

SOCIOLOGICAL ANALYSIS OF WOMEN'S DISCRIMINATION AS A CAUSATIVE FACTOR OF POOR SUGARCANE PRODUCTIVITY IN PAKISTAN

Muhammad Nisar*¹, Muhammad Adil², Aneesa Ibrar³, Muhammad Zahid⁴, Nadia Farooq⁵

¹Assistant Professor, Department of Sociology & Political Science, Bacha Khan University, Charsadda.

²Assistant Professor Department of Management Sciences & Commerce, Bacha Khan University Charsadda.

³Lecturer, Department of Education, Bacha Khan University, Charsadda.

⁴Lecturer, Department of Sociology, Abdul Wali Khan University, Mardan.

⁵Lecturer in Sociology, IBMS, The University of Agriculture Peshawar, Pakistan.

Corresponding author: muhdnisar@bkuc.edu.pk

Abstract

The world's half population is consisting of women. Their role is equally important as men in the development of society as they are performing their duties in each sector, however, their role is not getting acceptance in patriarchal societies. Keeping these views in mind, the present study was conducted in Khyber Pakhtunkhwa-Pakistan to explore women's role in the agriculture sector. A sample of 384 respondents belonging to farming communities was selected through a multi-stage random sampling technique. The data was collected from female respondents through an interview schedule with the help of female investigators keeping in view the cultural sensitivity of the area. The collected information was analyzed into bi-variate and multivariate results. Findings of the study indicated that the women are oppressed from their basic rights of land ownership, property rights, they cannot control their agricultural lands, they are not provided any agricultural-related training, not the part of any village-based association, and did not have means of access to agricultural credits due to which sugarcane productivity of Pakistani farmers are decreasing. Strengthening basic women's land rights (ownership, use, sale, signing agreements, etc.) and their direct involvement in mainstream agriculture is important, however, a socially sensitive issue that should be addressed gradually keeping in view the cultural sensitivities of the area.

Keywords: Women, Discrimination, Agriculture, Sugarcane, Sugarcane productivity.

Introduction

Agriculture is not performing well in most of the developing countries due to several reasons. Women are entrepreneurs, farmers, and workers, but mostly they face some hurdles from their male counterparts which constrain their access to productive resources, services, and markets. This gender inequality hinders women's contribution to agriculture and reduces their productivity (Patil and Babu, 2018). In Pakistan, women's labor force population is equal to those of men but their vitality has not been recognized in a true sense. Their economic contribution in the agricultural sector is under-recorded with low financial gains for them (Begum and Yasmeen, 2011). In patriarchal societies, women's contribution is highlighted as housewives, mothers, and social production workers, with less emphasis on the economic values of their production (Zafar, 2003).

Self-perception of farmers represents the idea of a good farmer by farmers serves as a basis for action as explained by social identity theory. Self-perception of farmers is quite helpful in performing agricultural tasks while choosing rational decisions among the available resources. The social structure of Pakhtun society divided the society into two genders; men and women where it is perceived that men are good farmers suitable for this profession while women are the weaker gender who cannot perform such tasks efficiently. Such perception among genders leads to the lower contribution of women into the agriculture sector, resultantly lower agricultural production as explained by social identity theory.

Patriarchal societies are characterized by gender-based division of roles and responsibilities among male and female members. Such division of labor is more distinct in primary occupations like agriculture, horticulture and animal husbandry, etc. The gender-based division in agriculture is distinct from the masculine and feminine tasks in agricultural operations. In addition, there is also a clear distinction in authority with respect to the distribution and utilization of benefits accrued from agriculture. Based on the above facts the domain of gender role is included in the study with the sole variable of women's role.

Like most masculine professions, agriculture is also a male dominant profession with some specific distinctions of gender-specific operations. Thus, the women are restricted to some petty agricultural operations in the fields and are mostly involved in the activities that are linked to agriculture but controlled from within the home. In this way, the male authority in agriculture-related decision making and benefits distribution dominates the females and the women's role is dwarfed as a helping hand only. The women perform agricultural tasks in subordination to male family members while the agricultural benefits are monopolized by the male family members incomplete or partial deprivation of women from these benefits.

