

Psychological autopsy study of suicides in farmers: Study from Kerala

ABSTRACT

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Received: 30 October 2023

Revised: 09 February 2024

Accepted: 11 April 2024

Published: 27 August 2024

Background: Though agricultural farming is considered a peaceful and healthy industry it has a high rate of mortality especially suicide. In India, 11.2% of suicides are reported in the farming sector. **Aim:** To identify the role of psychosocial factors leading to farmer's suicide in a farmer's dominant district of Kerala. **Material and Method:** One hundred and sixty-six successive suicides in Wayanad district and age, sex, marital status, and financial status matched normal controls residing in the same locality were evaluated and compared on psycho-social demographic variables, life events, and details of suicide. **Results:** Significantly a greater number of victims were living separately, living in rented homes, had no own land for cultivation, migrated, had marital discord, and strained relationships with relatives. They had loans from private financial enterprises and single money persons, had past attempts, a family history of alcoholism, and highly stressful life events. The most frequent psychiatric diagnosis was alcohol dependence/abuse followed by depression. The majority committed suicide by hanging followed by insecticide poisoning. Intention to commit suicide was expressed by 38.5% and 30.2% were intoxicated at the time of attempt. The venue for the attempt was the own house in 75.7% of cases. **Conclusion:** This study suggests the following remedial measures to prevent farmers' suicides. Expert advice to manage financial constraints like availing loans, crop insurance, etc. Guidance from the agricultural department for cost-effective cultivation. Early identification and treatment of psychiatric disorders.

Keywords: Attempt, farmers, psychological autopsy, suicide

Farming has been considered as a peaceful and healthy industry anywhere in the world. Contradictory to this thinking farming sector has reported the highest number of suicides compared to any other industry.^[1] In India, 70% of its population is depending on agriculture either directly or indirectly. In India, agriculture exclusively depends on the monsoon. Hesitation of monsoons with subsequent droughts, unfair prices, and exploitation of farmers by the agents are the main reasons for farmer suicides in India.^[2] In India out of all suicides 11.2% of suicides are shared by farmers.^[3]

Wayanad is a tiny hill district in Kerala, dominated by farmers has reported a higher suicide rate compared to other districts.^[4] A lot of conflicting reasons have been put forward by social activists for farmer suicides like debt

trap, crop failure, inefficiency in the provision of subsidies and crop insurance, mental health issues, anti-farmer laws by the government, and many other personal and family issues.^[5] A psychological autopsy study conducted by Bhise and Behere shows debt for nonagricultural reasons, psychiatric illnesses, crop failure, interpersonal problems, medical illness, and the marriage of female family members as the important risk factors for farmers' suicides.^[6]

To explore the reasons for the high incidence of farmers' suicides in India we need more methodologically sound studies. Considering the methodological limitations of previous studies, a psychological autopsy study was conducted to explore the role of psycho-socio-demographic factors in farmer's suicide.

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How to cite this article: Suresh Kumar PN, Suresh R. Psychological autopsy study of suicides in farmers: Study from Kerala. *Ind Psychiatry J* 2024;33:S23-8.

Access this article online

Quick Response Code:



Website: www.industrialpsychiatry.org

DOI: 10.4103/ipj.ipj_136_24

MATERIAL AND METHOD

Salient features of Wayanad District

Wayanad is a small agrarian district in Kerala with a population of 7,86,627 and a female-to-male ratio of 1:1. The literacy rate is 85.5%. Wayanad is the most backward district in Kerala. For 90% of its population, the main livelihood is agriculture. There are around 40,129 farmers and 92,226 agricultural laborers. Another 37,267 people's income source is animal husbandry and forest produce. Seventeen percent of the total population is tribal. A significant proportion of the population are settlers from other districts. Wayanad district has the largest number of nationalized, commercial, and cooperative banks operating even in the remote areas of the district.^[7] Ethical approval was obtained from Institutional ethics committee of IQRAA International Hospital and Research Centre Eraniel, Calicut, on 10 Oct 2019.

Study sample

Cases

The study was conducted between January 1 and June 31, 2020. A total of 180 suicides reported by the District Crime Record Bureau during this period formed the cases. They were analyzed in detail using a specially designed socio-demographic proforma. Fourteen cases could not be traced because the address was not available. The addresses of the victims were traced through the police stations and an interview was conducted by visiting them at their residences. The interview was done within 30–90 days after the suicide. Informed consent was obtained before starting the study.

