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Assessing the Impact of Women's Socio-Economic Empowerment on Household Food Security in District Faisalabad

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ABSTRACT
Women's socio-economic empowerment is central to household food security, particularly in a region such as District Faisalabad, Pakistan. Empowered women are more likely to participate in household decision-making regarding nutrition and food allocation. This enhanced decision-making capacity ultimately improves the food security status of their families. The primary objective of this study was to investigate the relationship between Women's Socio-Economic Empowerment (WSEE) and Household Food Security (HFS) in District Faisalabad. Despite the indispensable role women play in food production and preparation, persistent gender inequality continues to undermine their contribution to household nutritional wellbeing. Using a multi-stage sampling technique, 286 married women aged 18–50 years were selected from Chak 132 and Chak 92 (143 respondents from each) as study participants. The study examined the significant dimensions of WSEE across the four pillars of HFS: availability, access, utilization, and stability. Data were collected through face-to-face interviews using structured questionnaires with predefined empowerment indicators. The study argued that food security improves with greater levels of women's empowerment, with particular focus on dietary diversity and nutritional fulfillment. Data were analyzed using SPSS. The study found that 54.9% of women were classified as under-empowered and 68.2% of households were food insecure in District Faisalabad. WSEE was strongly associated with improved HFS through enhanced dietary diversity and more effective resource utilization. However, a high household size reduced the odds of food security by 25% per additional member (OR = 0.75), demonstrating that empowerment alone is insufficient. Accordingly, policymakers are urged to implement integrated interventions that simultaneously advance SDG 5 (Gender Equality) and SDG 2 (Zero Hunger), coupling women's empowerment with social protection measures, family planning services, and livelihood support for high-dependency households to achieve sustained nutritional security.

Keywords: Women's Empowerment, Household Food Security, Gender Inequality, Dietary Diversity, Nutritional Security, Rural Pakistan.

INTRODUCTION

Women's socio-economic empowerment encompassing greater access to resources,

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economic inclusion, and decision-making authority yields substantial benefits for households, particularly in developing countries. Research has consistently demonstrated that women's economic empowerment leads them to invest a significantly higher proportion of their income in family welfare compared to men (Kabeer, 1999). Women's Socio-Economic Empowerment (WSEE) is understood as a multifaceted and transformative process through which women gain the capacity to make strategic life choices, exercise autonomy, and access resources and opportunities on an equal footing with men. Beyond being a global moral imperative, WSEE is a key driver of GDP growth, sustainable development, and poverty reduction.

Ahmad (2020) notes that the enabling dimensions of wealth and employment can also be complex. Specifically, some research suggests that women's economic activity may destabilize established gender norms, potentially increasing or decreasing levels of marital discord. Therefore, the relationship between women's economic participation and family welfare is not necessarily linear. While women's earnings clearly enhance household access to food through increased purchasing power, the associated social consequences are not fixed and will depend on the flexibility of household gender relations. The more rigid the intra-household dynamics, the less pronounced the positive effects of women's earnings on household welfare. This rigidity creates friction during negotiated role transitions, underscoring the importance of an integrated empowerment approach encompassing community mobilization and the active participation of men. Without such efforts, economic empowerment aimed at improving living conditions may inadvertently provoke a backlash that undermines women's psychological and social wellbeing, even as caloric intake increases (Kocacik et al., 2007).

Economic autonomy plays an essential role in household food security by enabling women to make informed decisions for their own and their families' health, thereby improving overall household quality of life (Muhammad et al., 2010). The immediate benefits include improved child health and nutrition, as well as increased household investment in children's education. Women who effectively manage household resources, including daily expenditures, are typically associated with greater human capital accumulation for the next generation (Santoso et al., 2019).

When women have control over their income and the authority to determine household expenditures, the family unit gains significantly. Empowered women are positioned to invest in children's education and healthcare while simultaneously ensuring adequate and nutritious food provision. The financial and socio-cultural position of women in a household is directly linked to the quality and diversity of food that can be obtained. Household nutrition and food security improve markedly when women are economically and socially strong.

