CONSTRAINTS FACED BY RURAL WOMEN IN ACCESSING AGRICULTURAL RESOURCES IN PUNJAB, PAKISTAN

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ABSTRACT

Agriculture remains central to Pakistan's economy, yet rural women face significant constraints in accessing essential agricultural resources. This study investigated the socioeconomic, cultural, and institutional factors influencing rural women's access to land, credit, irrigation, agricultural inputs, markets, and extension services in Punjab, Pakistan. A quantitative research design was employed, surveying 300 women selected through stratified random sampling from underdeveloped districts of South Punjab. Data were collected via structured questionnaires and analyzed using descriptive statistics, chi-square tests, and multiple regression analysis. Results revealed that decision-making in agriculture (Mean = 2.07, SD = 0.81) and irrigation access (Mean = 2.00, SD = 0.79) were moderately accessible, whereas extension services (Mean = 1.57, SD = 0.71) and credit facilities (Mean = 1.74, SD = 0.72) were least accessible. Key constraints included lack of education (Mean = 4.32, SD = 0.78), limited household income (Mean = 4.10, SD = 0.85), restrictive social norms (Mean = 4.15, SD = 0.82), and inadequate institutional support (Mean = 4.21, SD = 0.80). Chi-square tests indicated education and income significantly influenced access to most resources ($p < 0.01$), while multiple regression showed socioeconomic ($\beta = 0.345$, $p < 0.01$), cultural ($\beta = -0.198$, $p < 0.01$), and institutional factors ($\beta = 0.251$, $p < 0.01$) explained 54.2% of variance in accessibility. The study highlights the need for literacy programs, financial inclusion, gender-sensitive policies, and strengthened institutional support to enhance rural women's participation in agriculture.

Keywords: Rural women, agricultural resources, gender barriers, Punjab, socioeconomic constraints, extension services.

1. INTRODUCTION

Agriculture in Punjab is dominated by family farming, characterized by small-to medium-sized farms as a source of livelihood. Women, who constitute nearly half of the rural population, are directly engaged in agricultural production on crop production, livestock management, poultry management and crop management after harvest. Studies have shown that women perform the majority of farm activities as compared to men. Women have specialized roles and their input of labor time is higher in agriculture (Pradhan, 1985; Reissig et al., 2016). Despite the central role of rural women in family farming, their role is often invisible and often lacks recognition (Contzen and Forney, 2017) They face systemic constraints to access basic farming inputs such as land, credit, water, farm inputs, and extension services (FAO, 2024; Ambarwati et al., 2025).The ownership of land in the Punjab is a male dominated territory. According to Agada et al. (2021), in Pakistan, women own less than 5 percent of agricultural land, which limits their ability to make independent farming decisions, borrow, and acquire other productive resources. Landlessness among women further constrains their bargaining power within households and reduces their eligibility for government-sponsored agricultural programs. Similarly, the availability of credit is also a major issue. Women lack collateral, formal identification, or prior credit history that financial institutions consider to classify them as high-risk borrowers and, therefore, they cannot be included in the formal financing structures (Nwankwo & Nwachukwu, 2023).This low access to financial resources compromises the ability of women to invest in quality seeds, fertilizers, machines and other inputs required to participate in productive farming.

Gender is also linked to access to knowledge and extension services, which are vital for the adoption of new farming practices. In Punjab, the agricultural extension is typically designed for male farmers, neglecting women farmers (Onuoha & Nnadi, 2023). This reduces the exposure of the women to modern farming practices, pest management practices, and climate-resistant practices. In addition to socioeconomic and institutional forces,

cultural and social norms. Restrict women to participate in decision making process. Majority of women perform intensive agricultural practices, without the ownership rights and the income generated during the farming practice (Bano et al., 2023). These issues are also associated with low levels of education and literacy (World Bank, 2024).There is a dire need to improve gender equity through inclusive rural development, necessary for household food security, better agricultural productivity and sustainable livelihoods. This can be achieved by enhancing women's access to land, credit, irrigation, inputs and extension services (Okeke and Ugwu, 2021).

