compared to men, did not have the right to property/landownership, did not have the right to decision making and even in most cases were not allowed to run the home budget. These results are in line with the results of FAO (2011b); Nkhonjera (2011).

Coherent with our findings, Afzal et al. (2009) attempted to identify the factors hampering women empowerment in decision making and extension work. Their study was confined to district Okara, Punjab, Pakistan and the results showed that a vast majority of women were illiterate, having small land farms and monthly family income less than Rs. 100,000 and living in joint family system. A large proportion of the respondents reported that they had to face problems and constraints in accessing agricultural extension services in the context of social, economic, cultural, and political issues and were having very low participation in decision making processes. Extension services were limited to men because of different reasons; first insufficient agricultural advice or the benefits, such as seeds and credit, second extension staff professionals were male, third our customs and norms of segregation, fourth domestic responsibilities and lack of mobility and ignorance of actual contribution of women. But they suggested that by improving financial and economic conditions of women they would become independent in their decisions, which can play a vital role to empower women.

Conclusively, our study focused on the participation of rural women in a variety of productive activities and we found that different problems were faced by them like illiteracy, time constraints, health problems, no access to extension services and gender discrimination. The present study has focused on the causes of women's involvement in agriculture, domestic problems faced by them, analysis of their role in agricultural marketing and exploration of the factors which determine their empowerment.

CONCLUSION AND RECOMMENDATIONS

The study concluded that rural women of the study area had strong participation in activities such as crop production, livestock husbandry and home management but they have always been remained invisible. They were mostly involved in low grade activities, while their participation in land preparation, ploughing, manuring, irrigation, transplanted, water and pest management was zero. They were facing a lot of socio-economic and technological constraints like lack of facilities, unawareness about modern agricultural technologies and indifferent family attitude. No training opportunities and no micro credit facilities were available in those areas and women had no exposure about the existence of any organization working for their rights. They were not involved in agricultural marketing and they had negligible role in decision making. So the concerted efforts such as improvement of agricultural extension system, starting educational programs, establishing training centers and provision of credit facilities by government and non-government bodies are required for the uplift of these rural women.

Author Contribution Statement Shafique Qadir Memon generated the idea, supervised the research as well as edited the manuscript. Wajihah Ishaq conducted the research project and wrote the manuscript. Both the authors read and approved the manuscript to be published in Journal of Rural Development and Agriculture.

Conflict of Interest The authors declare that they have no conflict of interest.

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REFERENCES

- Afzal, A., Ali, T., Ahmad, M., Zafar, M. I., Niazi, S. K., & Riaz, F. (2009). Identification of factors hampering women empowerment in agricultural decision making and extension work in district Okara, Punjab, Pakistan. *Pakistan Journal of Agricultural Sciences*, 46(1), 64-68.
- Ahmad, U. (2001). *Participation of women in livestock activities in the rural areas of Charsadda District*. (Unpublished master's thesis). The University of Agriculture, Peshawar, Pakistan.
- Ali, A. (2002). *A study of women labourers in the fields of Paddy*. (Unpublished master's thesis). University of the Punjab, Lahore, Pakistan.
- Amin, H., Ali, T., Ahmad, M., & Zafar, M. I. (2009a). Capabilities and competencies of Pakistani rural women in performing house hold and agricultural tasks: A case study in tehsil Faisalabad. *Pakistan Journal of Agricultural Sciences*, 46(1), 58-63.
- Amin, H., Ali, T., Ahmad, M., & Zafar, M. I. (2009b). Participation level of rural women regarding post harvesting activities in Pakistan. *Pakistan Journal of Life and Social Sciences*, 7(2), 136-139.
- Batool, Z., Warriach, H. M., Ishaq, M., Latif, S., Rashid, M. A., Bhatti, A., Murtaza, N., Arif, S., & Wynn, P. C. (2014). Participation of women in dairy farm practices under smallholder production system in Punjab, Pakistan. *The Journal of Animal & Plant Sciences*, 24(4), 1263-1265.
- Begum, R., & Yasmeen, G. (2011). Contribution of Pakistani women in agriculture: Productivity and constraints. *Sarhad Journal of Agriculture*, 27(4), 637-643.
- Butt, T. M., Hassan, Y. Z., Mehmood, K., & Muhammad, S. (2010). Role of rural women in agricultural development and their constraints. *Journal of Agriculture and Social Sciences*, 6(3), 53-56.
- Cervantes-Godoy, D., & Dewbre, J. (2010). *Economic importance of agriculture for poverty reduction*. (OECD Food, Agriculture and Fisheries Working Papers No. 23). France: OECD Publishing. doi: 10.1787/5kmmv9s20944-en
- Chung, Y. B. (2012). What works for women: *Proven approaches for empowering women smallholders and achieving food security*. Retrieved from <http://www.christianaid.org.uk/images/what-works-for-women-report.pdf>
- Fatima, A. (2012). Exploring the linkages between rural incomes and non-farm activities. *Journal of Agriculture and Social Sciences*, 8, 81-86.
- Food and Agriculture Organization [FAO]. (2011a). *The state of food and agriculture: Women in agriculture – closing the gender gap for development*. Retrieved from www.fao.org/docrep/013/i2050e/i2050e.pdf
- FAO. (2011b). *The role of women in agriculture*. (ESA Working Paper No. 11-02). Retrieved from www.fao.org/docrep/013/am307e/am307e00.pdf
- FAO. (2015). *Women in agriculture in Pakistan*. Retrieved from www.fao.org/3/a-i4330e.pdf
- Government of Pakistan [GOP]. (2014). *Pakistan employment trends 2013*. Retrieved from www.pbs.gov.pk/sites/default/files/.../publications/Pakistan_Employment_2013.pdf
- Haq, Q. (2007). *Analysis of gender specific health hazards in cotton growing environment: A case study of rural community in Multan, Pakistan*. (Doctoral dissertation). Retrieved from <http://eprints.hec.gov.pk/4920/>
- Hassan, M. Z. Y. (2008). *Analysis of the obstacles to gender mainstreaming in agricultural extension in the Punjab, Pakistan: A case study of district Muzaffargarh*. (Doctoral dissertation). Retrieved from eprints.hec.gov.pk/2455/
- Iftikhar, N. (2010). *The role of rural women and their training needs: A case study of district Bahawalpur, Pakistan*. (Doctoral dissertation). Retrieved from eprints.hec.gov.pk/7205/
- International Centre for Research on Women. (2012). *The issue: Women, agriculture and food security*. Retrieved from <http://www.icrw.org/what-we-do/agriculture-food-security>

