

## ORIGINAL ARTICLE

# Farmer Suicides and Alcohol Consumption: An Autopsy Based Medicolegal Study of Suicide Methods and Risk Factors

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## Abstract:

The term "suicide" refers to the planned and intentional death of oneself. It is distinctly human, and homicide and suicide are the next three most common causes of unnatural deaths after accidents.<sup>1</sup> Farmer's suicide is mainly attributed to crushing financial pressures on farmers, farm product prices being too low, environmental problems, inadequate irrigation, increased use of chemical fertilizers, crop failure, etc. The current study was conducted at the Medical College in a rural region of central India, where most cases are brought from rural areas. The current study concluded that the majority of incidents affected young adults (20–40 years) who committed suicide by poisoning 72 cases (36.7%). In 16.32% (n=32) of the cases, the farmers had consumed alcohol at the time of the incident. Although 18.88% (n = 37) of the farmers' cases were addicted to alcohol.

**Keywords:** Farmer; Suicide; Autopsy; Alcohol; Addiction.

## Introduction:

The term "suicide" refers to the planned and intentional death of oneself. It is distinctly a human affair. Only humans can decide to terminate themselves. The phenomenon of suicide is as old as mankind but still remains an unsolved puzzle. One of the oldest industries in the world, farming is often depicted as a joyful way of life. However, compared to other industries, the agriculture industry has one of the highest suicide rates. According to observations, homicide and suicide are the next three most common causes of unnatural deaths after accidents.<sup>1</sup> In the Vidarbha region of Maharashtra and rural Punjab, economic problems such as debt, crop failures, and severe financial loss or responsibility (such as marriage in the family) were substantially related to farmer suicides.<sup>2,3</sup>

Farmer suicides in Maharashtra state are attributed mainly to crushing financial pressures on farmers, farm product prices are too low, environmental problems, stress, and household obligations, governmental regulations, inadequate irrigation, increased agricultural costs, private money lenders, increased usage of chemical fertilizers, crop failure, etc. From the available figures, it appears that the issue of farmer suicide is very common in rural parts of central India.<sup>4</sup>

Taking into account the seriousness of farmer suicide and the stigma to society and country, a study was conducted to assess the

different factors of farmer suicide deaths in rural areas of central India, where the farmer suicide rate is always high, which could help society reduce the suicide rate.

## Materials and methods:

The current study is being carried out at the Medical College in a rural region of central India, where most cases come from rural areas. The material for the present study comprises cases of alleged suicide among farmers subjected to a medicolegal autopsy in the rural area of Central India from August 2013 to July 2017 retrospectively and prospectively. After excluding all exclusion criteria, a total of 196 suicide cases were studied during the above-mentioned period. Suicidal cases in which the deceased was a farmer by occupation according to the inquest papers and information provided from the relatives of the deceased brought to the autopsy centre in the rural area of Central India, which belongs to the area under study, were included in the current study. Then these cases were cross-checked with the list of farmer suicides provided by the governing authority of the study region.<sup>5</sup> The study was carried out after ethical approval from IEC, MGIMS, Sevagram.

## Observations and Results:

In the current study, all cases of farmer suicide that were taken to a mortuary and autopsied are being investigated, which were carefully chosen considering the study's objectives, inclusion, and exclusion criteria.

Poisoning was the most common way of committing suicide in both the young adult (20–40 years) age group, n=72(36.7%) and adult (41–44%), n = 47 (24%) followed by hanging, n = 26 (13.7%) in the young adult group, while drowning in the 9 (4.6%) cases in the adult group.

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## Article History

DOR : 02.05.2023 DOA : 09.10.2023

**Table 1. Distribution of suicidal death according to age and method of committing suicide.**

Method of committing suicide	Age in years										Total (n)	%
	Child (0-12)	%	Adolescent (13-19)	%	Young adult (20-40)	%	Adult (41-64)	%	Older (65 or above)	%		
Poisoning	0	0	3	1.53	72	36.7	47	24	5	2.55	127	64.8
Hanging	0	0	0	0	26	13.3	8	4.1	3	1.53	37	18.9
Drowning	0	0	1	0.51	10	5.10	9	4.6	4	2.04	24	12.2
Burning	0	0	0	0	2	1.02	5	2.5	1	0.51	8	4.1
Total	0	0	4	2	110	56.1	69	35.2	13	6.6	196	100