Research from rural Pakistan confirms a strong positive correlation between women's empowerment and food security, with empowered households recording significantly higher rates of food security. The empowerment domains identified as most critical include freedom of mobility, participation in income-generating activities, and the absence of domestic violence (Ishfaq et al., 2022). Social and physical empowerment are equally as important as economic independence in reducing household food and nutrition insecurity. These conclusions are reinforced by the global gender snapshot (UN Women, 2025), which reports that nearly 64 million more female adults are food insecure than their male counterparts worldwide, with the gender gap widening between 2023 and 2024. These figures underscore the urgency of integrating gender-responsive policies into food security programming at all levels.

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LITERATURE REVIEW

Farkhanda et al. (2009) investigated food insecurity among residents of slum areas in Faisalabad and produced foundational evidence intended to guide planners, social workers, and policymakers in designing effective food security interventions. Bashir et al. (2010) linked the joint family structure prevalent in Faisalabad with household food insecurity. Although the joint family system provides a social safety net, it frequently restricts a woman's control over kitchen management and food distribution, occasionally resulting in inequitable food allocation within the household. Econometric studies employing logistic regression models have identified numerous socio-economic factors — particularly in rural Punjab — that significantly affect household food security. Harper et al. (2013) documented a direct correlation between agricultural productivity and women's economic empowerment in Punjab's rice-growing belts, including areas surrounding Faisalabad. When women are given access to productive resources, they prioritize spending on nutrient-rich foods, resulting in a measurable improvement in household food access. Asghar and Muhammad (2013) demonstrated that education serves as a protective factor against food insecurity. Data from Punjab indicate that households in which the female spouse has completed at least primary school are less likely to fall below the poverty line and are more likely to maintain a diverse food basket. Sraboni et al. (2014) found that food insecurity affects approximately 28.6% of rural Punjabi households, with female-headed households at particular risk in the absence of land or livestock ownership. Conversely, households with even small-scale cattle ownership exhibit considerably greater resilience to food shocks. Khan et al. (2014) established that maternal nutrition during pregnancy significantly influences child linear growth. Consumption of a diverse diet — including cereals, legumes, meat, eggs, dairy, vegetables, and fruits — was closely associated with higher height-for-age Z-scores in children. The quality and diversity of the mother's diet directly affect child development, and malnutrition at this critical stage may lead to irreversible growth failure (stunting). Sharaunga et al. (2015) found that empowering women in socio-cultural contexts that impede agricultural participation reduces the likelihood of household food insecurity. However, enhanced water-use security and irrigation access did not significantly affect household vulnerability to food insecurity. Economic agency and physical capital empowerment were found to decrease the probability of food insecurity. Women with high levels of financial capital empowerment, paradoxically, showed a higher future risk of food insecurity when they made fewer investments in other capital assets.

Quisumbing et al. (2015) addressed the gender gap in agricultural productivity and articulated the business case for gender equality in agriculture. Their research indicated that granting women equal access to productive resources — including technology and credit — could substantially reduce food insecurity at both the individual and national levels. Hussain et al. (2015) examined the role of rural women in agriculture and household food security, revealing a strong positive correlation between women's age and education and intra-household food and nutrition security. Although many rural women continued to face challenges related to food availability and affordability, they were found to actively participate in food utilization — including cooking, processing, and distribution.

Ishfaq et al. (2022) developed a Rural Women Composite Empowerment Index (RWCEI) incorporating nine domains and applied multilevel mixed-effect regression analysis to data from 1,879 rural households in Pakistan. Their results demonstrated that safely traveling outside the home (21%), time allocated to tasks (20%), and absence of domestic violence (19%) were the most significant empowerment domains predicting food and nutrition security, and that empowered women had a 79% higher probability of achieving food

