

DETERMINANTS OF AGRARIAN DISTRESS MANAGEMENT AMONG FARMERS

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ABSTRACT

Agriculture remains vital to the Indian economy but increasing climatic variability, rising input costs, market fluctuations and limited institutional support have intensified farmers' vulnerability leading to multidimensional agrarian distress. Effective agrarian distress management requires integrated interventions addressing economic insecurity, production risks, environmental stressors and social challenges particularly in South Gujarat where frequent climatic disturbances further aggravate farmers' livelihoods. The present study was conducted to analyse the relationship between farmers' profile characteristics and their agrarian distress management using correlation and regression analysis. The study was conducted in seven districts of South Gujarat namely Bharuch, Surat, Narmada, Tapi, Navsari, Valsad and The Dangs. A total sample of two hundred and eighty farmers were selected through multistage random sampling. Data were collected with structured interview schedule through personal interviews method. The findings revealed that land holding, annual income, extension contact, risk preference and self-confidence showed a positive and highly significant association with agrarian distress management level among the farmers at 1 per cent level of significance, farming experience also exhibited a positive and significant association at 5 per cent level of significance. In contrast, family disputes, indebtedness and credit seeking behaviour showed a negative and highly significant association with agrarian distress management level among the farmers at 1 per cent level. It was also concluded that agrarian distress management level was found to be predicted by nine independent variables namely indebtedness, self-confidence, family disputes, annual income, credit seeking behaviour, risk preference, extension contact, social participation and farming commitment, which together accounted for 44.80 per cent variation in agrarian distress management level among the farmers.

Keywords: *Agrarian distress management, indebtedness, family disputes*

INTRODUCTION

India's geographical area is largely suitable for farming, making agriculture a vital livelihood source and a critical factor in the overall performance of the Indian economy. Agriculture in India is often compared to a gamble, as the farming sector is heavily influenced by numerous external factors beyond the control of those directly involved, making it highly vulnerable to the uncertainties of nature (Kumar and Karthikeyan, 2017). Agriculture significantly contributes to environmental degradation through practices such as deforestation, excessive use of chemical fertilizers and pesticides, crop residue burning and unsustainable irrigation. These activities result in soil, air and water pollution and increased greenhouse gas emissions (Patel & Vinaya, 2023; Vinaya *et al.*, 2016; Solanki *et al.*, 2025). Due to monsoon uncertainty, abrupt weather variations and other external

factors, agriculture is often not remunerative as expected. As a result, many farmers fall into indebtedness, leading to increased psychological stress within rural communities and reduced agricultural outcomes (Narain *et al.*, 2015).

Stress can be defined as a psychological state of mental pressure arising from an inability to cope with work demands, social functions and responsibilities (Folorunsho, 2024), whereas distress represents its negative form characterized by anxiety, helplessness and reduced coping capacity. Agrarian distress is the perceived intensity of stress in terms of sense of helplessness, uncontrollability and unpredictability experienced by farmers as a result of unexpected situations or events in farming as an occupation as well as their social life (Verma and Kumar, 2018). Alleviating agrarian distress is a prerequisite for the sustainable development and livelihoods. As agrarian distress

is increasingly observed and experienced by farmers, there is an urgent need to focus on identifying the approaches based on which the agrarian distress can be reduced and the adaptive capacity of farmers, their households and communities can be enhanced (Harvey *et al.*, 2014). The adoption of sustainable crop-based cropping systems and crisis management practices plays a crucial role in enhancing agricultural productivity and ensuring stable and secure livelihoods for farmers (Tavethiya *et al.*, 2021; Vinaya and Shivamurthy, 2018; Raval *et al.*, 2023). Studying agrarian distress management enables policymakers, researchers and stakeholders to formulate extension strategies, develop effective solutions and design policies that promote sustainable agriculture.

