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DETERMINANTS OF FARMER SUICIDE SYNDROME: A COMPREHENSIVE ANALYSIS

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ABSTRACT

This communication delves into the suicide syndrome among farmers, leading to their tragic decision to commit suicide. It examines the factors driving this drastic and irreversible choice, with a specific focus on Mandya and Haveri districts in Karnataka. A total of 60 kin member of an affected farmers family was interviewed personally to obtain first-hand data using well-structured and pre-tested interview schedule. The results revealed that, correlation coefficient of independent variables of affected farmers, age, education, farming experience, cosmopoliteness, scientific orientation, information seeking behaviour and deferred gratification have exhibited positive and highly significant ($p<0.01$) relationship with suicide syndrome among pooled affected farmers. Correlation coefficients of independent variables for non-affected farmers, farming experience, family type, caste, economic motivation, innovativeness, and risk orientation have exhibited positive and highly significant ($p<0.01$) relationship with suicide syndrome among pooled non-affected farmers. Results of multiple regression analysis carried out for affected farmers in Mandya and Haveri districts reveal that, scientific orientation ($t=2.82^{**}$), information seeking bahaviour ($t=2.50^{**}$) and management orientation ($t=2.81^{**}$) have shown positive and highly significant contribution at one per cent level. Multiple regression analysis for non-affected farmers indicates that, among six independent variables, management orientation contributed significantly ($t=2.68^{**}$) for the suicide syndrome level at one per cent level.

Keywords : *determinants, farmers' suicide, multiple regression, suicide syndrome*

INTRODUCTION

Suicide is a widespread problem that claims the lives of more than 7,00,000 people every year worldwide and is recognized as a serious public health concern. (WHO, 2021). It is frequently linked to mental illnesses or periods of crisis when a person's capacity to cope with life's stresses breaks down. Despite the fact that suicides occur everywhere, there are certain clear social and geographical tendencies. For example, globally the majority of suicides are reported from low- and middle-income nations and from younger age groups. (WHO, 2023). It is evident that, farming is an occupation with a higher risk for suicide than other occupations worldwide so Indian farmers' higher rates may simply fit this pattern and warrant little explanation (Milner, 2013; Vinaya et al., 2019 and Purc-Stephenson et. al., 2023). Indian farmers have become increasingly marginalized in social, economic, cultural and political spheres. They have lost the capacity to negotiate politically and the ability to be represented within government schemes intended for their benefit, as well (Talule and Rasal, 2008). Nearly 4,00,000 farmers committed suicide in India between 1995 and 2018. This translates into approximately 48 suicides every day. (Kannuri and Jadav, 2021).

For the past fifteen years, the wave of farmer suicides in Indian states has dominated discussions about research and policy in the subject of agricultural studies. Increasing financial pressure, growing cultivation costs, diminishing agricultural yields, negative effects of economic liberalization, etc. are frequently cited as the primary causes of this misery. But it has rarely been examined why certain farmers experience such intense mental strain from debt and lack of agricultural revenue that it drives them to the brink of suicide (Mohanty, 2013). The data on farmers' suicides also reveal regional variation in the incidence, with states such as Maharashtra in the west, Karnataka and Andhra Pradesh in the south, and Punjab and Haryana in the north considered to be the 'hotbed' of farmers' suicides in the country (National Crime Records Bureau, 2016).Suicide is caused by many factors and there is empirical evidence to believe that this phenomenon could be a contagion in India (Kapoor and Ravi, 2007). Nearly 400,000 farmers have committed suicide in the country between 1995 and 2018 (NCRB, 2019). In this background the investigation was carried out in Karnataka state to identify the factors influencing farmers suicide syndrome.

OBJECTIVE

To assess the factors influencing farmers suicide syndrome

METHODOLOGY

The study was conducted in two selected districts, chose purposively within Karnataka state. Mandya and Haveri were identified as having the highest rates of farmer suicides between 2015 and 2018 among all districts. Considering their ranking as the top two districts in terms of the total number of farmer suicides and their distinct geographical locations, these districts were deliberately selected for an in-depth investigation into the factors contributing to farmer suicides.