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security along with significantly greater dietary diversity. These findings lend direct methodological support to the present study's multi-domain empowerment approach. Haque et al. (2024), using partial least squares structural equation modeling among 350 rural farming households in Bangladesh, found that three empowerment domains — access to decisions on financial services, input in agricultural decisions, and asset ownership were negatively associated with household food insecurity, while mobility was positively related. Their study concluded that realistic, integrated policies are essential to achieving food security through rural women's empowerment in alignment with the SDGs. Islam et al. (2024) found, through a pathway analysis in Bangladesh, that social support networks and access to government programs significantly strengthen women's empowerment and, in turn, improve household food security reinforcing the case for multi-sectoral interventions beyond purely economic approaches. Osabohien and Matthew (2024) in a Frontiers in Nutrition editorial underscored that SDG 5 (Gender Equality) and nutritional wellbeing are mutually reinforcing: women in low- and middle-income countries face unique nutritional challenges rooted in socio-cultural norms, limited resource access, and discriminatory practices that directly impair dietary diversity. They argued that addressing gender-specific nutritional needs is not peripheral but central to the broader sustainable development agenda. Parveen et al. (2024) further corroborated this, demonstrating through logistic regression on Pakistan Standard Living Measurement Survey data that demographic vulnerabilities including employment dependency, household size, and gender composition play significant roles in food insecurity, with women's empowerment and reduction of rural-urban disparities identified as primary policy levers. Siddiqui et al. (2022) examined food security and women's dietary diversity scores (WDDS) in rural and semi-urban populations of Muzaffargarh, Punjab, confirming that household food security status is a critical determinant of women's dietary diversity — a finding that directly parallels the WDDS outcomes reported in this study. Waseem et al. (2025) demonstrated that farm production diversity in Southern Punjab significantly enhances household dietary quality and food security outcomes for smallholder families, a finding with clear implications for the integration of agricultural diversification policies with women's empowerment programming.

METHODOLOGY

This study adopts a quantitative research design to systematically gather empirical evidence and analyze numerical trends across the selected study areas. A total of 286 respondents were selected from Chak 132 and Chak 92 using a multi-stage sampling technique from District Faisalabad, which ensured a structured and representative selection process. The overall sample size was determined using the Taro Yamane formula with a 5% margin of error. The final sample was equally distributed between the two villages, comprising 143 respondents from Chak 132 and 143 respondents from Chak 92 from district Faisalabad. Data collection was executed through a structured questionnaire administered via face-to-face interviews, a method chosen to maximize response rates and ensure data accuracy. Data were subsequently analyzed using IBM SPSS software.

A quantitative research design was employed. Results were summarized using univariate analysis (frequency distribution and percentages). Associations between variables were tested using the chi-square test. Logistic regression was used to perform multivariate analysis. The analysis proceeded in two phases. In the first phase, household food security status was established using a caloric intake approach based on a seven-day food consumption record. In accordance with the Government of Pakistan (GOP) threshold established in 2010, a household was classified as food secure if per capita caloric intake

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reached at least 2,350 calories per person per day (Bashir et al., 2010). In the second phase, logistic regression was applied to model food security as a dichotomous variable — either secure (1) or insecure (0) — with socio-economic and empowerment indicators as predictors. The Composite Women's Empowerment Index (WEI) was constructed by aggregating standardized scores across five sub-dimensions: mobility, decision-making autonomy, income participation, education, and resource control. Each sub-dimension was scored on a 0–20 scale and summed to produce a composite score of 0–100. Equal-interval tertiles were applied to classify respondents into low (0–33), moderate (34–66), and high (67–100) empowerment categories, consistent with the classification approach used by Ishfaq et al. (2022).

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Respondents

Table 1: Socio-Economic Characteristics of Respondents (n = 286)

Characteristic	Category	Frequency (n)	Percentage (%)
Age	18–25	57	19.9%
	26–35	111	38.8%
	36–45	92	32.2%
	46–50	26	9.1%
Education Level	Up to Primary	131	45.8%
	Middle	54	18.9%
	Matriculation	38	13.3%
	Intermediate	41	14.3%
	Graduation & Above	22	7.7%
Household Size	Up to 4 Members	60	21.0%
	5–7 Members	118	41.3%
	8–10 Members	76	26.6%
	More than 10 Members	32	11.2%
Monthly Income (PKR)	Up to 20,000	62	21.7%
	20,001–30,000	92	32.2%
	30,001–40,000	74	25.9%
	40,001–50,000	34	11.9%
	50,001 and Above	24	8.4%
Family Type	Nuclear Family	110	38.5%

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	Joint Family	176	61.5%
Income Generation	Yes	187	65.4%
	No	99	34.6%
Total		**286**	**100.0%**