- Jamali, K. (2009). The role of rural women in agriculture and it's allied fields: A case study of Pakistan. *European Journal of Social Sciences*, 7(3), 74-75.
- Khan, M., Sajjad, M., Hameed, B., Khan, M. N., & Jan, A. U. (2012). Participation of women in agriculture activities in district Peshawar. *Sarhad Journal of Agriculture*, 28(1), 121-127.
- Lane, B. (2007). *What is mass media? The changing role of mass communications and the media industries*. Retrieved from http://medialiteracy.suite101.com/article.cfm/what_is_mass_media_#ixzz0FebD3HI9&A
- Luqman, M., Malik, N. H., & Khan, A. S. (2006). Extent of rural women's participation in agricultural and household activities. *Journal of Agriculture & Social Sciences*, 2(1), 5-9.
- Malik, A., Gautam, & Kamaldeep. (2015). Rural women access to inputs and markets in dairy farming. *The Asian Journal of Animal Science*, 10(2), 206-210.
- Nazir, S., Khan, I. A., Shahbaz, B., & Anjum, F. (2013). Rural women's participation constraints in agricultural activities: A case study of district Nankana Sahib, Punjab. *Pakistan Journal of Agricultural Sciences*, 50(2), 317-322.
- Nkhonjera, C. C. (2011). *Role of Women's Empowerment on Agricultural Development in Malawi*. (Master's thesis). University of Reading. Retrieved from <http://www.marshalpapworth.com/downloads/...nkhonjera.../download.html>
- Nosheen, F., Ali, T., Ahmad, H., & Nawaz, H. (2008). Exploring the gender involvement in agricultural decision making: A case study of district Chakwal. *Pakistan Journal of Agricultural Sciences*, 45(3), 101-106.
- Ogunlela, Y. I., & Mukhtar, A. A. (2009). Gender issues in agriculture and rural development in Nigeria: The role of women. *Humanity & Social Sciences Journal*, 4(1), 19-30.
- Pesticide Action Network UK. (2009). *Invisible farmers - rural roles in Pakistan*. Retrieved from www.pan-uk.org/pestnews/Issue/pn37/pn37p4.htm
- Prakash, D. (2003). *Rural women, food security and agricultural cooperatives*. New Delhi: Rural Development and Management Centre.
- Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill building approach* (5th ed.). West Sussex, UK: John Wiley & Sons Ltd.
- Siddiqui, B. N., Hassan, M. Z. Y., Asif, F., Iqbal, S., Bajwa, M. S., & Malik, N.A. (2003). Awareness adoption and reasons for non-adoption of apple growers with regard to recommended horticultural practices. *Pakistan Journal of Applied Sciences*, 3(3), 182-184.