Control group

A control group was selected from the same residing place matching age, sex, marital status, and income range. Age was matched within the range of ± 2 years of the victim's age. They were interviewed within three months of the corresponding victim's informant's interview.

Key informants

A key informant was defined as a close relative staying with the subject for a minimum of two years. They were interviewed in detail by using a specially designed socio-demographic proforma and other instruments. In 90% of cases and 89% of controls, the key informants stayed with the subject for more than three years. The husband or wife was the informant in 50% of cases and 49% of controls. The mother was the informant in 22% of cases and 24% of controls.

Additional information was gathered from friends, colleagues, police records, medical and psychiatric reports, and postmortem reports. For further clarifications like physical or mental health issues, a telephonic interview was

also conducted. Special attention was given to elicit details like recent changes in the behavior such as self-destructive behavior or plans.

Instruments

1. Socio-demographic Proforma was used for both the victims and controls.
2. Presumptive Stressful Life Events Scale (PSLE) was used to evaluate the life events that occurred within six months before suicide in victims or the interview in controls. This scale contains 51 common life events experienced by the Indian adult population.^[8] The highest stress score is one hundred and zero score means no stress. Life events are broadly classified as (a) desirable, undesirable, or ambiguous and (b) personal or impersonal. The reliability of this scale is very good (0.8).
3. Psychiatric diagnosis was established using Structured clinical interview for DSM III R (SCID) Non-Patient Version.^[9]

Statistical analysis

The data were analyzed by using the SPSS PC software.^[10] Categorical variables were compared by Paired *t*-test and Wilcoxon Signed Rank test. Qualitative variables Mc-Nemar Chi-Square test was used. Logistic Regression Analysis was used to identify the risk factors for suicide.^[10]

RESULTS

Victims and controls were comparable in mean age, sex, marital status, religion, education, occupation, and monthly income [Table 1].

The majority of victims were migrants, living separately from their spouses, staying in a rented house, with no farmland, had marital discord, and strained relationships with relatives [Table 2].

A comparison of psychosocial stress and financial difficulties shows that the majority of victims were indebted to private money-lending institutions and money-lending individuals, had past suicide attempts. Victims had more than one attempt in the past and a family history of alcoholism in first-degree relatives [Table 3].

Victims had significantly higher scores on total life events, undesirable, desirable, personal, and impersonal life events [Table 4].

A comparison of psychiatric diagnoses between the two groups shows depression in 28% of the victims and 8.4% of the controls and alcohol dependence/abuse in 33% of the victims and 14.4% of controls respectively. Psychosis

and other psychiatric disorders are comparable and low in both groups [Table 5].

Logistic regression analysis showed the following variables such as migration, staying alone, marital discord, cumulative

life events, and impersonal life events as risk factors for suicide [Table 6].

DISCUSSION

This psychological study clearly differentiates suicide victims from controls based on their psychosocial and demographic characteristics. Compared to controls more victims had marital discord, strained relationships with relatives and were living alone. Most of them were marginal landless farmers and cultivated leased-out land from big landlords with huge levies. A previous study on farmers' suicide from Punjab showed that the majority were small-scale farmers who stayed alone.^[11]

A large number of victims had unpaid huge loans with flat interest rates mostly from private financial institutions and money-lending individuals. The heavy financial constraints with the inability to pay the loan with skyrocketing interest and the unexpected failure in crops could be reasons for them to commit suicide. Previous studies have reported debts and economic issues as the major reasons for suicide among Indian farmers.^[6,12]

Recent life stressors may make the person take extreme steps to escape from intolerable situations. In the present study majority of victims had high scores of life events including personal, impersonal, desirable, and undesirable within six months of the attempt. Logistic regression analysis substantiates this point. This suggests that suicide happens when there is a clustering of adverse events in a short period implying abrupt failures of healthy coping strategies. Since the majority of victims migrated from other places, they might have experienced more adverse life situations compared to normal controls and because

Table 1: Socio-demographic characteristics

	Victims n=166	Control n=166	χ^2	P
Marital status				
Married	112	112	1.80	0.965
Unmarried	39	39		
Widow/Widower/ separated	15	15		
Religion				
Hindu	118	111	2.03	0.363
Christian	38	38		
Muslim	10	17		
Education				
Illiterate	29	32	8.78	0.067
Primary	79	62		
High school	51	57		
Higher secondary and above	7	15		
Occupation				
Unemployed	9	12	5.53	0.596
Farmer	38	40		
Housewife	20	24		
Student	7	7		
Daily wages	76	73		
Govt. Employee	13	5		
Business	3	4		
Monthly income in rupees				
Less than 2000	132	136	0.48	0.788
2001-5000	21	20		
More than 5000	13	10		
Nuclear family	111	118	0.69	0.406