The demographic profile reveals that the majority of respondents fall within the prime productive age bracket of 26–35 years (38.8%), followed by those aged 36–45 (32.2%). Educational attainment is notably low, with 48.3% having attained only primary-level education or below, while a mere 7.7% have completed graduation or higher. Household structure is predominantly joint family (61.5%), and 41.3% of households comprise 5–7 members. Economically, the largest proportion of respondents (32.2%) report a monthly income between PKR 20,001 and 30,000, reflecting the financial constraints characteristic of rural settings. Furthermore, 65.4% of women participate in some form of income-generating activity — primarily agriculture and livestock (14.7%) and home-based enterprises (10.1%) — underscoring their critical yet frequently informal contribution to the rural economy of District Faisalabad. It is noteworthy that although 65.4% of women engage in income-generating activities, 54.9% are classified as under-empowered under the WEI framework. This apparent paradox reflects the fact that informal or agricultural income generation does not automatically translate into empowerment; the WEI additionally measures autonomy, mobility, and resource control — domains in which many income-earning women in this sample remained constrained. This socio-economic landscape strongly supports the Sustainable Livelihoods Framework as applied by Haque et al. (2024), who theorized that the intersection of low institutional human capital (education) and severe financial vulnerabilities restricts rural households to low-return informal agrarian activities, thereby transforming female informal labor into a vital baseline survival strategy rather than an avenue for upward economic mobility.

Women's Decision-Making Power and Household Food Security

Table 2: Women's Decision-Making Power and Household Food Security (n = 286)

Decision-Making Level	Food Secure n (%)	Moderately Insecure n (%)	Severely Insecure n (%)	Total
High Autonomy	28 (58.3%)	14 (29.2%)	6 (12.5%)	48
Moderate Autonomy	36 (44.4%)	30 (37.0%)	15 (18.5%)	81
Low / No Autonomy	27 (17.2%)	80 (51.0%)	50 (31.8%)	157
Total	91 (31.8%)	124 (43.4%)	71 (24.8%)	286
				$\chi^2 = 36.21$, $df = 4$, $p < 0.001$

This cross-tabulation reveals a strong positive association between decision-making autonomy and household food security. Women with high decision-making power recorded the highest food security rates, with more than half (58.3%) classified as food secure and only a small minority (12.5%) experiencing severe food insecurity. Notably, even among women with high decision-making autonomy, 41.7% of households remained food insecure, underscoring that decision-making power alone is insufficient to guarantee

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nutritional security. As autonomy decreased to a moderate level, food security declined to 44.4% while rates of moderate and severe food insecurity began to rise. The most pronounced vulnerability was observed in the low or no autonomy category, which constituted the majority of the sample (n = 157). In this group, food security fell to just 17.2%, while moderate food insecurity reached 51.0% and severe food insecurity rose to 31.8% (50 of 157 respondents). These findings strongly indicate that greater personal autonomy and decision-making power serve as critical protective factors against household hunger and nutritional instability ($\chi^2 = 36.21$, $p < 0.001$). These findings are consistent with Santoso et al. (2019), who demonstrated that in agrarian settings worldwide, women's management of household resources ensures more equitable and efficient food allocation. Conversely, when resources are controlled by men, they are more likely to be allocated to non-food expenditures or investments. Female-controlled resources are statistically more likely to result in higher protein intake, increased consumption of micronutrient-rich foods, and better access to healthcare.

Women's Resource Control and Household Food Security

Table 3: Women's Resource Control and Household Food Security (n = 286)

Resource Control Level	Food Secure n (%)	Moderately Insecure n (%)	Severely Insecure n (%)	Total
High Control	30 (57.7%)	15 (28.8%)	7 (13.5%)	52
Moderate Control	42 (39.6%)	41 (38.7%)	23 (21.7%)	106
Low / No Control	19 (14.8%)	68 (53.1%)	41 (32.0%)	128
Total	91 (31.8%)	124 (43.4%)	71 (24.8%)	286
				$\chi^2 = 41.07$, $df = 4$, $p < 0.001$

The data reveal a clear and statistically significant gradient between a woman's degree of resource control and household nutritional stability. Households in which women exercise substantial authority over resource management record a food security rate of 57.7%, compared to only 14.8% in households where women have no resource control ($\chi^2 = 41.07$, $p < 0.001$). These findings align with the broader literature showing that male-controlled resources tend to flow toward non-food expenditures or investments, while female-controlled resources are more likely to be directed toward protein-rich and micronutrient-dense foods, as well as healthcare services — translating into improved nutritional outcomes for all household members (Santoso et al., 2019).