The association of sugarcane productivity with women's role poses an unsatisfactory state of affairs with respect to women's empowerment in the study area. The spiral of deprivation of women forms their land and agricultural products-related rights is multi-faceted and deep. Culture is used as a tool in favor of male members to deprive the women of their land ownership and related inheritance rights. Those women who own agricultural land lack its control in terms of management, decisions, processes, and benefits. Moreover, they lack the required knowledge and skills to manage their lands in an appropriate manner. The culture of patriarchy limits women's participation in prevalent village organizations and their activities to express their problems or participate in overall village development. Due to patriarchal norms, the women are also constrained from accessing agricultural credits to develop their agricultural component independently. The only active ingredient of women's involvement in agriculture is the free-of-cost labor that they extend to support their families. As a result, the overall effect of low women empowerment, insufficient agricultural capacities, insufficient participation, and reduced access to resources, in addition to their exploitation with respect to their rights and forcing them to be bonded labor result in an unsatisfactory level of agriculture productivity in the study area.

Literature review

Women make up about half of the world's population and supply 60 to 80 percent of agricultural work, yet only around 5% of them own property. Women who have secure land rights are more likely to use contemporary sustainable agricultural practises, invest in land, boost production, and contribute to household food security. Women's property rights raise their social standing and negotiating strength in the home and community (RDI, 2007).

Rubab and Usman (2018) that women in Pakistan are deprived of their land ownership rights because of the fear of the fragmentation of ancestral property. They are a little amount of money as compensation or completely denied their due rights. In such a scenario women's participation in agriculture is limited which further reduces agricultural productivity. Moreover, land ownership of women gives a sense of strength and power to them to participate in agricultural production and related matters. Recognition of women's work in farming has remained a major concern for a long time. Most of the studies showed that women are working as helpers rather than actual contributors to agricultural production. Thus, through secure tenure rights women will be considered as co-economic contributors in the agriculture sector (Shahzad, 2004).

Deshmukh (2013) analyzing the importance of agricultural training among cane grower women, in Maharashtra state of India Vasantdada Sugar Institute annually organizes training programs for women farmers. This training program gives an opportunity to women cane growers to gather, interact, and learn advanced farming practices. Such programs are of immense importance in enhancing women's skills, gaining knowledge and confidence.

The Community Development Programme (2003) targeted landless people, smallholders, and women-headed families in remote highland locations. The programme provides training in natural resource management in order to enhance the economic prospects of low-income families. Women farmers, in particular, have restricted access to education and skill development opportunities (Begum and Yasmeen, 2011). Because they are unable to use

contemporary technology in their production methods, this has an influence on their agricultural productivity. Adult education programmes can assist women in being more informed about current events (Khan et al. 2012).

Women farmers created solid ties with supportive institutions, according to previous studies. Women's leadership abilities have grown as a result of their growing engagement in informal institutions (Sendilkumar, 2015). Women's social dynamics were substantially enhanced once they joined the local irrigation association. Furthermore, according to Bhatnagar and Rathore (2015), women play an active part in agriculture in Rajasthan, India, and there is a great need to organise them into a group to strengthen and polish their skills. During the research, it was discovered that training programmes did not result in substantial changes in their level of living. That is why it was considered necessary to gather them and provide a platform where they could meet on a regular basis and engage in order to refresh their thinking and stimulate their self-help attitude. The notion of rural women's economic and social empowerment via the development of self-help organisations was highlighted. The ladies in the group were given training in specialised technology, which they used to engage in income-generating activities. The savings earned through various economic activities were utilized for meeting the needs of members.

According to Ahmed and Javed (2016), women's engagement in the agricultural industry has to be supported. Women's cooperatives, which are uncommon, should be supported. Furthermore, access to agricultural finance for women-led farms is extremely difficult, and this issue must be addressed. Because women are expected to take care of home responsibilities as well, it is suggested that the government's long-term agricultural and food security policy allow for focused intervention to encourage women's efforts in both the crop and livestock sectors.

Women farmers believe that operating agricultural machinery is a man's profession, and that they should only help manually, which is rarely productive (FAO, 2015). However, research from Africa (Doss et al., 2015) and Asia (Kieran et al., 2016) supports the often quoted statistic that women own just 1-2 percent of the world's land. Women perform 40% of agricultural work in six African nations for which data is available, a lower number than the 60-80% rates commonly claimed (Palacio-Lopez et al., 2016). Finally, there is no evidence to support the assertion that women produce 60-80% of the world's food (Doss, 2014), because it is impossible for women to generate such a significant quantity of food while also caring for their families.

Research Methodology

Study design

A cross-sectional design was used in this study, which is the most effective way for analysing a problem or issue by obtaining a representative sample of the population (Babie, 1989).