Agrarian distress management level is operationalized as the extent to which farmers adopt and integrate preventive, organizational, cognitive, emotional, social and spiritual strategies to effectively cope with economic, production, environmental and social challenges leading to distress. The effectiveness of agrarian distress management largely depends on farmers' socio-economic, psychological and communication-related characteristics, which influence their ability to adopt appropriate management practices.

The South Gujarat region faces formidable challenges due to its long coastal line, salt-affected soils, high rainfall zones, hilly and undulating topography, irrigated plains and rapid industrialization. These constraints are likely to intensify in the coming decades due to increasing pressure on land resources and declining water availability. The soils in this region are characterized by poor drainage, high dispersiveness and salinity, particularly in coastal belts across both heavy and medium rainfall areas. In addition, issues such as nutrient imbalance, nutrient depletion and toxic accumulation further aggravate soil health, leading to reduced productivity, food insecurity and environmentally unsustainable agricultural growth (Patil *et al.*, 2023).

Agriculture in South Gujarat is increasingly confronted with multidimensional agrarian distress arising from the combined effects of climatic variability, economic instability and social constraints. Farmers in the region frequently experience extreme weather events such as unseasonal rainfall, floods, cyclones, prolonged waterlogging and sudden temperature fluctuations, which adversely affect crop productivity and disrupt farming operations. These challenges not only intensify production risks but also weaken farmers' capacity to effectively manage distress. In this context, understanding how farmers respond to and manage such adversities becomes crucial. It is important to understand the factors having an impact on the agrarian distress management for facilitating development

strategies, intervention, policies and mitigating mechanisms to address the agrarian distress in South Gujarat. The action of individual farmer is governed by personal, social, economical, communicational, situational and psychological factors involved in situation (Ninama *et al.*, 2023). Thus, the association between the profile of farmers with their agrarian distress management is being studied. Such an analysis will help in identifying key determinants shaping farmers' coping mechanisms and provide a scientific basis for designing targeted interventions, policies and support systems to enhance resilience and ensure sustainable agricultural livelihoods.

Hence, identifying the determinants of agrarian distress management is crucial for designing effective extension interventions and policy support mechanisms. This provides a scientific basis for understanding the key factors influencing farmers' coping behaviour and supports the formulation of targeted interventions for sustainable agricultural development.

OBJECTIVE

To analyse the relationship between profile characteristics of farmers and their agrarian distress management in South Gujarat

METHODOLOGY

The present investigation was carried out in the South Gujarat region of Gujarat, which falls under the jurisdiction of Navsari Agricultural University, Navsari. An *ex-post-facto* research design was adopted for the study since the variables under investigation had already occurred and could not be manipulated by the researcher. This design helped in examining the relationship between independent variables and the existing level of agrarian distress management among farmers. The study covered seven districts of South Gujarat, namely Bharuch, Surat, Narmada, Tapi, Navsari, Valsad and The Dangs. A multistage random sampling technique was employed for the selection of talukas, villages and respondents. In the first stage, two talukas from each district were selected randomly, making a total of fourteen talukas. In the second stage, two villages from each selected taluka were chosen randomly, resulting in twenty-eight villages. In the final stage, ten farmers from each village were selected randomly. Thus, the total sample size comprised 280 farmers. Both primary and secondary data were utilized for the study. Primary data were collected through personal interviews using a well-structured and pre-tested interview schedule, along with observation and field interaction with farmers. Secondary information was gathered from annual reports, research publications, bulletins, books and official records of

concerned departments and institutions related to agriculture and rural development. Data were collected through personal interviews, involving farm and home visits, conducted during the months of November 2025 to January 2026.

MS Excel, SPSS (version 26), Python (version 3.13, 64bit), R studio (version 2024.12.1+563) software were used for data entry and for data analysis, correlation and regression analysis was used as statistical tools to draw conclusion.