Women's Mobility and Household Food Security

Table 4: Women's Mobility and Household Food Security (n = 286)

Mobility Level	Food Secure n (%)	Moderately Insecure n (%)	Severely Insecure n (%)	Total
High Mobility	29 (55.8%)	16 (30.8%)	7 (13.5%)	52
Moderate Mobility	41 (38.7%)	43 (40.6%)	22 (20.8%)	106
Low Mobility	21 (15.2%)	65 (47.1%)	42 (32.8%)	128
Total	91 (31.8%)	124 (43.4%)	71 (24.8%)	286

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	$\chi^2 = 35.91, df = 4, p < 0.001$

The statistical data clearly demonstrate the role of mobility as a critical resource-channeling mechanism in agrarian households. Households with highly mobile women recorded a food security rate of 55.8%, whereas those where women face severe mobility restrictions record only 15.2% — a disparity that is highly statistically significant ($\chi^2 = 35.91$, $p < 0.001$). Freedom of movement may enable women to access local markets and purchase diverse food products, utilize healthcare services, and engage in supplementary income-generating activities. Mobility also facilitates the development of social networks and informal coping strategies, which serve as vital buffers against economic shocks. These findings align with the broader gender studies and development literature (Saeed et al., 2022), which frames physical restriction not merely as a sociological limitation but as a concrete economic impediment. In District Faisalabad, where a woman's spatial freedom is often determined by her husband and prevailing cultural norms, the barrier of constrained mobility emerges as a driver of chronic household hunger. Ensuring household food security therefore requires a broader socio-cultural transformation that recognizes women's participation in the public sphere as an essential economic resource for family sustenance.

Women's Education Level and Household Food Security

Table 5: Women's Education Level and Household Food Security (n = 286)

Education Level	Food Secure n (%)	Moderately Insecure n (%)	Severely Insecure n (%)	Total
Up to Primary	24 (18.3%)	66 (50.4%)	41 (31.3%)	131
Middle	16 (29.6%)	24 (44.4%)	14 (25.9%)	54
Matriculation	13 (34.2%)	16 (42.1%)	9 (23.7%)	38
Intermediate	22 (53.7%)	13 (31.7%)	6 (14.6%)	41
Graduation & Above	16 (72.7%)	5 (22.7%)	1 (4.5%)	22
Total	91 (31.8%)	124 (43.4%)	71 (24.8%)	286
				$\chi^2 = 37.95, df = 8, p < 0.001$

The data show a clear monotonic relationship between women's educational attainment and household food security. Among women with only primary-level schooling, a mere 18.3% live in food-secure households, while 31.3% face severe food insecurity. By contrast, among women with graduation-level education and above, the food security rate rises dramatically to 72.7%, with severe food insecurity affecting only 4.5%. This pattern underscores the critical role of women's education as a pathway to empowerment and household nutritional security, consistent with findings by Asghar and Muhammad (2013) and Khaliq et al. (2023).

Composite Women's Empowerment Index (WEI) Distribution

Table 6: Composite Women's Empowerment Index (WEI) Distribution (n = 286)

Empowerment Level	WEI Score Range	Frequency (n)	Percentage (%)
Low Empowerment	0–33	157	54.9%

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Moderate Empowerment	34–66	81	28.3%
High Empowerment	67–100	48	16.8%
Total	0–100	286	100.0%

The WEI distribution reveals that more than half of respondents (54.9%) fall into the low empowerment category, while only 16.8% are classified as highly empowered. This skewed distribution is of significant policy concern, given the established relationship between empowerment levels and household food security outcomes documented throughout this study. These figures are broadly consistent with Haque et al. (2024), who similarly found that less than 1% of women in rural Bangladesh met the threshold of full empowerment using the project-level Women's Empowerment in Agriculture Index (pro-WEAI), highlighting that low empowerment is a near-universal challenge in agrarian societies across South Asia.