The existing literature on this issue offers fragmented insights and lacks an updated, comprehensive understanding, particularly given the diverse rural contexts of Punjab. Therefore, this study was designed to answer the following questions: to what extent women have access to agricultural resources, what are the most severe gender-based socioeconomic, institutional, and cultural issues limiting women's access to resources, and what socioeconomic and cultural factors are associated with women's access to agricultural resources. The study provides evidence-based recommendations that can guide policymakers, development agencies, and local stakeholders in developing policies and specific interventions to enable rural women to be more engaged and productive, thereby achieving equitable agricultural development. The study contributes to the overall discussion on gender equality in agriculture, and will present viable solutions to alleviate rural poverty and improve livelihoods. By achieving these objectives, and promote inclusive agricultural development in Punjab.

2. MATERIALS AND METHODS

This study used a quantitative research design. The population target was rural women who participated in or were interested in agricultural activities. The sample of 300 women was selected by stratified random sampling approach. First, South Punjab was selected purposively because of having agricultural base but face persistent challenges like extreme poverty, inequality, poor infrastructure and lack of access to education. From South Punjab, Rajanpur and Layyah districts were chosen again purposively due to their underdeveloped status. In the next step, 15 villages were randomly selected from each district. Finally, 10 women respondents were randomly selected to collect data. Primary data was collected through the questionnaire, which contained close ended questions as well as Likert scale questions. This questionnaire was divided into three sections that include demographic and socioeconomic variables (age, education, household size, income, marital status), the accessibility of agricultural facilities (ownership of land, access to credit, availability of extension facilities, availability of agricultural inputs) as well as limiting factors and influences (social, cultural, institutional and economic barriers). The data was analyzed with statistical software (SPSS). Descriptive statistics (frequency, percentage, means, and SD) and inferential statistics (chi-square test and multiple regression) were used to measure the level of accessibility and determine the relationship between socioeconomic features and access to resources as well as identify the socioeconomic, cultural, and institutional factors that determine access. Major limitations experienced by rural women have also been identified by ranking and scoring.

3. RESULT AND DISCUSSION

3.1. Demographic Characteristics

According to table 1, the age demographic distribution indicated that the highest percentage of respondents (30%) was in the 26-35 years age group, followed by 28.3% in the 36-45 years age group. It means that most of the respondents were of middle age, which aligns with Quisumbing et al. (2022), who found that middle-aged women in rural Pakistan are engaged in agricultural work. Education wise, a large proportion of the respondents (41.7%) were illiterate and only 6.6% had higher secondary education or above. This low level of formal education is similar to the findings of Raza et al. (2022), who pointed out that low education rates among females in rural areas are the key reason why rural women do not have access to information on agriculture and modern technologies in agriculture. Household size analysis revealed that most of the participants (46.7%) belonged to the medium family sizes (have 5-7 members).

The marital status data showed that most of the participants (70%) were married. By occupation, 40% of the women were engaged in farming or livestock businesses along with household work, while 23.3% were engaged in household duties only. This is well aligned with the literature (Apeh et al., 2023; Ukwuaba et al., 2023). The land ownership patterns showed that only a quarter of the respondents owned their land individually, 43.3% have land jointly owned by the family. While, 31.7% owned no land, similar results are also found by (Raza et al., 2022).

3.2. Accessibility of Rural Women to Agricultural Resources

Results in Table 2 demonstrate that decision-making in farming had a top mean score (2.07), indicating that women were involved in some of the decisions made about the farm. Other researchers also mentioned that rural women are more likely to be involved in the everyday work of agriculture but have fewer formal decisions making opportunity regarding sale/purchase or marketing (Raza et al., 2022; Anderson et al., 2020). Irrigation and water

access came second (mean = 2.00), indicating partial access to water required to grow crops. Land ownership comes third (mean = 1.93) and access to agricultural inputs in terms of seeds, fertilizers and tools (mean = 1.93) stands at fourth. This is consistent with Anjum et al. (2022) and Shabir et al. (2010) findings which reveal that women tend to rely on male members of their families or family resources in order to access land as well as agricultural inputs.

The mean score of 1.77 for access to markets to sell their produce indicates one of the most critical limitations for women. Credit facilities (mean = 1.74) and extension services (mean = 1.57) had the lowest mean score, highlighting that women had poor access to institutional support, formal loans, and agriculture information as well as training services. These findings are consistent with the findings of other authors, such as Rana (2021) and Shabir et al. (2021), who also reported that socioeconomic and institutional factors severely limit access to agricultural credit and extension services by rural women in Pakistan.