Universe, sampling procedure and sample size of the study

The research was carried out in the Pakistani districts of Charsadda and Mardan. The respondents were chosen using a multistage random sampling approach. The entire population of the study universe (12 selected UCs) is 3720 farmers, according to a pilot survey conducted by the researcher. The method suggested by Chaudhry (2009) was utilised for sample size of 384 respondents, taking into account the number of variables (table 1) and research population.

$$n = \frac{N\hat{p}\hat{q}Z^2}{\hat{p}\hat{q}Z^2 + Ne^2 - e^2} \dots\dots\dots \text{Equation-1}$$

N= total number of farmers in selected UCs = 3720, p = population proportion = 0.5, q = opposite proportion = (1-p) = 0.5, z = confidence level = 1.96, e = margin of error = 0.05, n= 384

Using a formula developed by Bowly (1926), the resulting sample size was proportionally assigned to each Union Council (Bowly, 1926).

$$n_i = n \cdot N_i / N \dots\dots\dots \text{Equation-2}$$

Nature of the respondents

Those respondents with the following characteristics were included in the study.

- Women Farmers
- Resident of District Mardan and Charsadda
- Mentally sound to respond questions

Data collecting tools

Interview schedule was used throughout the quantitative research phase. was created to collect quantitative data from randomly selected respondents, and it included all of the study variables described in the conceptual framework. Interview schedule was pre-tested with 25 farmers (Kothari, 2004) to verify that both the respondents and the researcher understood the instrument items, and that the questions were consistent and relevant or not. Females researchers were trained for the collection of data.

Table 1. Conceptual framework

Background Variable	Independent Variable	Dependent Variable
Socioeconomic status	Women's role in Agriculture	Sugarcane productivity

Indexation and Reliability analysis

Cronbach's alpha test was used to determine the research scale's reliability, the findings of which demonstrate that both independent and dependent variables, such as women's participation in agriculture (independent) and sugarcane productivity (dependent), had values greater than 0.6. As shown in Table.2, the indexation conditions were met. Indexation is a method of assessing the respondent's attitude toward the research variables in the social sciences (Nachmias, 1992).

Table 2 Reliability Analysis

Variables	Cronbach's alpha
Women's role in agriculture	.62
Sugarcane productivity	.87

Data analysis

The data was analysed using SPSS software (version 20) in bi-variate and multi-variate level, as shown below.

Bi-variate analysis

Bi-variate analyses were used to investigate the relationship between the independent and dependent variables. Sugarcane productivity was divided into three categories (below average, average & above average), and cross-tabulated with the independent variable (women's agricultural role). According to Tai's statistical technique, the Chi-square test was employed to assess the relationship between independent and dependent variables (1978).

$$\chi^2 = \sum_{i=1}^r \cdot \sum_{j=1}^c \cdot \frac{(O_{ij} - e_{ij})^2}{e_{ij}}$$

----- (Equation-3)

Multivariate analysis by contingency tables

The aim of the multivariate analysis was to examine if the control factors could explain the variance in sugarcane production caused by the independent variable. The independent variable (women's role in agriculture) was found fit for indexation based on Cronbach's Alpha coefficient criteria (above 0.6) and was indexed and cross-tabulated with the dependent variable (sugarcane productivity) at the multivariate level while controlling respondents' family

socioeconomic status. The Kendall tau-c (T^c) test was used to see if the study variables were influenced by the control variables, and the Chi-Square/exact Fisher's test was used to see if the study variables were influenced by the control variables.

$$\text{Kendall } T^c = \frac{2(n_c - n_d)}{n^2 \frac{(m-1)}{m}} \dots \dots \dots \text{Equation-4}$$

Ethical considerations in the study

The researchers have an ethical obligation in social sciences to their study population, colleagues and larger society (Berg, 2009). For the sake of this purpose, the following steps were followed:

- To avoid any controversial statement, the interview schedule was properly examined form Board of Study members.
- Authority letter was obtained from the university
- Cultural sensitivity was kept in mind while collecting data from women for which female investigators were hired
- Consent was solicited from the respondents before data collection
- Due to cultural restraints, data from women was taken by female investigators.
- The purpose of the study was thoroughly explained to the respondents before data collection.
- The anonymity of the respondents was assured to them.