Data was collected from 60 affected families, 30 each in the Mandya and Haveri districts for the study. The purposive random sampling technique was used in selection of families of farmers, focusing on affected families from the list of farmer suicides that occurred between 2015 and 2018. Specifically, those families who had availed a compensation of Rs. Five lakhs from the Government of Karnataka were chosen for the study.

The information gathered from the respondents encompassed a range of aspects, including general details about the affected farmers, personal characteristics, socio-economic and psychological conditions, their resource position, personal situations, causes of suicide, and any additional information the family wished to share. The researcher engaged with the next kin of the affected farmer within the family and also interacted with other family members to ensure a comprehensive understanding of the provided information.

The collected data was utilized to conduct correlation analysis, examining the relationship between independent variables and suicide syndrome. Additionally, multiple regression analysis was performed to pinpoint the factors influencing farmer suicides in selected districts.

RESULTS AND DISCUSSION

Correlation between personal, socio-economic and psychological characteristics with suicide syndrome Mandya district

Table 1 displays the rank correlation data between personal, socio-economic, and psychological traits and suicide syndrome among farmers in Mandya and Haveri districts of Karnataka. Among the twenty independent variables examined in Mandya, eight showed a strong positive relationship ($p<0.01$) with suicide syndrome: age (X_1), farming experience (X_4), cosmopoliteness (X_9), scientific orientation (X_{14}), information seeking behavior (X_{15}), innovativeness (X_{16}), risk orientation (X_{17}), and management orientation (X_{18}). Conversely, three variableseducation (X_2), extension agency contact (X_{11}), and extension participation (X_{12})were negatively and significantly ($p<0.01$) correlated with suicide syndrome. Four variables viz., family size, caste (X_8), economic motivation (X_{13}), and deferred gratification (X_{20})showed a positive and significant ($p<0.05$) association with suicide syndrome. Occupational status (X_3), farm size

Table 1: Correlation between personal, socio-economic and psychological characteristicswith suicide syndrome among affected and non-affected farmers in Mandya and Haveri districts

(n=60)

Sr. No.	Independent variables	Affected farmers Mandya (n_1=30)	Affected farmers Haveri (n_2=30)
Personal characteristics			
X_1	**Age**	0.75 **	0.63 **
X_2	**Education**	- 0.59 **	- 0.46 **
X_3	**Occupational status**	0.20 NS	0.29 NS
X_4	**Farming experience**	0.75 **	0.65 **
Socio-economic characteristics			
X_5	**Farm size**	0.18 NS	0.27 NS
X_6	**Family size**	0.37 *	0.37 *
X_7	**Family type**	0.28 NS	0.19 NS
X_8	**Caste**	0.42 *	0.37 *
X_9	**Cosmopoliteness**	0.64 **	0.52 **
X_{10}	**Mass media exposure**	0.10 NS	0.04 NS
X_{11}	**Extension agency contact**	- 0.47 **	- 0.44 *
X_{12}	**Extension participation**	- 0.53 **	- 0.56 **
Psychological characteristics			
X_{13}	**Economic motivation**	0.42 *	0.47 *
X_{14}	**Scientific orientation**	0.54 **	0.58 **
X_{15}	**Information seeking behaviour**	0.51 **	0.54 **
X_{16}	**Innovativeness**	0.50 **	0.40 *
X_{17}	**Risk orientation**	0.52 **	0.38 *
X_{18}	**Management orientation**	0.57 **	0.36 *
X_{19}	**Decision making ability**	- 0.31 NS	- 0.03 NS
X_{20}	**Deferred gratification**	0.42 *	0.52 **

** Significant at 1 %, * Significant at 5 %,
NS: Non-significance

(X_5), and mass media exposure (X_{10}) demonstrated positive but non-significant relationships with suicide syndrome, while decision-making ability (X_{19}) was negatively but non-significantly correlated.