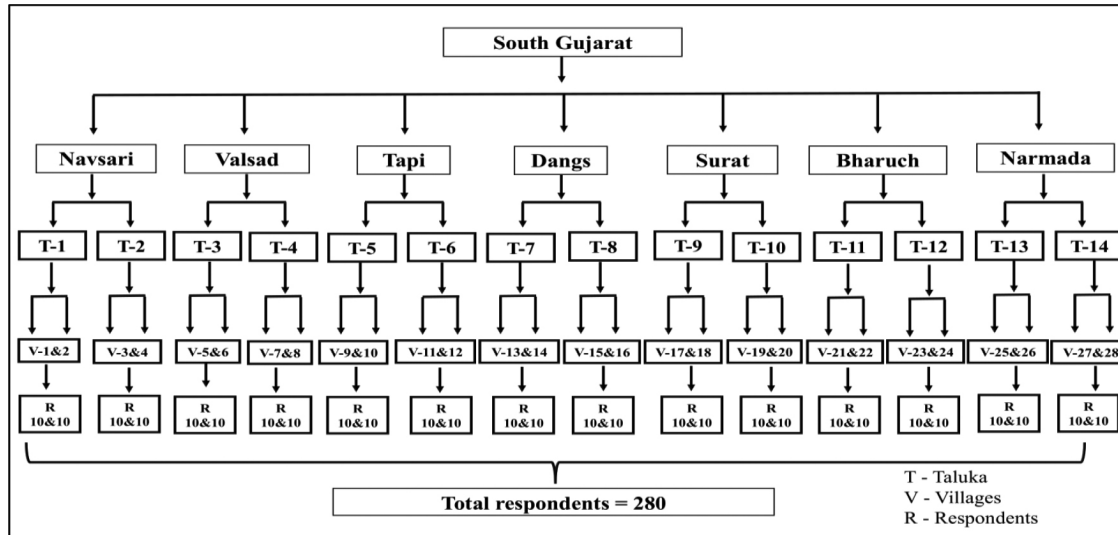


Fig 1: Schematic representation of sampling procedure

RESULTS AND DISCUSSION

The association between the level of agrarian distress management level among farmers and selected independent variables was worked out with the help of correlation coefficient (r) and the data are presented in the below table 1

Personal Characteristics and Agrarian Distress Management

Age

Age had a positive and non-significant correlation with agrarian distress management ($r = 0.035^{NS}$), indicating that farmers across age groups adopt distress management practices at a similar level due to shared exposure to farming challenges and coping mechanisms is common across generations. These findings are supported by the findings are Shambharkar (2018) and Kumbhani *et al.* (2023).

Education

Education showed a positive and non-significant relationship ($r = 0.072^{NS}$) with agrarian distress management, suggesting that educated farmers may possess better awareness and knowledge. But effective distress management largely depends on practical exposure, economic strength and institutional support rather than formal education alone.

However, no direct supporting evidence was found in earlier studies; the observed trend appears logically consistent under the present study conditions.

Table 1: Association between profile of farmers and their agrarian distress management level among the farmers (n=280)

Sr. No.	Independent variables	Correlation coefficient (r)
X ₁	Age	0.035 ^{NS}
X ₂	Education	0.072 ^{NS}
X ₃	Farming experience	0.125*
X ₄	Family size	-0.077 ^{NS}
X ₅	Family disputes	-0.384**
X ₆	Land holding	0.257**
X ₇	Annual income	0.316**
X ₈	Material Possession	0.099 ^{NS}
X ₉	Livestock possession	0.054 ^{NS}
X ₁₀	Indebtedness	-0.390**
X ₁₁	Credit seeking behaviour	-0.282**
X ₁₂	Social Participation	0.090 ^{NS}
X ₁₃	Extension Contact	0.265**
X ₁₄	Risk Preference	0.307**
X ₁₅	Self Confidence	0.348**
X ₁₆	Farming Commitment	0.105 ^{NS}

Farming Experience

Farming experience had positive and significant correlation with agrarian distress management level among the farmers at 5 per cent level of significance ($r = 0.125^*$). This may be due to experienced farmers develop practical knowledge, effective coping strategies and sound decision-making skills over years of farming exposure. These findings are supported by the findings are Shambharkar (2018) and Kumbhani *et al.* (2023).