Data analysis

Bivariate analysis

Association between women’s role in agriculture and sugarcane productivity

Results in table 2 show that for all those respondents who were of the view that women were involved as unpaid agricultural labor, 24.2% earned above average net income from the sale of sugarcane products compared to 50.8% of those respondents who did not witness women’s unpaid involvement in agricultural labor and 23.1% of those who were uncertain to it. Women unpaid involvement in agriculture reduced sugarcane production in a significant and negative manner ($p=0.001$; $T^c= -0.086$). Agriculture is labor intensive profession, especially in those communities where non-mechanized traditional agricultural practices are in fashion. The landlords prefer to engage efficient labors on cheap rates. On the other hand, the small landholders engage their family members for free to carry out agricultural operations. The women are the worst victims of such free labor. However, the biological limitation render women short of accomplishment of laborious tasks than men. In addition, the unpaid activities are the other reason of low interest of females in agricultural operations and can be understood under the definition of forced labor. A combination of these biological and socioeconomic reasons has a negative influence on the sugarcane productivity and result into downfall of the income receive from the sale of these low produced agricultural commodities. Zafar (2003) reported that women from a well-off family is incharge of household affairs in rural Pakistan. However, a woman from low socioeconomic status family, besides taking responsibilities of their household and as a mother, has to perform agricultural labor. Such agricultural labor is mostly unpaid and non-recognized by the societal members being petty in nature. In some instances, the women work shoulder to shoulder to their male colleagues in agricultural fields but still receive very low or no cash return from their labor (SSSD, 2009). Furthermore, the women engaged in agricultural operations lack the required knowledge, skills, facilities and to some extent physical strength to accomplish their tasks to the require standards. The role of agricultural extension department in educating and empowering females in agricultural sector is negligible (FAO, 2015). The women, as compared to men, has to perform the agricultural operations manually which are performed by male members via machines (Doss et al., 2015; Kieran et al., 2016). Therefore, despite sizeable representation of women labor force, their contribution in agricultural production and overall national development is underestimated and neglected (Palacio-Lopez et al., 2016; Doss, 2014).

Conversely, the association of women’s ownership in village agricultural land had a non-significant and a negative association with net income from sugarcane production ($p=0.236$; $T^c= -0.028$). Similar non-significant association was found between provision of due inheritance rights in arable land to women and net income from sugarcne production ($p=0.265$; $T^c= -0.044$). Moreover, sugarcane production exhibited a non-significant association

with women having control on the agricultural land they owned ($p=0.216$; $T^c = -0.047$). Land ownership is a symbol of power and prestige in rural community. The patriarchs, however, are exploitative as they deprive women segment from their due rights in land. The degree of exploitation ranges from a mild exploitation to some extreme deprivation of women from their land rights. In the extreme cases, the women are pressurized to forego their rights in the favor of their male family members. In this way the land entitlement of women through inheritance is transferred to male members maliciously or through use of family or community pressure on women. Thus, witnessing transfer of land inherited to women is a black swan. To the dismay, those rare women who manage to inherit their legal inheritance rights are dependent on their male family members to manage their agricultural lands as they cannot lend their own land to anyone or manage their crops or sign any contract desirous to them. Moreover, it is also impossible for these women to sell their land out of their free will or to use the income received from such land in their names. Thus, the patriarchy seems in complete control of land ownership management and benefits distribution, providing almost no room to women to thrive in this important rural livelihood source. The same is obvious from the above non-significant associations. The findings of RDI (2007) seconds the above results by stating that despite of the fact that half of the human population is constituted by female gender and their high significance in maintaining the family system, all sources of power, including land ownership, reside in male societal members. The culture favors the patriarchs to own and retain land and its associated benefits and deprive the women under the cultural practices of subordination, obedience and sacrifices. However, streamlining the ownership and use powers to legal heirs, including women resulted into conflict resolution, improved efficiencies, enhanced inputs and sustained sugarcane production at all levels (World Bank, 2003; Deininger, 2003; Hansungule, 2007). Rathgeber (1989) further added that women are subjected to labor while their due inheritance rights are ignored that result into a low interest of women in agricultural operations and result into low crop productivity (Rubab and Usman, 2018; Shahzad, 2004). Dickerman and Barnes (1989) further probed the delicacy of gender-based differentiation in land ownership and use rights. The authors reported that the male and female genders are considered the co-partners in family property where male are in the fore-front and the female are subordinate to him. Therefore, all important agricultural decisions related to ownership, management, use and sale of agricultural land and made by male family members, mostly with consultation to female family members. The same is the result of low knowledge, skill and interest of women in agriculture and result into low agricultural production (Aryeetey, 2002; Doss et al., 2015; Kieran et al., 2016; Palacio-Lopez et al., 2016). Empowering women in this respect can ensure development of human capital, improvement in agricultural production and overall development of a nation (Saeed et al., 2007).