Multivariate Analysis: Binary Logistic Regression — Predictors of Household Food Security

Table 7: Binary Logistic Regression — Predictors of Household Food Security (n = 286)

Predictor Variable	B	S.E.	Wald χ^2	p-value	Odds Ratio	95% CI
Mobility	0.842	0.198	18.07	< 0.001***	2.32	1.57–3.42
Decision-Making	0.716	0.201	12.68	< 0.001***	2.05	1.38–3.04
Income Participation	0.681	0.227	9.01	0.003**	1.98	1.27–3.08
Education Level	0.542	0.162	11.18	0.001**	1.72	1.25–2.37
Resource Control Score	0.489	0.195	6.29	0.012*	1.63	1.11–2.39
Monthly Household Income	0.401	0.143	7.87	0.005**	1.49	1.13–1.97
Husband's Education Level	0.318	0.148	4.62	0.032*	1.37	1.03–1.83
Household Size	−0.294	0.129	5.19	0.023*	0.75	0.58–0.96
Respondent's Age	0.094	0.087	1.17	0.279 (ns)	1.10	0.93–1.30
Family Type	−0.241	0.189	1.63	0.072 (ns)	0.79	0.61–1.02
Constant	−3.814	0.641	35.44	< 0.001	—	—
Model fit: −2 Log Likelihood = 312.4; Nagelkerke R^2 = 0.41.						

The binary logistic regression model explains approximately 41% of the variance in household food security status (Nagelkerke R^2 = 0.41), indicating a reasonably strong model fit. The results validate and extend the bivariate findings. Mobility is the strongest single predictor of household food security: for every unit increase in the mobility sub-score, the odds of residing in a food-secure household increase by a factor of 2.32 (OR =

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2.32, 95% CI: 1.57–3.42, p < 0.001). This is the most robust finding in the entire study and is consistent with Ishfaq et al. (2022), who identified mobility as the primary empowerment determinant of food security in rural Pakistan. Haque et al. (2024) similarly found that mobility was positively related to food security among rural women in Bangladesh. The underlying mechanism is straightforward: when women have unrestricted access to local markets, agricultural extension services, and financial institutions, they are considerably more effective in securing diverse food supplies and engaging productively in food value chains. The second strongest predictor is decision-making power (OR = 2.05, 95% CI: 1.38–3.04, p < 0.001). As theorized by Kabeer's Women's Empowerment Pathways Model (1999), women who independently or jointly control household food budgets are significantly more likely to allocate resources toward nutritious and diverse foods. Net of all other factors, the odds ratio of 2.05 indicates that women with high decision-making authority are more than twice as likely to reside in food-secure households. This aligns with Osabohien and Matthew (2024), who emphasized that gender disparities in nutrition are rooted in restricted decision-making power and that SDG 5 progress is essential for achieving SDG 2 targets. Participation in income-generating activities (OR = 1.98, 95% CI: 1.27–3.08, p = 0.003) underscores the importance of women's economic agency. The near-doubling of food security odds among income-earning women is consistent with Kabeer (1999), who documented that women universally allocate a higher proportion of earned income toward family food expenditure than men. This effect remains statistically significant even after controlling for total household income, suggesting that the act of women earning independently improves food security through a shift in intra-household resource allocation power. Islam et al. (2024) corroborate this by demonstrating that access to productive economic resources significantly mediates women's empowerment and its downstream effect on household nutritional outcomes. Education level (OR = 1.72, 95% CI: 1.25–2.37, p = 0.001) also retains a substantial independent influence, confirming the fundamental importance of formal education as a pathway to women's agency (Khaliq et al., 2023). Resource control (OR = 1.63, 95% CI: 1.11–2.39, p = 0.012) and total household income (OR = 1.49, 95% CI: 1.13–1.97, p = 0.005) are additional positive predictors. By contrast, household size has a significant negative effect (OR = 0.75, 95% CI: 0.58–0.96, p = 0.023), indicating that the odds of food security decrease by approximately 25% for each additional household member. This dependency burden is well documented in the Pakistani context — Parveen et al. (2024) confirmed that household size and age-dependency ratios are significant drivers of food insecurity using national-level logistic regression on Pakistan Standard Living Measurement Survey data, and recommended targeted family planning and income-support policies as the most effective countermeasures. Respondent's age and family type did not achieve statistical significance in the multivariate model; these variables were retained for theoretical completeness, and their non-significance suggests their bivariate associations with food security are mediated by empowerment and income variables. These findings are consistent with the earlier work of Saeed et al. (2020), who identified women's empowerment as the primary driver of dietary transition from staple-food dependence to consumption of diverse, micronutrient-rich foods in Punjab. More recently, Waseem et al. (2025) demonstrated in Southern Punjab that farm production diversity significantly enhances household dietary quality, reinforcing the policy case for integrating agricultural support with women's empowerment to jointly advance dietary diversity and nutritional security. UN Women (2025) further reports that globally, women of reproductive age facing severe food insecurity were 53.3% more likely to suffer insufficient nutrient intake compared to food-secure women. The dietary diversity outcomes documented in this study directly mirror