Socio-Economic Characteristics

Family Size

Family size had a negative and non-significant correlation ($r = -0.077^{NS}$) with agrarian distress management, indicating that larger families may provide additional labour support, they may simultaneously increase household expenditure and financial burden. These findings are supported by the finding is Kumbhani *et al.* (2023).

Family Disputes

Family disputes had negative and highly significant correlation with agrarian distress management level among the farmers at 1 per cent level of significance ($r = -0.384^{**}$). Internal conflicts may disturb cooperation and emotional stability within the household, thereby hindering collective farm decision-making and weakening effective management practices. These findings are supported by the findings are Kerketta (2022).

Land Holding

Land holding had positive and highly significant correlation with agrarian distress management level among the farmers at 1 per cent level of significance ($r = 0.257^{**}$). Larger holdings may enhance production potential, income security and resource availability, thereby strengthening their capacity to manage agrarian distress effectively. These findings are supported by the findings are Shambharkar (2018).

Annual Income

Annual income had positive and highly significant correlation with agrarian distress management level among the farmers at 1 per cent level of significance ($r = 0.316^{**}$). This implies that higher annual income enhances farmers' ability to manage agrarian distress effectively, as greater financial stability and resilience enable them to invest in preventive and adaptive measures. These findings are supported by the findings are Shambharkar (2018) and Kumbhani *et al.* (2023).

Material Possession and Agrarian Distress Management

Material possession had positive and non-significant correlation with agrarian distress management level among the farmers ($r = 0.099^{NS}$). Although ownership of farm assets may support agricultural operations, such possessions alone may not be sufficient to enhance overall distress management without adequate financial and institutional support. These findings are supported by the similar findings are Kumbhani *et al.* (2023).

Livestock Possession and Agrarian Distress Management

Livestock possession had positive and non-significant correlation with agrarian distress management level among the farmers ($r = 0.054^{NS}$). Although livestock may provide supplementary income, its contribution alone may not be substantial enough to meaningfully affect overall distress management practices. However, lack of direct empirical support in earlier studies suggests that this relationship may be context-specific and influenced by local socio-economic conditions.

Indebtedness

Indebtedness had negative and highly significant correlation with agrarian distress management level among the farmers at 1 per cent level of significance ($r = -0.390^{**}$). A heavy debt burden increases financial pressure and restricts flexibility in farm management decisions, thereby weakening their ability to cope with distress conditions. These findings are supported by the findings are Shambharkar (2018), Tandekar (2014) and Kerketta (2022).

Credit Seeking Behaviour

Credit seeking behaviour had negative and highly significant correlation with agrarian distress management level among the farmers at 1 per cent level of significance ($r = -0.282^{**}$). This suggests that frequent dependence on credit may indicate financial instability, thereby weakening effective agrarian distress management behaviour. It implies that greater reliance on borrowed funds reduces farmers' ability to manage distress effectively. These findings are supported by the similar findings are Kumbhani *et al.* (2023).

Institutional and Social Factors

Social Participation

Social participation had positive and non-significant correlation with agrarian distress management level among the farmers ($r = 0.090^{NS}$). This might be due to fact that although participation in social organizations may provide moral support and networking opportunities, it may not directly translate into effective distress management practices. These findings are supported by the findings are Shambharkar (2018).