In addition, provision of trainings to women in agricultural field show a non-significant association with sugarcane production ($p=0.163$; $T^c = 0.092$). Similar non-significant association was found between women membership in village organization and sugarcane productivity ($p=0.155$; $T^c = 0.095$). Likewise, the association of sugarcane production was found non-significant with women's access to agricultural credits ($p=0.175$; $T^c = 0.064$). These results depict an institutionalized control of patriarchal system on the agricultural resource systems and validate the viewpoint of conflict perspective that prevailing culture and institutions provide a mechanism to gain and retain power that is in favor of few, in this case the male societal members. The earlier findings of this study signified the importance of financial support in terms of credits, social organization and capacity building of farmers with respect to sugarcane production. However, these important aspects of sugarcane production proved insignificant when tested for female societal members. It was personally observed by the researchers that the women performed a limited role in shape of agricultural labor. Moreover, their role as labor too, is controlled by the male family members. In addition, the government and non-governmental organizations do not or cannot provide the required trainings, credits, or mobilization to female segment due to cultural sensitivity. Any such attempt to facilitate or to empower females without routing it from male societal members face failure. In this grave situation of low skills and low financial means, the women are unable to improve agricultura (sugarcane) production. Quisumbing (1996), therefore, rightly pointed out low output form women farmers than men due to their low skills, insufficient financial support and low quality of land inherited to them. FAO (2012) also reported very low representation of women in training programs that result into their low agricultural productivity. Deshmukh (2013) further analyzed that subordinate position of women in societal hierarchy deprived them from agriculture skill developmental programs, agricultural credits and representation in village developmental activities. Prakash (2003) proposed special quota for females in trainings and finance programs that are dedicated for agricultural development (Farooq et al., 2000; Community Development Programme, 2003). Begum and Yasmeen (2011), however, proposed a stepwise and gradual initiative for women empowerment due to its cultural sensitivity as any sudden action may face strong reaction and negative repercussions form the society (Khan et al., 2012). Thus, women empowerment in

agricultural sector through their education, capacity building, financial support and representation in village organization is an evolutionary process that require consistent efforts and patience on part of implementors to balance the social dynamics in favor of women and help them to acquire a respectable social status and power in the society and enhance their productive societal output (Sendilkumar, 2015; Bhatnagar and Rathore, 2015; Amri and Kimaro, 2010).

Table 3 Association between women role and sugarcane productivity of the respondents

Attributes	Attitude	Sugarcane productivity (in terms of net income)				Statistics χ^2 (P-Value) T ^c
		Above average net income	Average net income	Below average net income	Total	
Women at your village have land ownership	Yes	42 (30.7)	45 (32.8)	50 (36.5)	137 (100)	$\chi^2=5.548$ (0.236) T ^c =-0.028
	No	54 (25.1)	86 (40)	75 (34.9)	215 (100)	
	Uncertain	13 (40.6)	12 (37.5)	7 (21.9)	32 (100)	
Women are provided their due inheritance rights in arable land	Yes	32 (23.9)	52 (38.8)	50 (37.3)	134 (100)	$\chi^2=5.224$ (0.265) T ^c =-0.044
	No	69 (30.5)	86 (38.1)	71 (31.4)	226 (100)	
	Uncertain	8 (33.3)	5 (20.8)	11 (45.8)	24(100)	
Women have control over their owned agricultural land	Yes	33 (27.3)	54 (44.6)	34 (28.1)	121 (100)	$\chi^2=5.782$ (0.216) T ^c =0.047
	No	71 (29.3)	83 (34.3)	88 (36.4)	242(100)	
	Uncertain	5(23.8)	6 (28.6)	10 (47.6)	21 (100)	
Women are provided training in agricultural field	Yes	23(32.9)	27(38.6)	20(28.6)	70(100)	$\chi^2=6.526$ (0.163) T ^c =0.092
	No	74(29.2)	96(37.9)	83(32.8)	253 (100)	
	Uncertain	12(19.7)	20(32.8)	29(47.5)	61(100)	
Women are members of any village organization (jirga, farmers associations)	Yes	24(32.9)	28 (38.4)	21(28.8)	73(100)	$\chi^2=6.664$ (0.155) T ^c =0.095
	No	73 (29.6)	93 (37.7)	81(32.8)	247(100)	
	Uncertain	12(18.8)	22(34.4)	30(46.9)	64 (100)	
Women have access to agricultural credits	Yes	26 (28.9)	34(37.8)	30(33.3)	90(100)	$\chi^2=6.341$ (0.175) T ^c =0.064
	No	69(30.5)	87(38.5)	70(31)	226(100)	
	Uncertain	14 (20.6)	22 (32.4)	32 (47.1)	68 (100)	
Women are involved as unpaid agricultural labor	Yes	72 (24.2)	117 (39.4)	108 (36.4)	297 (100)	$\chi^2=18.572$ (0.001) T ^c =-0.086
	No	31 (50.8)	17 (27.9)	13 (21.3)	61 (100)	
	Uncertain	6 (23.10)	9 (34.6)	11 (42.3)	26 (100)	