Table 1 also shows that among the affected farmers in Haveri district, six variables namely, age (X_1), farming experience (X_4), cosmopoliteness (X_9), scientific orientation (X_{14}), information seeking behavior (X_{15}), and deferred gratification (X_{20}) had a strong positive correlation ($p<0.01$) with suicide syndrome. Conversely, two variables, education (X_2) and extension participation (X_{12}) were negatively but highly significantly ($p<0.01$) correlated with suicide syndrome. Family size (X_6), caste (X_8), economic motivation (X_{13}), innovativeness (X_{16}), risk orientation (X_{17}), and management orientation (X_{18}) exhibited positive and significant ($p<0.05$) relationships with suicide syndrome. However, extension agency contact (X_{11}) showed a negative but significant ($p<0.05$) relationship. The remaining five variables namely, occupational status (X_3), farm size (X_5), family type (X_7), mass media exposure (X_{10}), and decision-making ability (X_{19}), had no significant relationship ($p>0.05$) with suicide syndrome among affected farmers in Haveri district.

Age and suicide syndrome

A strong positive relationship **(**$r=0.75^{**}$**)** was observed between age and suicide syndrome among affected farmers in Mandya, while in Haveri, this correlation was also significant **(**$r=0.63^{**}$**).** This correlation likely stems from the fact that a considerable proportion of affected farmers in both areas fell within the middle to old age bracket. Despite their extensive farming experience, these individuals tended to exhibit moderate to low levels of economic motivation, information seeking behavior, innovativeness, risk orientation, and decision-making ability.

Education and suicide syndrome

The correlation analysis indicates a highly significant negative relationship ($r=-0.59^{**}$) between education and suicide syndrome among affected farmers in Mandya, and a similarly significant negative correlation ($r=-0.46^{**}$) in Haveri, both at the one percent level of probability. Education plays a crucial role in broadening one's perspective and enhancing decision-making abilities. However, it's notable that the majority of respondents in both districts had educational attainment below the high school level.

Occupation and suicide syndrome

It was observed that, there was no significant relationship ($r=0.20^{NS}$ and $r=0.29^{NS}$)between occupational status and suicide syndrome in both Mandya and Haveri districts respectively.There could be other factors influencing the relationship between occupational status and suicide syndrome that were not accounted for in the study. These uncontrolled variables can obscure or confound the relationship of interest. Hence, the result.

Farming experience and suicide syndrome

There was a notable positive and highly significant relationship between farming experience and suicide syndrome among affected farmers in both Mandya and Haveri districts, evidenced by correlation coefficients of ($r=0.75^{**}$) and ($r=0.65^{**}$) respectively, at the one percent level of probability. This association can likely be attributed to the fact that a substantial portion of farmers in the study areas had moderate to extensive farming experience, coupled with being in the middle to older age groups. Individuals in this demographic may exhibit lower risk tolerance and adaptability, factors that could contribute to heightened levels of suicide syndrome with increasing farming experience.

Farm size and suicide syndrome

There was no significant relationship with farm size and suicide syndrome among affected farmers in Mandya($r=0.18^{NS}$) and Haveri ($r=0.27^{NS}$) districts. Suicide syndrome is a multifaceted phenomenon influenced by various factors such as mental health, socioeconomic status, family dynamics, and access to support services. Farm size alone may not adequately capture the complexity of these influences.

Family size and suicide syndrome

A positive and significant relationship ($r=0.37^{*}$) was noted between farm size and suicide syndrome among affected farmers in both Mandya and Haveri districts. This correlation could stem from the fact that having more family members and additional help with farm activities can provide support and strength to affected farmers. However, when farmers lack a support network and individuals to confide in about their problems and emotions, it may lead to an increased risk of suicide.

Caste and suicide syndrome

A positive and significant correlation was noted between caste and farmer suicide syndrome among affected farmers in both Mandya ($r=0.42^{*}$) and Haveri districts

(r=0.37*), at the five percent level. This trend could likely be attributed to the predominance of farmers from the Other Backward Class (OBC) among the affected population, thus influencing the observed relationship.

Cosmopoliteness and suicide syndrome

A positive and highly significant correlation (r=0.64**) was found between cosmopoliteness and suicide syndrome among affected farmers in Mandya, and similarly in Haveri district (r=0.52**), both at the one percent level of probability. This association is likely influenced by the fact that less than half of the affected farmers had a moderate level of cosmopoliteness. These farmers may have frequently visited nearby cities but struggled to implement the technologies they encountered there, potentially contributing to the observed relationship with suicide syndrome.

