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Determinants of group dynamics effectiveness among women farmers' FIGs under ATMA in Navsari District of Gujarat State

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Abstract

Group dynamics effectiveness is essential for the success of farmers' organizations in fostering collective action and improving rural livelihoods. The present study aimed to measure the group dynamics effectiveness among women members of Farmers' Interest Groups (FIGs) under the Agricultural Technology Management Agency (ATMA) and to analyse its determinants. An *ex-post facto* research design was used, and a sample of 120 women FIG members from the Navsari district of Gujarat was selected through random sampling. Data were collected through personal interviews using a structured schedule and analysed using appropriate statistical tools. Linear regression analysis indicated that the thirteen independent variables together explained 65.10% of the variation in group dynamics effectiveness ($R^2 = 0.651$), with the overall model being a good fit ($F = 15.218$). Among the variables, attitude towards collectivism and education were found to be positive and highly significant predictors. Step-down regression analysis further identified attitude towards collectivism, education, extension participation, and market orientation as the most significant determinants influencing group functioning. The findings suggest that women farmers with a stronger collective orientation, higher educational status, and better linkages with extension and market systems exhibit greater group efficacy. The study highlights the critical importance of attitudinal and institutional factors in strengthening the performance and cohesion of women-led FIGs.

Keywords: Group dynamics effectiveness, women farmers, Farmers' Interest Groups (FIGs) and regression analysis

Introduction

Agriculture remains the largest unorganized sector in India, where the absence of strong institutional mechanisms often limits the collective bargaining power of smallholders. In this context, farmers' organizations play a crucial role in fostering collective action and improving rural livelihoods. Under the Agricultural Technology Management Agency (ATMA), the promotion and mobilization of Farmers' Interest Groups (FIGs) serve as an important strategy for decentralized technology dissemination and farmer empowerment (Anonymous, 2018; Patel *et al.*, 2018) ^[1, 11]. Women farmers, who constitute a significant segment of the agricultural workforce, increasingly participate in such groups, where effectiveness largely depends on the quality of internal group functioning.

In social psychology, a group is defined as individuals connected through social interaction and communication, working together to achieve common goals while recognizing their membership within the group (Levi, 2007) ^[7]. Group dynamics refer to the forces that emerge as members interact, including communication processes, cohesion and social integration (Dommata & Konagala, 2014) ^[4]. Effective groups are characterized by shared leadership, open communication, mutual trust, and coordinated efforts (Johnson & Johnson, 2003; Larson & LaFasto, 1989; Zander, 1982) ^[5, 6, 13]. Failure to strengthen

these dynamics often results in weak group performance and member dissatisfaction (Dommata & Konagala, 2014) ^[4].

Collective action is essential because individual farmers often find it difficult to overcome production and market constraints independently. Group-based approaches in developing regions have been emphasized to enhance productivity and socio-economic outcomes (Otieno, 2012) ^[8]. Socio-Economic Status (SES), defined as the position individuals occupy in relation to prevailing standards of income, material possessions and participation in community activities (Akinbile, 2003; Oyeyinka, 2002) ^[2, 10], is influenced by such collective efforts. SES also affects access to services and opportunities (Ovwigho, 2014; Ramesh & Gangaboraiah, 2013) ^[9, 12]. Therefore, strengthening group dynamics is fundamental for improving the socio-economic conditions of women farmers.

The effectiveness of group dynamics within FIGs is influenced by specific personal, social and psychological characteristics of members. Personal factors such as age, education, income, training and occupation; social factors including social and extension participation; and psychological traits such as economic motivation, market orientation, innovativeness, achievement motivation and attitude towards collectivism may shape members' commitment, participation and responsiveness to group objectives. Despite the expansion of ATMA-led FIGs in

Gujarat, empirical evidence identifying the determinants of Group Dynamics Effectiveness among women farmers remains limited.

Against this backdrop, the present study titled “Determinants of Group Dynamics Effectiveness among Women Farmers’ FIGs under ATMA in Navsari District of Gujarat State” was undertaken to examine how selected personal, social and psychological characteristics influence the effectiveness of group dynamics among women FIG members.