Table 1: Demographic Characteristics of Respondents (n = 300)

Characteristics	Categories	Frequency (f)	Percentage (%)
Age (years)	18–25	40	13.3
	26–35	90	30.0
	36–45	85	28.3
	46–55	50	16.7
	56 and above	35	11.7
Education Level	Illiterate	125	41.7
	Primary (1–5)	80	26.7
	Middle (6–8)	50	16.7
	Secondary (9–10)	25	8.3
	Higher Secondary & above	20	6.6
Household Size	1–4 members	55	18.3
	5–7 members	140	46.7
	8–10 members	80	26.7
	10+ members	25	8.3
Marital Status	Single	40	13.3
	Married	210	70.0
	Widowed	35	11.7
	Divorced/Separated	15	5.0
Occupation	Farming/Livestock	120	40.0
	Labor/Helper	80	26.7
	Household work only	70	23.3
	Other	30	10.0
Land Ownership	Own land	75	25.0
	Joint family land	130	43.3
	No land access	95	31.7

Table 2: Level of Gender-Based Accessibility of Rural Women to Agricultural Resources (n = 300)

Agricultural Resource	Mean	SD	Rank
Decision-Making in Agriculture	2.07	0.81	1
Irrigation/Water Access	2.00	0.79	2
Land Ownership/Use	1.93	0.78	3
Agricultural Inputs (seeds, fertilizer, tools)	1.93	0.76	4
Market Access for Produce	1.77	0.74	5
Credit Facilities	1.74	0.72	6
Extension Services (training, advice)	1.57	0.71	7

Note: 3-Likert scale (1 = Not Accessible, 2 = Partially Accessible, 3 = Fully Accessible)

3.3. Socioeconomic, Institutional, and Cultural Constraints

The primary socioeconomic, institutional, and cultural obstacles to rural women owning agricultural resources are presented in Table 3, measured on a Likert scale (1 = Not a constraint, 5 = Major constraint).

Among socioeconomic factors, lack of education/literacy emerged as the most critical constraint (Mean = 4.32, SD = 0.78, Rank 1), followed by limited household income (Mean = 4.10, SD = 0.85, Rank 3). These findings suggest that women with lower education levels face substantial barriers in accessing agricultural inputs, land, and decision-making opportunities. This is consistent with the literature highlighting the central role of education and economic empowerment in improving women's agricultural participation (Raza et al., 2022). Limited institutional support was identified as a major barrier as well. Limited access to extension services (Mean = 4.21, SD = 0.80, Rank 2) is a severe concern as extension agents fail to reach women farmers. Large household responsibilities

(Mean = 3.88, SD = 0.91, Rank 5) and lack of ownership of land/assets (Mean = 3.95, SD = 0.87, Rank 4) also restrict women's engagement in productive activities, confirming prior findings in South Asian rural contexts (Rana, 2021). Further, unavailability of credit/loans (Mean = 3.90, SD = 0.88, Rank 6) were particularly restrictive. These results underscore the importance of institutional mechanisms in providing women with knowledge, resources, and financial support to participate in agriculture effectively (Zubair et al., 2023). Constraints such as exclusion from cooperatives (Mean = 3.72) and inadequate training programs (Mean = 3.75) also contribute significantly to women's lack of access to agricultural resources.

Table 3: Key Gender-Based Socioeconomic, Institutional, and Cultural Constraints Limiting Rural Women's Access to Agricultural Resources (n = 300)

Constraints Category	Specific Constraint	Mean	SD
Socioeconomic Constraints	Lack of education/literacy	4.32	0.78
	Limited household income	4.10	0.85
	Large household responsibilities	3.88	0.91
	Lack of ownership of land/assets	3.95	0.87
Institutional Constraints	Limited access to extension services	4.21	0.80
	Difficulty accessing credit/loans	3.90	0.88
	Exclusion from cooperatives or farmer groups	3.72	0.92
	Inadequate training programs	3.75	0.89
Cultural Constraints	Social norms restricting mobility	4.15	0.82
	Gender-biased decision-making in households	4.05	0.84
	Cultural expectation to prioritize household over work	3.85	0.90
	Limited participation in community meetings	3.70	0.93