Extension agency contact and suicide syndrome

The correlation analysis revealed a negative but highly significant relationship (r=-0.47**) among affected farmer respondents in Mandya, and similarly in Haveri district (r=-0.44**), with suicide syndrome. This trend could be attributed to the fact that more than half of the affected farmers had low levels of contact with extension agencies in the study area. Consequently, the limited interaction with extension agencies may have hindered the dissemination of crucial information and technologies aimed at improving crop yield. Without access to timely updates and relevant knowledge, affected farmers may have faced increased challenges in managing their agricultural practices, potentially contributing to the observed association with suicide syndrome.

Extension participation and suicide syndrome

The findings indicated a negative and highly significant relationship (r=-0.53**) in Mandya and (r=-0.56**) in Haveri districts at one percent level between the extent of participation and suicide syndrome among affected farmers. This trend is likely attributed to the observation that more than half of the affected farmers had low levels of participation in extension activities. Consequently, their reduced involvement may have contributed to increased feelings of loneliness and disillusionment, potentially exacerbating suicide syndrome among farmers.

Economic motivation and suicide syndrome

Economic motivation exhibited a positive and significant relationship in Mandya (r=0.42*) and in Haveri (r=0.47*) districts with suicide syndrome among affected farmers. This association could be attributed to farmers' pursuit of increased income, leading them to invest more in their endeavors. However, the failure of these endeavors may have contributed to feelings of distress and ultimately influenced the onset of suicidal syndrome.

Scientific orientation and suicide syndrome

The table highlights a notable positive and highly significant relationship (r=-0.54**) in Mandya and (r=0.58**) in Haveri districts between scientific orientation and suicide syndrome. This correlation may stem from the fact that exactly half of the affected farmers exhibited a moderate level of scientific orientation.

Information seeking behaviour and suicide syndrome

In Table 1, it was evident that there existed a positive and highly significant relationship (r=0.51**) in Mandya and (r=0.54**) in Haveri districts, both at the one percent level between information seeking behavior and suicide syndrome among affected farmers. This trend may be attributed to the observation that nearly half of the respondents among affected farmers demonstrated a moderate level of information seeking behavior, potentially hindering their ability to access rational and optimal solutions to their agricultural challenges.

Innovativeness and suicide syndrome

In Mandya district, innovativeness showed a positive and highly significant correlation at the one percent level (r=0.50**), similarly in Haveri district, (r=0.40**) at the five percent level. Individuals with a high level of innovativeness are more likely to embrace new agricultural technologies. However, when these technologies fail due to poor performance or adverse weather conditions, it may increase the likelihood of individuals experiencing suicide syndrome.

Risk orientation and suicide syndrome

Risk orientation exhibited a highly (r=0.52**) significant relationship at the one percent level among affected farmers in Mandya and Haveri district. Conversely, in Haveri district, it was positively and significantly (r=0.38**) related at the five percent level. This trend may be attributed to the observation that less than half of the affected farmers demonstrated a moderate level of risk-bearing ability. When farmers encounter unexpected shocks, it may lead to an increase in suicide syndrome levels among them.

Management orientation and suicide syndrome

A positive and highly significant (r=0.57**) relationship was observed between management orientation and suicide syndrome at the one percent level of probability among affected respondents in Mandya. Effective farm management is crucial for achieving a good harvest and income. Farmers lacking managerial skills may experience reduced income, leading to increased stress and potentially contributing to suicide syndrome. Among affected farmers in Haveri district, management orientation also showed a positive and significant (r=0.36**) relationship with suicide syndrome at the five percent level. This could be attributed to farmers experiencing failures in their plans and management, both on the farm and in their households.

Decision making ability and suicide syndrome

The correlation analysis indicates a negative but non-significant relationship (r=-0.31^{NS} and (r=-0.03^{NS}) between decision-making ability and suicide syndrome among affected farmers in Mandya and Haveri districts respectively.

Deferred gratification and suicide syndrome

Deferred gratification demonstrated a positive and significant relationship (r=0.42*) with suicide syndrome at the five percent probability level in Mandya, and a positive and highly significant (r=0.52**) relationship in Haveri district. This significant association may be attributed to farmers delaying their immediate needs and wants, anticipating positive outcomes in agriculture. However, when these expectations are not met, it may contribute to an increased tendency towards suicidal thoughts among farmers.