Methodology

The study was conducted in Navsari district of Gujarat using an ex-post facto research design. Four talukas having a higher number of women FIGs under ATMA, namely Jalalpor, Gandevi, Navsari and Vansada, were selected purposively. From each taluka, two FIGs were selected randomly, and 15 members from each FIG were selected through random sampling, constituting a total sample of 120 women FIG members. The independent variables comprised selected personal (age, education, annual income, training received, occupation and market facility), social (social

participation and extension participation) and psychological characteristics (economic motivation, market orientation, innovativeness, achievement motivation and attitude towards collectivism). Standardized scales developed by previous researchers were used with suitable modifications wherever required. The dependent variable, Group Dynamics Effectiveness, was measured using the Group Dynamics Effectiveness Index developed by Darji (2018)^[3], covering key dimensions such as participation, teamwork, cohesiveness, leadership, communication and decision-making. Data were collected through a pre-tested structured interview schedule and analysed using appropriate statistical tools to determine the influence of selected independent variables on Group Dynamics Effectiveness.

Results and Discussion

Determinants of Group Dynamics Effectiveness among Women Farmers’ FIGs Linear regression analysis of determinants of Group Dynamics Effectiveness

Table 1: Linear Regression Analysis of Determinants of Group Dynamics Effectiveness among Women Farmers’ FIGs

V. No	Independent Variables	Standardized regression coefficients	Standard error (SEb)	‘t’ value	Sig.
X ₁	Age	-.124	.940	-1.897	.061
X ₂	Education	.184**	.678	3.061	.003
X ₃	Annual income	.018	.513	.306	.760
X ₄	Training received	.017	.626	.251	.802
X ₅	Occupation	-.014	.424	-.233	.816
X ₆	Market facility	.080	.787	1.255	.212
X ₇	Social participation	-.062	.892	-1.041	.300
X ₈	Extension participation	.105	.811	1.668	.098
X ₉	Economic motivation	-.044	.821	-.691	.491
X ₁₀	Market orientation	.124*	.494	1.981	.050
X ₁₁	Innovativeness	.087	.841	1.373	.173
X ₁₂	Achievement motivation	.094	.813	1.466	.146
X ₁₃	Attitude towards collectivism	.624**	.639	9.278	.000
	R ² = .651	Adjusted R ² = .608	F = 15.218**		

** Significant (‘F’ at (K-1) and (N-K-1) df) at 1% level of probability

* Significant at 0.05 level of probability, ** Significant at 0.01 level of probability

From Table 1, it could be observed that the coefficient of determination (R²) was significant. The R² value of 0.651 indicated that all the thirteen independent variables taken together explained about 65.10% of the variation in the dependent variable, i.e., group dynamics effectiveness among women farmers’ FIGs. The remaining 34.90% of variation might be attributed to other extraneous variables not included in the present study. The F value (15.218**) was significant at one% level of probability, indicating that the overall regression model was a good fit. Among the independent variables, attitude towards collectivism (X₁₃) had a strong positive and highly significant influence on group dynamics effectiveness at one per cent level of probability ($\beta = 0.624$; $p = 0.000$). This implies that the higher the positive attitude towards collectivism among women farmers, the greater would be the effectiveness of group dynamics within FIGs.

Education (X₂) was found to be positive and significant at one% level of probability ($\beta = 0.184$; $p = 0.003$),

indicating that better educated members tend to contribute more effectively to group functioning and coordination. Market orientation (X₁₀) was significant at five% level of probability ($\beta = 0.124$; $p = 0.050$), suggesting that women farmers with higher market orientation exhibited better group dynamics effectiveness. Other variables such as age, annual income, training received, occupation, market facility, social participation, extension participation, economic motivation, innovativeness and achievement motivation were found to be non-significant in the full model.