Cultural norms also strongly influence women's access, with social norms restricting mobility (Mean = 4.15, SD = 0.82) and gender-biased household decision-making (Mean = 4.05, SD = 0.84) being important indicators. These findings align with prior studies emphasizing that patriarchal norms, gender roles, and mobility restrictions hinder women's participation in agricultural decision-making and community activities (Raza et al., 2022; Rana, 2021). Other cultural factors, including the expectation to prioritize household duties over agricultural work (Mean = 3.85) and limited participation in community meetings (Mean = 3.70), were lower ranked but remain relevant. These findings reinforce the need for integrated interventions targeting literacy, financial inclusion, institutional support, and gender-sensitive cultural change to enhance women's agricultural participation (Zaman, 2021; Raza et al., 2022).

3.4. Chi-square test

According to Chi-square results in Table 4, education emerged as a consistently significant factor influencing access to nearly all agricultural resources. The Chi-square values for education were χ^2 = 9.43 (p = 0.009) for extension services and χ^2 = 15.32 (p = 0.001) for irrigation/water access, indicating that higher educational attainment is strongly associated with improved access to these resources. These findings align with prior studies showing that education empowers women with knowledge, skills, and confidence to engage in agricultural decision-making and resource management (Yaqoob et al., 2022; Raza et al., 2022). Income level also significantly influence the access to most resources, with Chi-square values ranging from χ^2 = 7.88 (p = 0.019) for land ownership/use to χ^2 = 13.45 (p = 0.001) for credit facilities. Higher household income enables women to afford inputs, participate in markets, and access extension services, consistent with the literature highlighting the positive relationship between economic status and resource accessibility in rural contexts (Syed et al., 2022).

The relationship between age and access to agricultural resources was mostly non-significant, except for irrigation/water access (χ^2 = 8.34, p = 0.015) and market access (χ^2 = 7.29, p = 0.026). This suggests that while experience may influence certain resource access, age alone does not strongly determine overall accessibility, corroborating findings from similar studies in rural South Asia (Khan et al., 2024; Bano et al., 2023). Household size showed weak associations with resource access, with only market access showing a marginally significant relationship (χ^2 = 6.23, p = 0.045). This implies that larger households do not necessarily translate into better access for women, reflecting the complex interplay between household composition, labor availability, and decision-making power (Aziz et al., 2021). These findings support existing literature emphasizing the need for targeted interventions such as literacy programs, skill development, and financial inclusion to address gender disparities in agriculture (Rasheed & Nosheen, 2024).

3.5. Multiple Regression Analysis

According to Multiple Regression analysis results in Table 5, the socioeconomic variables, including education, income and household resources, were the most significant positive predictors of access (B = 0.212, β = 0.345, p <

0.01). This indicates that women, who are better educated, enjoy a higher household income and those women who own better household resources are more likely to access agricultural inputs, land, credit and extension services. This is consistent with previous studies indicating the significance of education and economic empowerment in improving the participation of women in agriculture (Hussain, 2022). A very significant negative relationship was found between access and cultural concerns (B = -0.142, β = -0.198, $p < 0.01$). This means that gender norms and low mobility limit women's involvement in farm labor. A similar finding is also found by Noor et al. (2022).

Table 4: Chi-square Tests of Relationships between Socioeconomic Characteristics and Access to Agricultural Resources