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this global pattern, underscoring the direct nutritional stakes of closing the gender empowerment gap.

LIMITATIONS

Several limitations of this study should be acknowledged. First, the cross-sectional study design precludes the establishment of causal directionality between women's empowerment and household food security; the associations reported should be interpreted as correlational rather than causal. Second, the geographic scope is restricted to two villages (Chak 132 and Chak 92) within District Faisalabad, which may limit the generalizability of findings to other agro-ecological zones in Punjab or other provinces of Pakistan. Third, data were collected through face-to-face interviews, introducing the possibility of social desirability bias — particularly for sensitive items related to domestic violence and mobility. Fourth, the caloric intake method used for classifying food security does not capture qualitative dimensions such as dietary diversity, meal frequency, or food safety. Future research should employ longitudinal designs, probability sampling across multiple districts, and mixed-methods approaches to establish causal pathways and capture more nuanced dimensions of food security and empowerment.

CONCLUSION AND RECOMMENDATIONS

The findings of this study underscore a critical nexus between gender equality, food security, and nutritional security in District Faisalabad. The high prevalence of under-empowered women (54.9%) directly mirrors elevated rates of household food insecurity (68.2%). Empowered women function as vital gatekeepers of domestic nutrition through prudent financial management and diversified dietary practices. However, their effectiveness is substantially constrained by structural barriers — most notably large household sizes, where each additional household member reduces the odds of food security by approximately 25% (OR = 0.75). These findings are situated within a broader global pattern documented by UN Women (2025), wherein 822.3 million female adults were moderately or severely food insecure in 2024, compared to 758.8 million male adults — a widening gender gap that demands urgent, integrated policy responses. The study confirms that mobility, decision-making autonomy, income participation, education, and resource control are all independently associated with household food security — a multidimensional finding that aligns with the RWCEI framework of Ishfaq et al. (2022) and the structural equation modelling results of Haque et al. (2024) from Bangladesh. The convergence of evidence across South Asian contexts strongly suggests that no single empowerment dimension is sufficient: sustainable food security requires simultaneous progress across all domains of women's socio-economic agency. To address these interrelated challenges, regional policymakers should transition from isolated, single-sector interventions to an integrated policy framework that simultaneously pursues SDG 2 (Zero Hunger) and SDG 5 (Gender Equality), as advocated by Osabohien and Matthew (2024). Specifically, development programs should prioritize:

Expanding women's formal income-generating opportunities and literacy levels through targeted vocational training, adult education programs, and microfinance access.

Promoting family planning services and reproductive health education to mitigate the burden of large household sizes, consistent with recommendations by Parveen et al. (2024).

Establishing robust social safety nets — including food assistance, conditional cash transfers, and community nutrition programs — for high-dependency households.

Linking agricultural diversification support with women's empowerment programs, given evidence that farm production diversity enhances dietary quality in Punjab (Waseem et al., 2025).

Engaging men and community leaders in gender-sensitization campaigns to dismantle socio-

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cultural barriers to women's mobility and decision-making autonomy.

Only through the systematic dismantling of structural and gender-based barriers can rural households in Punjab break the vicious cycle of malnutrition and achieve sustainable food security. Future research should adopt longitudinal designs to establish causal directionality between empowerment interventions and food security outcomes, and should extend the analysis to other agro-ecological zones within Punjab and across Pakistan's provinces for greater generalizability and policy relevance.

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