**Table 2. Distribution of farmers' suicidal deaths with respect to time of committing suicide (n=196).**

Period	Sex				Total (n)	%
	Male	%	Female	%		
Morning(6 am to 11:59 am)	36	18.37	5	2.55	41	20.92
Afternoon (12pm to 5:59 pm)	62	31.63	2	1.02	64	32.65
Evening (6pm to 11:59 pm)	77	39.29	9	4.59	86	43.88
Night (12am to 5:59 am)	5	2.55	0	0	5	2.55
Total	180	91.84	16	8.16	196	100

**Table 3. Distribution of farmer suicidal death with respect to the place of suicide (n=196).**

Place of suicide	Sex				Total (n)	%
	Male	%	Female	%		
At home	102	52.04	12	6.12	114	58.16
At farm	70	35.72	4	2.04	74	37.76
Other than home/farm	8	4.08	0	0	8	4.08
Total	180	91.84	16	8.16	196	100

The table number 02 shows that out of 196 cases, 86 (43.88%) cases of suicidal death occurred during the evening hours (from 6 pm to 11:59 pm) followed by 64 (32.65%) cases during the afternoon hours (from 12 pm to 5:59 pm).

According to the table given above, of the total of 196 cases, the maximum number of victims, 114 (75.67%), preferred their own homes as the place of suicide. 74 (37.26%) cases preferred their farms as the place of suicide. Only 8 (4.08%) cases preferred places other than home and farm as the place of suicide, and all were males. The table shows that of a total of 196 cases of farmer suicidal deaths, 32 (16.32%) cases had consumed alcohol at the time of suicide and all cases were men.

The table shows that out of a total of 196 cases, alcohol addiction was observed in 37 (18.88%) cases. No single case of alcohol addiction was found among women.

**Discussion:**

Method of committing suicide with respect to age: In the present study, the method used by young adults (20-40 years) to commit suicide is poisoning 72 (36.7%) followed by hanging 26 (13.3%), drowning 10 (5.10%) and burning 2 (1.02%), respectively. All these forms of suicide are most commonly seen in young adults (20-40years) of which poisoning contributed the most. In the adult age group (41-64 years), poisoning is the most common method of suicide in 47 (24%), followed by drowning in 9 (4.6%) cases.

Our study agrees with Behere PB et al.,<sup>6</sup> Murkey P et al.,<sup>7</sup> Saiyed MZ et al.,<sup>8</sup> and Singh KP et al.,<sup>9</sup> Vijaya Mahantesh SN et al.,<sup>10</sup> Sumanta Dutta et al.<sup>11</sup>

**Table 4. Distribution of farmer suicidal death with respect to alcohol consumption at the time of suicide (n=196).**

Alcohol at the time of suicide	Male	Female	Total (n)	%
Present	32	0	32	16.32
Absent	148	16	164	83.68
Total	180	16	196	100

**Table 5. Distribution of farmer suicide with respect to alcohol addiction (n = 196).**

Alcohol addiction	Male	Female	Total (n)	%
Present	37	0	37	18.88
Absent	143	16	159	81.12
Total	180	16	196	100

The primary factor that influences people's decision to use poisoning as their preferred form of suicide may be due to the fact that the main occupation is agriculture; insecticides and pesticides are not strictly regulated and are readily available. The second most popular way to end one's life is by hanging behind the poisoning, as there is an easy availability of ligature material. In this region, suicide from firearms is not seen, which may be due to factors such as less accessibility to weapons, their high cost, and strict law enforcement regarding the possession and usage of firearms.

With repeated use, harmful pests become resistant, leading to a growing need for more and more powerful pesticides. This further affects crop production. After facing the crisis due to crop production failure and mounting debt, farmers commit suicide. Ironically, insecticides/pesticides that are used have now turned out to be deadly to the farmer himself.

The maximum number of suicides in young adults (20-40 years) can be ascribed to various factors such as: prevalence of psychiatric risk factors in youth, especially substance abuse or depression, and unemployment. They are directed towards farming industries to fulfil their family needs, family liabilities, and if their expectations remain unfulfilled, then there can be an increased sense of hopelessness or depression.

Time of incidence: In the present study, maximum suicidal deaths (43.88%) occurred in the evening (6 pm to 11:59 pm) followed by the afternoon (12 pm to 5:59 pm) 32.65% of cases, morning (6 AM to 11:59 AM) 20.92% and night (12 AM to 5.59 AM) 2.55% of cases respectively. The current study is in accordance with Murkey P et al.<sup>7</sup> and R. Ponnudurai et al.<sup>12</sup> Our study is not in agreement with Tanna JA et al.,<sup>13</sup> Bardale et al.,<sup>14</sup> and Palimar DV et al.<sup>15</sup> The high incidence during the evening and night hours gives room for speculation on whether there is any association between suicidal behaviour and diurnal variation in depressive mood in the evening and night hours, as reported in many depressed patients.