Socioeconomic Characteristics	Agricultural Decision-Making	Irrigation/Water Access	Land Ownership/Use	Agricultural Inputs (seeds, fertilizer, tools)	Market Access	Credit Facilities	Extension Services (training/advice)
Age	$\chi^2 = 5.12$, p = 0.077	$\chi^2 = 8.34$, p = 0.015*	$\chi^2 = 4.56$, p = 0.102	$\chi^2 = 3.87$, p = 0.145	$\chi^2 = 7.29$, p = 0.026*	$\chi^2 = 6.12$, p = 0.047*	$\chi^2 = 5.98$, p = 0.051
Education Level	$\chi^2 = 12.45$, p = 0.002**	$\chi^2 = 15.32$, p = 0.001**	$\chi^2 = 10.21$, p = 0.006**	$\chi^2 = 14.67$, p = 0.001**	$\chi^2 = 11.54$, p = 0.003**	$\chi^2 = 13.78$, p = 0.001**	$\chi^2 = 9.43$, p = 0.009**
Household Size	$\chi^2 = 4.11$, p = 0.129	$\chi^2 = 5.89$, p = 0.053	$\chi^2 = 3.45$, p = 0.178	$\chi^2 = 4.78$, p = 0.091	$\chi^2 = 6.23$, p = 0.045*	$\chi^2 = 5.11$, p = 0.078	$\chi^2 = 4.65$, p = 0.098
Income Level	$\chi^2 = 9.78$, p = 0.008**	$\chi^2 = 12.41$, p = 0.002**	$\chi^2 = 7.88$, p = 0.019*	$\chi^2 = 11.22$, p = 0.004**	$\chi^2 = 10.67$, p = 0.005**	$\chi^2 = 13.45$, p = 0.001**	$\chi^2 = 8.32$, p = 0.015*

Notes:
χ^2 = Chi-square statistic
p = significance level
*$p < 0.05$, **$p < 0.01$ (statistically significant)

Table 5: Multiple Regression Analysis of Main Socioeconomic, Cultural, and Institutional Factors Influencing Access (n = 300)

Main Factors	B (Standardized Coefficient)	SE (Standard Error)	β (Standardized Coefficient)	t-value	p-value	95% Confidence Interval
Socioeconomic Factors	0.212	0.031	0.345	6.84	0.000**	0.151, 0.273
Cultural Factors	-0.142	0.029	-0.198	-4.90	0.000**	-0.199, -0.085
Institutional Factors	0.178	0.033	0.251	5.39	0.000**	0.113, 0.243

Model Summary:
$R^2 = 0.542$ (54.2% of variance in access explained by the three main factors)
F = 98.73, $p < 0.001$
Notes:
B = unstandardized coefficient
β = standardized coefficient
SE = standard error
*$p < 0.05$, **$p < 0.01$ (statistically significant)

Institutional factors, including access to extension services, credit, cooperatives and training programs (B = 0.178, β = 0.251, $p < 0.01$) were positively associated with access. The greater institutional assistance women receive, the more likely it is that they will have access to the means and information required to participate in productive agriculture, which suits the literature on this topic as it indicates that institutional mechanisms have a significant role in enhancing the role of women in agriculture (Raza et al., 2022; Rana, 2021). Access to agricultural resources is explained by 54.2 percent of this model ($R^2 = 0.542$, F = 98.73, $p < 0.001$). This implies that a combination of socioeconomic, cultural, and institutional factors greatly determines whether rural women have access to agricultural resources.

4. CONCLUSION

Results concluded that socioeconomic determinants such as education, income, cultural beliefs, restricted mobility, and gendered decision-making in the household are significant barriers for women to access agricultural resources. The institutional factors that positively affect the access of resources were limited extension services, unavailability of credit and training programs. The findings of the Chi-square and regression suggest that cultural and institutional constraints, as well as socioeconomic determinants, are always relevant for women in accessing farm resources. Overall, the article demonstrates the need to launch gender sensitive programs in order to increase literacy levels, financial inclusion, and institutional reforms for ensuring equitable access to agricultural assets.

Declarations

Funding: This research received no financial support from public, commercial, or non-profit funding agencies.

Conflicts of Interest: The authors declare no conflicts of interest.

Data Availability: The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics Statement: All procedures involving human participants were reviewed and approved by the Institute of Agricultural Extension, Education, and Rural Development, University of Agriculture, Faisalabad. The study was conducted in accordance with applicable institutional and local ethical guidelines, and written informed consent was obtained from all participants prior to their involvement.

Authors' Contributions: Faisal Nadeem contributed to the conceptualization, methodology, data collection, formal data analysis, Abdulmalek Naji Alsanhani; original draft preparation, and manuscript review and editing.

Generative AI Statement: The authors confirm that no generative artificial intelligence tools, including DeepSeek, were used in the preparation of this manuscript.

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