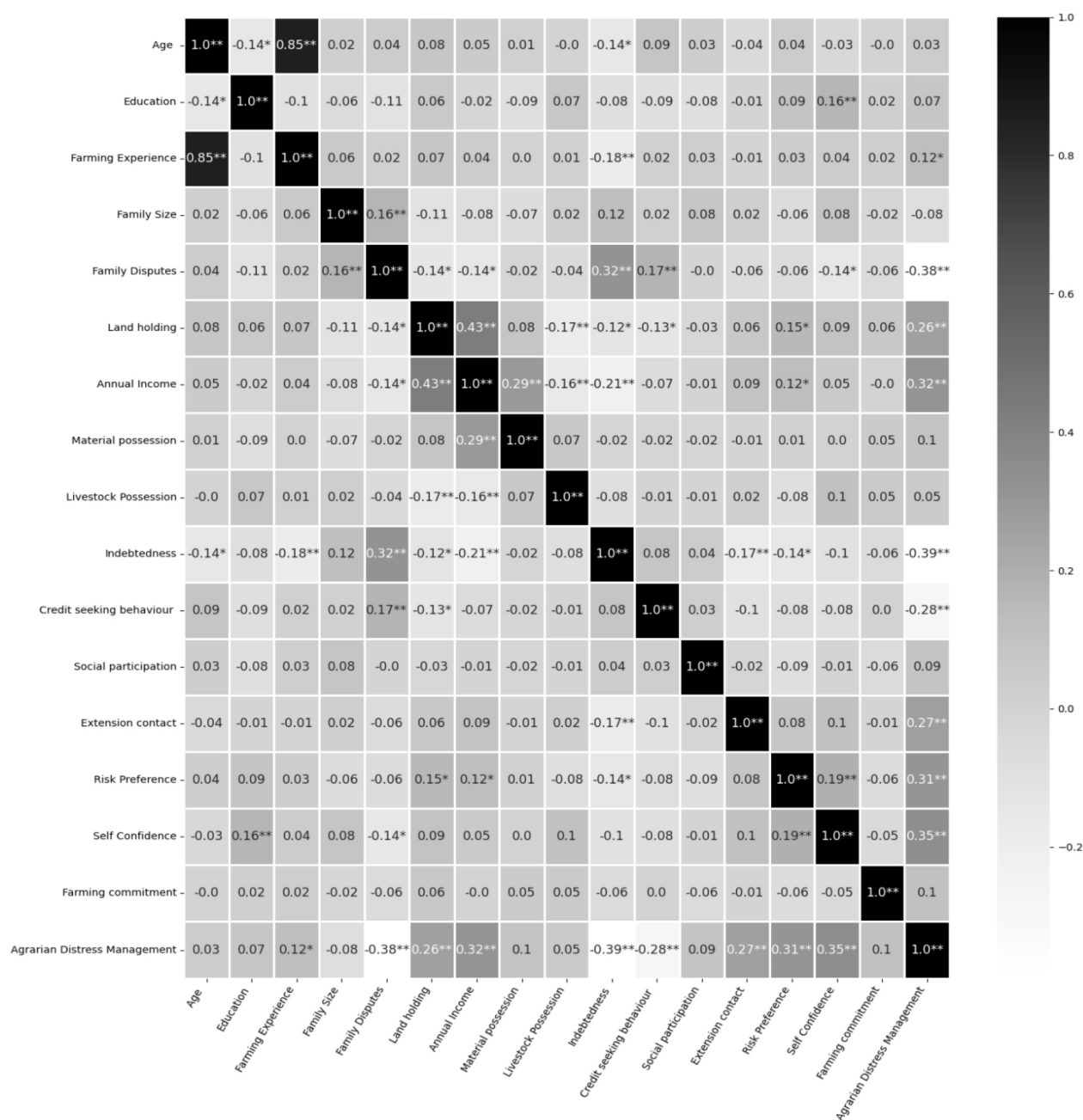


Fig 2: Correlation heat map of independent variables on agrarian distress management level among the farmers

Extension contact

Extension contact had positive and highly significant correlation with agrarian distress management level among the farmers at 1 per cent level of significance ($r = 0.265^{**}$). Regular interaction with extension agencies enhances access to technical guidance and institutional support, thereby strengthening their capacity to manage agrarian distress effectively. These findings are supported by the findings are Shambharkar (2018) and Kerketta (2022).