(Percentages are given in parenthesis)

Multivariate analysis

Association between women's role in agriculture and sugarcane productivity (controlling socioeconomic status of the respondents)

Results in table 4 show that for all those respondents from high socio-economic status where women had high role in agriculture, 36% earned above average net income from sugarcane sale compared to 35.7% of those to whom women had moderate role in agriculture and 50% witnessed low role of women in agriculture. In addition, for

all those respondents from middle socio-economic status whose women had high role in agriculture, 33.6% earned above net income from the sale of sugarcane products as compared 17% of those whose women had moderate role in agriculture and 9.7% of those whose women had low role in agricultures. Furthermore, for all those respondents from low socio-economic status whose women had high role in agriculture, 12.5% earned above average net income from the sale of sugarcane produced compared 10% of those whose women had moderate role in agriculture and 32.6% whose women had low role in agriculture. The association between women role and net income from sugarcane production was found non-significant ($p=0.992$) and negative ($T^c = -0.109$) for high socioeconomic status group. The association of these variables was highly significant and positive ($P=0.000$; $T^c = 0.435$) for middle socio-economic group. However, the association of the above said variables was non-significant and negative ($P=0.333$ & $T^c = -0.176$) for low socioeconomic status group. Value of level of significance and T^c for entire table show highly significant and positive ($P=0.000$ & $T^c = 0.165$) association between women role in agriculture and sugarcane productivity for all the three socio-economic groups. Variation in Kendal T^c and chi square significance values for all the three socio-economic groups indicated that association of women role in agriculture and agriculture productivity is spurious on the basis of socio-economic statuses of the respondents, where middle socio-economic status group performed better than high and low socio-economic status groups respondents in terms of high sugarcane production and earning from it.

Women role in agriculture is a complex whole of rights and responsibilities in the agricultural production system. Women's rights in agriculture correspond to their inheritance, ownership, management, decision making and benefits (both in cash and in kind) related rights. On the other hand, they share the responsibilities in almost all agricultural operations with their male counterparts. In high socioeconomic status groups, the women are devoid off almost all of their rights and responsibilities. Literally the role of women from high socioeconomic status groups in agriculture is negligible which is obvious from the non-significant association in the results. Women from low socioeconomic status groups exhibited an imbalance of role and responsibilities of a different kind. These women share a huge burden of responsibilities in agricultural profession without any obvious returns to them in cash and in kind. Such low socioeconomic status group and their disadvantaged women have limited opportunities to enhance their agricultural production generally and sugarcane production particularly due to violation of women's rights in agriculture. The efforts of middle socioeconomic status group in establishing a balance between women's rights and responsibilities is most obvious of all groups. These women have enhanced control of their agricultural resources and rights and cordial to contribute to sugarcane production. As a result, the output efficiency of middle socioeconomic status families that give due rights to their women and are reciprocally positively facilitated by the feminine gender in agriculture, exhibited enhanced sugarcane production as made obvious by the results. Women's agricultural related problems, as studied by a series of research studies, are multi-dimensional and deep. They are culturally constrained to own property, access to agricultural extension services, access to knowledge sources, access to agricultural credit services or to explain the agricultural problems faced by them. As a result, the women farmers exhibit low decision-making abilities, are low motivated and less innovative. Low social status and poor economic standing are the additional barriers in adopting the most innovative technologies related to agricultural production (Saito and Spurling, 1992; Usman et al., 2018; Naz et al., 2014). However, those families who protect their women by providing them inheritance rights, educate them and establish their connectivity with the agricultural extension services, show some promising results in terms of enhanced agricultural production (Ruth, 1995; Afzal, 2009; FAO, 2016; Kieran et al., 2016; Palacio-Lopez et al., 2016).