P=NS

Table 2: Socio-demographic characteristics: Psychosocial domains

	Victims n=166	Control n=166	χ^2	P
Migrated	91	72	4.35	0.037*
Type of house staying				
Own house	125	130	8.16	0.017*
Ancestral house	25	32		
Rental	16	4		
Own land	111	166	65.92	0.000***
Own cultivation	60	69	1.03	0.311
Social contact	164	164	0.00	1.000
Marred more than once	11	11	0.00	0.969
Dowry problems	67	71	0.36	0.552
Marital issues	42	14	17.85	0.000***
Staying separately	29	17	3.84	0.050*
Family problems	75	48	9.42	0.002**
Unsatisfactory relationship with family members	28	11	7.84	0.005**

*P is significant at <0.05 level, **P is significant at <0.01 level, ***P is significant at <0.001 level

Table 3: Psychosocial stress, financial difficulties

	Victims n=166	Control n=166	χ^2	P
Liabilities	111	119	0.906	0.341
Reason for financial loss				
Natural disasters	62	57	0.22	0.700
Business loss	3	3		
Hospital treatment	17	26		
Debt from Nationalized banks	38	49	2.38	0.123
Debt from cooperative banks	49	27	0.04	0.948
Debt from private money lenders	23	11	4.33	0.038*
Debt from individuals	37	18	7.21	0.007**
Physical illnesses	36	33	0.17	0.685
Past suicide attempt	39	9	21.92	0.000***
More than 1 suicide attempt	22	2	26.88	0.000***
Family H/O suicide attempt	28	12	0.51	0.477
Family H/O alcoholism	46	22	10.65	0.001**

*P is significant at <0.05 level, **P is significant at <0.01 level, ***P is significant at <0.001 level

Table 4: Comparison of life events

	Victims Mean Rank	Control Mean Rank	P
Total score	1.7788	1.20	0.002**
Undesirable events	197.01	135.99	0.000***
Desirable life events	178.45	154.55	0.013*
Impersonal events	179.92	153.08	0.010**
Personal events	191.88	141.12	0.000***

*P is significant at <0.05 level, **P is significant at <0.01 level, ***P is significant at <0.001 level

of staying separately from the family may not have had enough support to face adverse life circumstances. To substantiate this finding it shows that the majority of victims had issues with their spouses and other family members. Heikkinen *et al.*^[13] a study on the impact of recent life events and social support in suicide reported a life event in the preceding three months in 80% of victims. Hegde from India reported marital or domestic problems in 37.5% of completed suicides.^[14]

In the present study 33% of victims were abusing alcohol and 28% reported alcohol abuse in first-degree relatives. A total of 30% had consumed alcohol at the time of committing suicide. Probably alcohol might be the easiest available remedy for farmers to deactivate their hassles. Bhise and Behere in their study on farmers' suicides, reported alcohol dependence syndrome in 10.2% of the sample.^[6] The same authors in another study in the Vidarbha region of Maharashtra, reported addiction as an important contributory factor for suicide among farmers.^[15]

Alcoholism has a complex multifactorial relationship with suicide. An alcoholic by his addiction habit is prone to experience a variety of interpersonal stressors which can reduce his social support thereby creating a fertile ground for suicide. According to NCRB reports

social drinking is very common in India.^[16] A study from Russia showed that the suicide rate was reduced to 34% following strict legislation on the sale of alcohol.^[17] In our country also government should also initiate programs for reducing the free availability of alcohol and provision for early detection and treatment of alcoholics and their families.

In our study, significantly more number victims (33%) were found to be suffering from depression than the controls (14.4%). However, only 20% had a depressive syndrome and the rest of the diagnoses were adjustment disorders with emotional disturbance. This finding raises some doubts about the risk of suicide in farmers in the background of minor psychiatric ailments. In most of the Indian studies on suicide major psychiatric diagnoses form only a minor proportion. Many of these studies have not adopted sound methodologies like structured clinical interviews for the confirmation of psychiatric diagnosis. Whereas in Western studies a diagnosable psychiatric illness has been reported in 90% of suicide victims.^[18] In a study conducted by Kumar on suicide the predominant diagnosis was adjustment disorder followed by depression and alcohol abuse.^[19] In addition, many of them attempted suicide impulsively precipitated by stressful events. In a study on farmers' suicide Walker and Walker reported suicides in farmers in the absence of a definite psychiatric illness and they opined that these suicides were the culmination of the effect of a series of stressful life events.^[20]