Psychological characteristics

Risk preference

Risk preference had positive and highly significant correlation with agrarian distress management level among the farmers at 1 per cent level of significance ($r = 0.307^{**}$). It can be inferred that farmers with higher risk-taking ability were more proactive in adopting innovative and adaptive strategies to manage agrarian distress effectively. These findings are supported by the finding is Kumbhani *et al.* (2023).

Self-confidence and agrarian distress management

Self confidence had positive and highly significant correlation with agrarian distress management level among the farmers at 1 per cent level of significance ($r = 0.348^{**}$). This indicates that higher self-confidence strengthens farmers' psychological resilience and decision-making capacity, thereby enhancing their ability to cope with and manage agrarian distress effectively. However, lack of direct empirical support in earlier studies suggests that this relationship may be context-specific and influenced by local socio-economic conditions.

Farming commitment and agrarian distress management

Farming commitment had positive and non-significant correlation with agrarian distress management level among the farmers ($r = 0.105^{NS}$). Although committed farmers may be emotionally attached and dedicated to agriculture, commitment by itself may not be sufficient to ensure effective distress management without adequate resources and institutional support. However, no direct supporting evidence was found in earlier studies; the observed trend appears logically consistent under the present study conditions.

Overall association of farmers profile with their agrarian distress management

The results presented in the table 1 indicate that land holding, annual income, extension contact, risk preference and self-confidence showed a positive and highly significant association with agrarian distress management level among the farmers at 1 per cent level of significance, suggesting that higher levels of these variables may improve farmers' ability to manage agrarian distress. Farming experience also exhibited a positive and significant association at 5 per cent level of significance. In contrast, family disputes, indebtedness and credit seeking behaviour showed a negative and highly significant association with agrarian distress management level among the farmers at 1 per cent level, indicating that higher levels of these factors may reduce the farmers' capacity to manage agrarian distress. However, age, education, family size, material possession, livestock possession, social participation and farming commitment were found to have a non-significant relationship with agrarian distress management level among the farmers. These findings indicate that both economic and psychological factors play a crucial role in shaping farmers' agrarian distress management behaviour. These findings are supported by the findings of Tandekar (2014), Shambharkar (2018), Kerketta (2022) and Kumbhani *et al.* (2023); Sowmya *et al.* (2025); Zade *et al.*

(2024); Manjuprakash *et al.* (2023); Boppana *et al.* (2023); Patel & Vinaya (2023); Vinaya *et al.* (2016).

Stepwise Regression analysis of independent variables and agrarian distress management level among the farmers

Stepwise multiple regression analysis with 16 independent variables and agrarian distress management level among the farmers was carried out. A careful examination of results presented in table 2 reveals that out of 16 independent variables, nine variables were found to have a significant influence on agrarian distress management level among the farmers. These nine independent variables together accounted for 44.80 per cent variation in agrarian distress management level among farmers.

Table 2 : Stepwise multiple regression analysis of independent variables and agrarian distress management level among the farmers

(n=280)

Sr. No.	Independent variable	Partial regression coefficient (b)	Standard error	Adjusted R ²
	Constant	84.896	10.480	
X ₁	Indebtedness	-5.015	1.278	0.448
X ₂	Self Confidence	0.901	0.180	
X ₃	Family Disputes	-1.919	0.447	
X ₄	Annual Income	4.348	1.073	
X ₅	Credit Seeking Behaviour	-0.944	0.246	
X ₆	Risk Preference	0.828	0.198	
X ₇	Extension Contact	0.786	0.239	
X ₈	Social Participation	0.690	0.231	
X ₉	Farming Commitment	0.320	0.122	

As a result of stepwise regression analysis, the following model was obtained:

$$Y = a + b_{10}X_{10} + b_{15}X_{15} + b_5X_5 + b_7X_7 + b_{11}X_{11} + b_{14}X_{14} + b_{13}X_{13} + b_{12}X_{12} + b_{16}X_{16}$$