Table 4 Association between women’s role in agriculture and sugarcane productivity (controlling socio-economic status of the respondents)

Socio-economic status	Relationship with women’s role in agriculture	Net Income				Statistics χ^2 (P-Value) T ^c =	Level of significance for the entire table
		Above average net income	Average net income	Below average net income	Total		
High socioeconomic status	High role	9 (36)	8 (32)	8 (32)	25 (100)	$\chi^2 = 2.494$ (0.646) T ^c =-0.109	$\chi^2 = 39.177$ (0.000) T ^c =0.165
	Moderate role	5 (35.7)	6 (42.9)	3 (21.4)	14 (100)		
	Low role	24 (50)	13 (27.1)	11 (22.9)	48 (100)		
	Total	38 (43.7)	27 (31)	22 (25.3)	87 (100)		
Middle socioeconomic status	High role	40 (33.6)	67 (56.3)	12 (10.1)	119 (100)	$\chi^2 = 74.102$ (0.000) T ^c = 0.435	
	Moderate role	8 (17)	14 (29.8)	25 (53.2)	47 (100)		
	Low role	6 (9.7)	12 (19.4)	44 (71)	62 (100)		
	Total	54 (23.7)	93 (40.8)	81 (35.5)	228 (100)		
Low socioeconomic status	High role	2 (12.5)	6 (37.5)	8 (50)	16 (100)	$\chi^2 = 4.578$ (0.333) T ^c =0.176	
	Moderate role	1 (10)	3 (30)	6 (60)	10 (100)		
	Low role	14 (32.6)	14 (32.6)	15 (34.9)	43 (100)		
	Total	17 (24.6)	23 (33.3)	29 (42)	69 (100)		

(Percentages are given in parenthesis)

Conclusions

Women in the study area rarely enjoyed the ownership of arable land and were not free to manage their owned land according to their free will. They were mostly dependent on their male members for such ownership and management decisions. They mostly forego their land tenure rights in favor of male members of their families due to familial and cultural pressure. However, in some cases they were given their rights in lands, but they did not have control over their lands. Mostly their rights were exercised by male members. They did not exercise major farming practices, did not have direct access to agricultural department, or other formal and informal associations in their society for the solution of their problems and were usually involved in unpaid agricultural activities.

Recommendations

Strengthening basic women’s land rights’ (ownership, use, sale, signing agreements etc.) and their direct involvement in mainstream agriculture is important, however, socially sensitive issue. It is proposed that such streamlining of women in agriculture must be gradual and stepwise starting from basic women’s legal and religious rights within the cultural ambit and be extended to other spheres as well. Any revolutionary change introduced may face strong resistance and possible failure in the patriarchal system.