Factors influencing farmer suicide syndrome among affected farmers in Mandya district

The results in the Table 2, show that economic motivation significantly contributed to suicide syndrome at a one percent probability, while mass media exposure, extension agency contact, and management orientation significantly contributed at a five percent probability. The remaining variables, including extension participation, scientific orientation, innovativeness, and risk orientation, did not significantly contribute. 79.40 percent of the variation in suicide syndrome among affected farmers was explained by eight independent variables considered in the analysis. Thus, mass media exposure, extension agency contact, economic motivation, and management orientation appear to be key factors contributing to suicide syndrome among affected farmers.

Table 2: Factors influencing farmer suicide syndrome of affected farmers in Mandya district (n=30)

Sr. No.	Variables	Estimate (b)	Std (b)	SE (b)	't' test	P value
1	**Mass media exposure (X_{10})**	-0.18	-0.23	0.07	2.30 *	0.02
2	**Extension agency contact (X_{11})**	0.16	0.35	0.08	1.96 *	0.04
3	**Extension participation (X_{12})**	0.05	0.15	0.06	0.85 NS	0.38
4	**Economic motivation (X_{13})**	0.06	0.56	0.02	3.04 **	0.01
5	**Scientific orientation (X_{14})**	-0.01	-0.01	0.02	0.08 NS	0.94
6	**Innovativeness (X_{16})**	-0.09	-0.09	0.15	0.62 NS	0.53
7	**Risk orientation (X_{11})**	-0.02	-0.19	0.02	0.80 NS	0.37
8	**Management orientation (X_{18})**	0.01	0.35	0.01	2.12 *	0.032
R^2		0.79				
AIC		89.62				
RMSEA		0.096				

** Significant at 1 %, * Significant at 5 %, NS: Non-significance

Factors influencing farmer suicide syndrome among affected farmers in Haveri district

Table 3 presents the factors influencing farmer suicide syndrome among affected families in Haveri district. Multiple regression analysis was conducted to assess the contribution of selected variables to suicide syndrome. The results indicate that four variables like, farming experience (X_4), scientific orientation (X_{14}), innovativeness (X_{16}), and management orientation (X_{18}) were significantly contributed at a five percent level of probability. However, age (X_1), education (X_2), and information seeking behavior (X_{15}) did not significantly contribute to suicide syndrome. The analysis revealed that 79.00 percent of the variation in suicide syndrome among affected farmers was explained by seven independent variables considered, as indicated by an R2 value of 0.79.

Table 3: Factors influencing farmer suicide syndrome among affected farmers in Haveri district (n=30)

Sr. No.	Variables	Estimate (b)	Std (b)	SE (b)	't' test	P value
1	**Age (X_1)**	0.07	0.17	0.09	0.85 ^{NS}	0.39
2	**Education (X_2)**	0.01	0.01	0.04	0.06 ^{NS}	0.95
3	**Farming experience (X_4)**	-0.13	-0.28	0.06	2.11 *	0.03
4	**Scientific orientation (X_{14})**	0.03	0.25	0.01	2.23 *	0.04
5	**Information seeking behaviour(X_{15})**	0.01	0.09	0.01	0.41 ^{NS}	0.59
6	**Innovativeness (X_{16})**	0.03	0.23	0.01	2.11 *	0.04
7	**Management orientation (X_{18})**	-0.15	-0.51	0.06	2.22 *	0.03
R^2		0.79				
AIC		81.45				
RMSE		0.237				

* Significant at 5 %, NS: Non-significance

CONCLUSION

The correlation analysis between personal, socio-economic, and psychological characteristics and farmer suicide syndrome in Mandya and Haveri districts indicates significant relationships. In Mandya, age, farming experience, cosmopolitanism, scientific orientation, information seeking behavior, innovativeness, risk orientation, and management orientation were significantly associated with farmer suicide syndrome. In Haveri, age, farming experience, cosmopolitanism, scientific orientation, information seeking behavior, and deferred gratification showed significant correlations. Economic motivation played a significant role in farmer suicide syndrome in Mandya, while farming experience, scientific orientation, innovativeness, and management orientation were notable factors in Haveri.

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CONFLICT OF INTEREST

The authors affirm that they do not have any conflicts of interest.

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