Place of incidence: In the present study, the maximum suicide victims preferred suicide at their own home 114 (58.16%), while 74 (37.76%) committed suicide on the farm and 8 (4.08%) neither at home nor at the farm. The present study agrees with Manik Changoji Bhise et al.,<sup>2</sup> Tanna JA et al.,<sup>13</sup> Bardale et al.,<sup>14</sup> and Murkey Pankaj et al.<sup>16</sup>

A suicidal individual looks for a safe place to end his life. The safest place to commit suicide is still in a person's home because

supplies like pesticides, ligature material, matchboxes, and kerosene are readily available there. As a result, homes are the place where most suicides are committed.

**Alcohol consumption at the time of suicide:** In the present study, 32 (16.32%) cases have consumed alcohol at the time of suicide. The present study is in accordance with R. Ponnudurai et al.,<sup>12</sup> Shankar Udaya B S et al.<sup>17</sup> and Auer Med.<sup>18</sup> The present study is not in agreement with Madadin et al.<sup>19</sup> who found alcohol in only 5.55% of cases.

Drinking alcohol encourages people to take risks. Consumption of alcohol can reduce the inhibitions necessary for an individual to act against an impulse of suicide thoughts, which they might never have done if not under the influence of alcohol.

**History of alcohol addiction:** In the present study, there was a history of alcohol addiction in 37 cases out of 196. Our study is in agreement with the study by Meel BL,<sup>20</sup> according to which alcoholics were at high risk of suicide, which accounts for 20% to 40% of all suicides. The present study is not in accordance with Tanna JA et al.,<sup>13</sup> who found that 5% had a significant history of substance abuse.

Alcohol can worsen existing mental health problems and accelerate their development. Alcohol can affect the ability to cope, handle and cope with regular pressures and important life events. Alcohol plays an important role in developing or worsening pre existing mental health problems such as anxiety, depression and a tendency to self-harm. Having alcohol addiction increases the likelihood that someone will attempt suicide, and this is especially true for men. Addiction following debt is the most important reason farmers commit suicide.<sup>21</sup>

**Summary and Conclusion:** Deaths are always painful for families and friends, but some are more tragic than others. Taking into account the seriousness of farmer suicide and also the stigma to society and the country, this study was carried out to evaluate various aspects of farmer suicide in rural areas of central India where the farmer suicide rate is invariably high, which can help society reduce the rate of suicide. The current study was carried out with the aim of analyzing and being aware of various suicide methods, causes or precipitating factors, sociodemographic characteristics, time and seasonal variation, and suggesting legal and preventive policy measures. Taking into account the importance of knowing the suicide scenario, the present study was carried out titled 'Medicolegal profile of farmer's suicide cases autopsied at Rural Medical College in Central India'. A retrospective and prospective study was conducted from August 2013 to July 2017. In the present study, a total of 196 suicidal cases were included, which were autopsied at our medical school and hospital.

In addition to this, we also included age, sex, marital status, education, type of family, religion, socioeconomic status, time and place of incidence, season, alcohol addiction, alcohol consumption at the time of suicide, the reason for committing suicide, the method used, and detailed findings of post-mortem examination findings of poisoning, hanging, drowning, and burn cases.

The observations obtained were plotted in the form of tables and

illustrative graphs to better understand and analyze various parameters. The results were then analyzed and compared with the work of previous authors (as cited in a review of the literature).

From the present study, the following points are deduced.

1. In most of the incidents that affected young adults (20–40 years) suicide was committed by poisoning 72 (36.7%).
2. The most common method of committing suicide was poisoning in 127 (64.8%) cases followed by hanging in 37 (18.9%) cases drowning in 24 (12.2%) cases and burning in 8 (4.1%) cases. No single case of suicide due to a firearm was seen.
3. Maximum suicidal deaths of 86 (43.88%) cases occurred in the evening (6 pm to 11:59 pm) followed by the afternoon (12 PM to 5:59 PM) 64 (32.65%) cases, morning (6 AM to 11:59 PM) 41 (20.92%) cases, and night (12 AM to 5.59 PM) 5 (2.55%) cases respectively.
4. Home was the preferred suicide comprising 114 (58.16%) cases followed by farm as suicide in 74 (37.76%) cases.
5. 32 (16.32%) farmers had consumed alcohol at the time of suicide.
6. 37 (18.88%) of the cases of farmers addicted to alcohol had committed suicide.

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