Step down regression analysis

In step-down regression analysis, independent variables were eliminated sequentially based on their least contribution to R² (coefficient of multiple determination). The model was refined through successive steps to identify the most influential determinants of group dynamics effectiveness.

Table 2: Model Summary of Step-down Regression Analysis of Determinants of Group Dynamics Effectiveness among Women Farmers' FIGs

Steps	R	R ²	Adjusted R ²	F value
1	.742 ^a	.551	.547	144.552
2	.757 ^b	.572	.565	78.306
3	.769 ^c	.591	.581	55.898
4	.780 ^d	.608	.594	44.588
5	.788 ^e	.621	.604	37.36

From Table 2, it could be inferred that the final model (Step 5) recorded an R² value of 0.621 with an adjusted R² of 0.604 and F value of 37.36, indicating that the selected variables together explained about 62.10% of the variation in group dynamics effectiveness among women farmers' FIGs.

Table 3: Step-down Multiple Linear Regression Analysis of Determinants of Group Dynamics Effectiveness among Women Farmers' FIGs (Final Model)

V. No.	Independent Variables	"b" value	"t" value	Sig.
X ₂	Education	.163	2.778**	.006
X ₈	Extension participation	.119	1.983*	.050
X ₁₀	Market orientation	.122	2.022*	.045
X ₁₂	Achievement motivation	.111	1.827	.070
X ₁₃	Attitude towards collectivism	.694	11.479**	.000

* Significant at 0.05 level of probability, ** Significant at 0.01 level of probability

The results of the final step-down regression model (Table 3) revealed that attitude towards collectivism (X₁₃) was highly significant at one% level of probability ($b = 0.694$; $p = 0.000$). A unit increase in attitude towards collectivism would result in an increase of 0.694 units in group dynamics effectiveness, *ceteris paribus*, indicating that stronger collective orientation substantially enhances the functioning and cohesion of women farmers' FIGs. Education (X₂) was also found to be significant at one% level ($b = 0.163$; $p = 0.006$), suggesting that higher educational status improves members' understanding, participation, communication and coordination within the group, thereby contributing positively to group dynamics effectiveness. Extension participation (X₈) was significant at five% level ($b = 0.119$; $p = 0.050$), implying that increased interaction with extension agencies facilitates exposure, knowledge sharing and collective decision-making, which in turn strengthens group functioning. Similarly, market orientation (X₁₀) was significant at five% level ($b = 0.122$; $p = 0.045$), indicating that women farmers with a progressive market outlook tend to align better with group objectives and cooperate more effectively. Achievement motivation (X₁₂), though positive in direction, was found to be non-significant ($p = 0.070$); however, it was retained in the model due to its relative contribution to the explained variance. Overall, the findings highlight that attitudinal and institutional factors play a crucial role in enhancing group dynamics effectiveness among women farmers' FIGs.

Conclusion

The study concludes that the group dynamics effectiveness within women Farmers' Interest Groups (FIGs) under ATMA is not a result of chance, but is significantly

determined by a combination of personal, social, and psychological factors. Among the thirteen variables studied, attitude towards collectivism emerged as the most powerful determinant, indicating that the success of these groups depends heavily on members' psychological inclination to work together and share common goals. Furthermore, the significant roles of education, market orientation, and extension participation demonstrate that cognitive empowerment and active engagement with external support systems are vital for smooth group functioning. The findings imply that while providing infrastructure or financial aid is important, the "human element" specifically fostering a collective mindset and enhancing educational awareness is what truly drives group efficacy. To ensure the sustainability of women-led FIGs, it is recommended that ATMA and other extension agencies focus on attitudinal training and strengthening market-extension linkages. Promoting these key determinants will lead to more cohesive, well-coordinated, and effective farmers' groups, ultimately contributing to the socio-economic empowerment of women farmers.

Conflict of Interest

No conflict of interest.

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None.

Author's Contribution

Saikiran conceived the research idea, designed the study, collected data, performed data analysis, and drafted the manuscript, while Boppana Jagadeeswari provided valuable suggestions during the research process and contributed to the final manuscript editing.

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