Where,

Y = Agrarian distress management

a = the intercept *i.e.*, 84.896

b = Coefficient of partial regression

Therefore, the fitted equation would be as under:

$$Y = 84.896 + (-5.015) X_{10} + (0.901) X_{15} + (-1.919) X_5 + (4.348) X_7 + (-0.944) X_{11} + (0.828) X_{14} + (0.786) X_{13} + (0.690) X_{12} + (0.320) X_{16}$$

The results in Table 2 and the fitted equation indicate that agrarian distress management level among the farmers increases with higher self-confidence, greater annual income, higher risk preference, more frequent extension contact, greater social participation and stronger farming commitment, while it decreases with higher indebtedness, more family disputes, and increased credit seeking behaviour. This suggests that farmers who are confident, financially stable, willing to take risks, actively maintain contact with

extension services, participate socially and are committed to farming tend to manage agrarian distress more effectively, whereas indebted farmers or those facing family disputes and relying on credit tend to have lower agrarian distress management level among the farmers.

Stepwise variation accounted by different independent variables on agrarian distress management level among the farmers

Stepwise variation accounted by different independent variables on agrarian distress management level among the farmers was carried out. The findings are presented in table 3.

Table 3: Stepwise variation accounted by different independent variables on agrarian distress management level among the farmers (n=280)

Model	Predictor variables	R	R ²	Adj. R ²	Std. Error
1	X ₁₀	0.390	0.152	0.149	25.791
2	X ₁₀ , X ₁₅	0.497	0.247	0.242	24.339
3	X ₁₀ , X ₁₅ , X ₅	0.552	0.305	0.297	23.431
4	X ₁₀ , X ₁₅ , X ₅ , X ₇	0.591	0.350	0.340	22.706
5	X ₁₀ , X ₁₅ , X ₅ , X ₇ , X ₁₁	0.621	0.385	0.374	22.115
6	X ₁₀ , X ₁₅ , X ₅ , X ₇ , X ₁₁ , X ₁₄	0.645	0.415	0.403	21.607
7	X ₁₀ , X ₁₅ , X ₅ , X ₇ , X ₁₁ , X ₁₄ , X ₁₃	0.660	0.436	0.422	21.259
8	X ₁₀ , X ₁₅ , X ₅ , X ₇ , X ₁₁ , X ₁₄ , X ₁₃ , X ₁₂	0.672	0.452	0.436	20.995
9	X ₁₀ , X ₁₅ , X ₅ , X ₇ , X ₁₁ , X ₁₄ , X ₁₃ , X ₁₂ , X ₁₆	0.682	0.466	0.448	20.772
Total variation accounted (%)		44.80%			
Where, - X₁₀ = Indebtedness - X₁₅ = Self Confidence - X₅ = Family Disputes - X₇ = Annual Income		- X₁₁ = Credit Seeking Behaviour - X₁₄ = Risk Preference - X₁₃ = Extension Contact - X₁₂ = Social Participation - X₁₆ = Farming Commitment			

Economic factors such as indebtedness, annual income and credit seeking behaviour influence farmers' financial stability, where higher income improves coping capacity while debt increases stress. Psychological factors like self-confidence and risk preference enhance decision-making and adaptability. Social factors including family disputes and social participation affect support systems, with conflicts reducing effectiveness and participation improving access to information. Institutional support through extension

contact and farming commitment further strengthens farmers' capacity. Hence, these variables together explain 44.80 per cent of variation in agrarian distress management, as they represent key influencing dimensions. However, no single study was found that examined all these variables collectively; the present finding highlights the multidimensional nature of agrarian distress management and reflects the combined effect of economic, psychological, social and institutional factors under the study conditions.