India is a developing country without a sound economy, and financial constraints may produce profound stress for farmers. This could be a reason for the over-representation of adjustment disorders in Indian farmer's suicides.^[21] However, we should rule out a treatable psychiatric condition in every suicide which will help to identify and treat these

Table 5: Psychiatric diagnoses

	Victims <i>n</i> =166	Control <i>n</i> =166	Odds ratio	95% CI	<i>P</i>
Depression	46	14	0.54	1.41–5.32	0.002**
Alcohol dependence/abuse	54	24	2.74	1.10–4.65	0.004**
Psychosis	7	3	1.17	0.37–1.94	0.833
Other psychiatric disorders	4	2	1.87	0.74–4.68	0.258

***P* is significant at <0.01 level

Table 6: Significant association in victims on logistic regression analysis

Factors	SE	Significance (<i>P</i>)
Migration	0.37	0.003**
Marital Issues	0.47	0.031*
Loneliness	0.54	0.050*
Total LE score	0.00	0.000***
Impersonal LE	0.00	0.003**

P* is significant at <0.05 level, *P* is significant at <0.01 level, ****P* is significant at <0.001 level

conditions at the earliest and this will make a significant impact in reducing farmers' suicides.^[22]

In this study, 34% of the victims had a close relative who committed suicide and 24% have attempted in the past. Moreover, 13.2% had made multiple attempts before their successful attempt. Exposure to suicidal behavior and previous attempts are always a risk factor for suicide and people with these risk factors may perceive suicide as an acceptable solution to life stressors.^[23]

In the present study, the commonest mode of attempt was hanging (49.7%) closely followed by poisoning (39.6%). Suicide studies from India report hanging and poisoning as the common mode of attempt.^[19] Factors such as feasibility, accessibility and rapidity of action, and the severity of intent are the factors for choosing the ideal method for implementing the idea. In an impulsive act if the available method is lethal it will lead to a successful attempt. In the present study majority being farmers had easy access to poisons. Hence reducing the free availability of poisons over the counter will be very helpful in reducing a sizable number of farmers' suicides in India. In England, there was a drop in farmers' suicides following strict restrictions on firearms use.^[24]

In this study, 38.5% communicated their distress and intent. Many factors will decide the subject's wish to express the intention to die such as their educational standard, willingness to express the ideas, and the situation where the subject is residing. In two Indian studies, only 6.89% and 4.7% communicated their intention to die respectively.^[25,26] If we can identify this specific warning sign effective preventive steps can be taken by mobilizing protective resources.

Most studies have not given much importance to the place which the subject chooses for committing suicide. Detailed analysis of the venue will help to understand the degree of intention and lethality of the attempt. In our study, 75.7% selected their own house or premises for attempting suicide. Though studies in this regard are few, similar findings have been reported from India.^[25,27] Probably this finding may reflect our cultural perspective.

Strengths and limitations

To avoid confounding variables, the control group was selected meticulously matching age, sex, economic status, and domicile. Since this study was a psychological autopsy, information has to be collected from reliable sources. Selected informants were those who were living with the subject at least for three years. To avoid retrospective falsification and recall bias assessment was done for both groups within three months of suicide. Psychiatric diagnosis was established using a structured interview schedule. However, the main limitation was that though this study was conducted on a house-to-house visit basis, some cases might have been missed as it was not registered by the police and due to faulty addresses.

CONCLUSION

This study suggests the following remedial measures to prevent farmers' suicides. Expert advice to manage financial constraints like for availing loans, crop insurance, etc. Guidance from the agricultural department for cost-effective cultivation. Early identification and treatment of psychiatric disorders. Counseling centers in every panchayath with the help of a trained psychologist. Restrict the availability of poisons over the counter without any documents. The strength of poison should be limited to only killing insects and adding some agents to induce vomiting in case of human ingestion. Establish poisoning management centers in district hospitals. For immediate help, a mobile poisoning management team should be started for interior areas. Train doctors in major hospitals for poisoning management. Anybody admitted to any hospital with a suicide attempt must be evaluated by a mental health consultant before discharge. Training for media persons in suicide prevention. Considering the significant difference in the psycho-socio-demographic

profile of farmers' suicides in the Indian scenario compared to Western countries more research is needed to formulate specific suicide prevention strategies for our culture.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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