References

- Afzal, A. 2009. Identification And Analysis Of Factors Hampering Women Empowerment In Agricultural Decision Making And Extension Work In The Punjab, Pakistan: A Case Study Of District Okara: Unpublished Ph.d Thesis, Deptt: of Agri; Ext: Uni of Faisalabad.
- Ahmed, V. and Javed, A. 2016. National Study on Agriculture Investment in Pakistan. Working Paper #157. A publication of the Sustainable Development Policy Institute (SDPI).
- Amri, E. and Kimaro, C. 2010. The role of Gender in Management and Conservation of Seed Diversity of Crops and Varieties: A case Study in Bariadi, Tanzania, American-Eurasian Journal of Sustainable Agriculture 8(4):365-369.
- Aryeetey, E.B. 2002. Behind the norms: women's access to land in Ghana, in Toulmin, C., Delville, P.I., and Traore, S. (eds) The dynamics of resource tenure in West Africa. London, IIED, GRET, Currey and Heinemann.
- Babie, E. 1989. The Practice of Social Research, Belmont, California, Wades worth Publishing Company.
- Baily, K. D. 1982. Methods of Social Research. 2nd Ed. New York. Macmillan Publishing Co., Inc.
- Begum, R., and Yasmeen. G. 2011. Contribution of Pakistani Women in Agriculture: Productivity and Constraints. Sarhad J. Agric. 27(4), 637-643.
- Bhatnagar, S., and Rathore, S. S. 2015. Social and Economical Empowerment of Rural Women Through Self Help Group Formation in Jaipur District of Rajasthan. J Krishi Vigyan 2015, 3(Special Issue): 94-96. DOI: 10.5958/2349-4433.2015.00044.6
- Bowley, A. L. 1926. Measurements of precision attained in sampling. Bull. Int. Stat. Inst., Amsterdam, v.22, p.1-62.
- Chaudhry, S.M. 2009. Introduction to statistical theory, 8th edition, Publisher: Lahore, Pakistan: Ilmi Kitab Khana.
- Community Development Programme. 2003.
- Deshmukh, S. 2013. Potential approaches for empowering women in sugarcane industry. Proceeding of national conference on 'Women in sugarcane agriculture and industry' at IISR Lucknow, August 29-31, Pp 3-7.
- Dickerman, C.W and Barnes, G. 1989. 'Security of tenure and land registration in Africa: literature review and synthesis', Land Tenure Centre, University of Wisconsin, Madison, 137.
- Doss, C.R., and Morris, M.L. 2014. How does gender affect the adoption of agricultural innovations? The case of improved maize technology in Ghana. Agric. Econ. 25, 27-39.
- FAO. 2012. The State of Food Insecurity in the World: How does international price volatility affect domestic economies and food security? <http://www.fao.org/docrep/014/i2330e> site visited on 14 / 7/ 2012. P. 55.
- FAO. 2015. Food and Agriculture Organization.
- FAO. 2016. Food and Agriculture Organization.
- Farooq, M., Shoukat, K., Asrar, M., Mussawar, S and Faisal, S. 2000. Impact of female livestock extension workers on rural house-hold chicken production. Livestock Research for Rural Development, 12(4).
- Hansungule, M. 2007. The role of national human rights institutions at the international and regional levels. The African experience, 7(2).
- Khan, M., Sajjad, M., Hameed, B., Khan, M.N., and Jan, A. 2012. "Participation of Women in Agriculture Activities in District Peshawar", Sarhad Journal of Agriculture, 28(1).
- Khan, M.Z., Javidullah, Ahmad, S., and Qasim, M. 2012. Assessing Professional Capabilities of Agriculture Officers for Weed Control: A Case Study of Khyber Pakhtunkhwa-Pakistan. Pakistan Journal of Weed Science, 18: 79-90.
- Kieran C.; Sproule, K.; Doss, C.; Quisumbing, A.; and Kim, S.M. 2016. 'Examining Gender Inequalities in Land Rights Indicators in Asia,' Agricultural Economics 46.
- Kothari, C. R. 2004. Research methodology; Methods and techniques (2 nd ed). New Age International (P) Limited Publisher. New Delhi.
- Nachmias. C. F. and David Nachmias. 1992. Research Methods in Social Sciences. 4 th Ed. St Martin's Press Inco. New York. USA.
- Naz, A., Saeed, G., Khan, W., Khan, Q., Khan, N., & Darz, U. 2014. Social and cultural challenges to women's and inheritance: A study of district Dir Lower Khyber Pakhtunkhwa. Middle-East Scientific research, 21(11):2080-2091.
- Palacios-Lopez, A., Christiaensen, L., and Kilic, T. 2015. 'How Much of the Labor in African Agriculture Is Provided by Women?' Policy Research Working Paper No. 7282. Washington D.C.: The World Bank.

- Patil, B., and Babu, V. S. 2018. Role of Women in Agriculture. International Journal of Applied Research 2018; 4(12): 109-114.
- Prakash, D. 2003. Rural women, food security and agricultural cooperatives. Rural Dev. & Mgt. Centre New Delhi. India. pp. 3-5.
- Rathgeber. 1989. Gender access to and control over agricultural benefits.
- RDI. 2007. Women & Land – An Avenue to Poverty Alleviation. International Women’s Day Breakfast Forum.
- Rubab, I. and Usman, A. 2018. Women’s Right of Inheritance: Choices and Challenges in Punjab. Journal of Islamic thought and civilization, 8(2): 95-109.
- Ruth A.R. 1995. Supporting women farmers in the green zones of Mozambique. Seeds, No 17, p20, 1995.
- Saeed, B., M.R. Aslam, Z. Makbool and A. Ijaz. 2007. www.westender.com.au/stories.
- Saito, K.A. and D. Spurling. 1992. Developing agricultural extension for Women Farmers. World Bank Discussion Paper No. 156, The World Bank, Washington, D.C.
- Sekaran, U. 2003. Research Methods for Business. USA, Hermitage Publishing Services.
- Sendilkumar, R. 2015. Farmers Driven Value Chain of Kadali Banana: A Gadget For Women Empowerment. J Krishi Vigyan 2015, 3(Special Issue): 44-49. DOI: 10.5958/2349-4433.2015.00034.3
- Tai, S. W. 1978. Social Science Statistics, it Elements and Applications. California, Goodyear Publishing Company.
- Wani, R.T. 2019. Socioeconomic status scales-modified Kuppaswamy and Udai Pareekh's scale updated for 2019. J Family Med Prim Care. 8:1846-9.
- Zafar, I. 2003. Female labour force in agriculture. Dawn-The Internet Ed. Retrieved July 08, 2020, from <http://www.Dawn.Com>