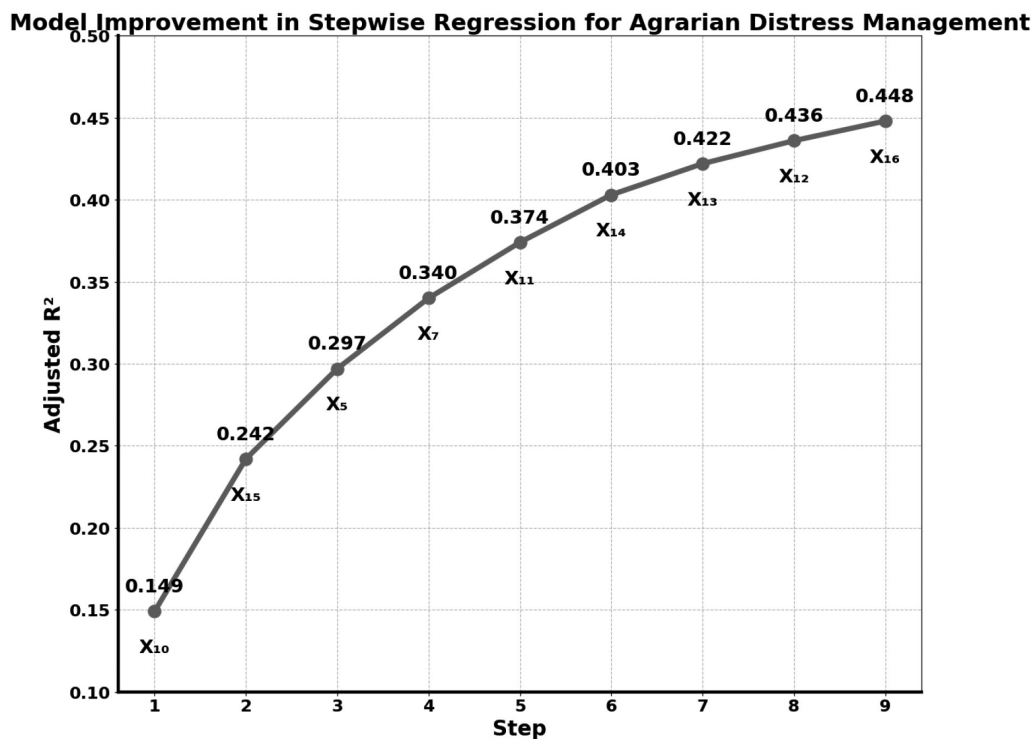


Fig 3: Improvement in the adjusted R square across stepwise regression stages

CONCLUSION

The study demonstrates that agrarian distress management among farmers in South Gujarat is largely driven by economic strength, psychological resilience and institutional support. Farmers with better income, land resources, extension contact, risk-taking ability and self-confidence are more capable of managing distress, whereas high indebtedness, family conflicts and reliance on credit weaken their coping capacity. The findings confirm that distress management is a multidimensional phenomenon shaped by both enabling and constraining factors. Overall, improving farmers' financial stability, strengthening extension services and enhancing psychological resilience are critical for effective distress management. At the same time, reducing indebtedness and addressing family-related constraints are equally important. The study provides a clear direction for policymakers and extension agencies to design targeted, location-specific interventions aimed at strengthening farmers' resilience and promoting sustainable agricultural development.

RECOMMENDATION

The study suggests that effective agrarian distress management requires an integrated approach combining economic support, psychological strengthening and institutional interventions. Policymakers and extension agencies should focus on income stabilization, improved

access to institutional credit and strengthening extension services through need-based training and timely advisory support. Enhancing farmers' self-confidence and risk management ability through capacity-building programmes is equally important. Greater use of digital extension tools along with targeted inclusion of youth and women farmers can further improve outreach and adoption. Overall, coordinated efforts are essential to strengthen farmers' resilience and ensure sustainable agricultural development. Bottom of Form

CONFLICT OF INTEREST

There is no conflict of interest among any authors regarding publication of the research paper in the journal as well as in the content.

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