

**STUDY OF PSYCHOSOCIAL PROBLEMS AND THEIR DETERMINANTS OF FARMERS IN DROUGHT AFFECTED AREA OF MARATHWADA REGION OF MAHARASHTRA, INDIA**Soham S. Barkule<sup>1</sup> and Dr. Smita P. Andurkar<sup>2\*</sup><sup>1</sup>MBBS Student, Government Medical College, Aurangabad, Maharashtra, India.<sup>2</sup>Associate Professor, Government Medical College, Aurangabad.**\*Corresponding Author: Dr. Smita P. Andurkar**

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**ABSTRACT**

**Background and objectives:** Farmer's stress and suicide is current burning issue not only in India but also in whole world. Almost 90% of persons who commit or attempt suicide has a diagnosable mental disorder. So the present study is carried out to study psychosocial problems and risk factors in farmers. **Methods:** The present community based cross sectional study is carried out in 8 villages of 4 different districts of Marathwada region with objectives of studying psychosocial problems and risk factors associate with them. With the help of predesigned questionnaire, we assessed socio-demographic data and by using GAD 07 & PHQ 9 scale we found out the anxiety and depression levels of farmers of that area. **Results:** 25.6% farmers were in age group of 41-50 yrs, 23.1% were illiterate. Farming was only occupation for 74.7 % of farmers. 81.6% farmers were having annual income below 1 lakh. 68.7 % farmers had institutional loan of more than 50 thousand. 31.1% farmers had non institutional loan more than 50 thousand. 42.2% farmers were suffering from moderate and 17.8% farmers from severe type of anxiety. 33.1% farmers had moderate depression while 19.6% and 9.1% farmers were suffering from moderately severe and severe type of depression respectively. **Interpretation and Conclusion:** that annual income of farmer and loan (both institutional and non institutional) significantly affect the mental state of farmers by increasing anxiety and depression.

**KEYWORDS:** Anxiety, depression. farmers suicide, psychosocial problems.**INTRODUCTION**

Agricultural sector is the primary sector in India. India is an agrarian economy. It is worth to mention that agricultural sector provides jobs to around 53% population of India, with a share in India's GDP 17.32%.<sup>[1]</sup> Huge population depend on much less economical return. Not only this, but also growth rate in agriculture had come down to 2.5% in 2010-11 from 15.4% in 1988-89.<sup>[2]</sup> Farming can be called as an isolated profession because farmers traditionally work for long hours, alone and often in a bad weather. Farming is found to be one of the occupations which cause high stress.<sup>[3]</sup>

Stress can be originated in physiological, psychological and social condition and it may threaten the integrity of the body, the personality or the social system,<sup>[4]</sup> In our culture stressful condition is often ignored, this not only affects the farmer alone but also to his wife and family.<sup>[4]</sup> Caroline Davies, Director of Rural Stress Information Network (RSIN), says: "farmers are at a very vulnerable stage, they are exposed to a lot of criticism and they do feel that society is against them."<sup>[4]</sup>

Today farmer's suicide is the leading issue in the society. Total 2, 96,438 suicides of farmers took place in India till November 2016 and suicide rate is 11 per lakh. Major reason of farmer's suicide is heavy indebtedness that cultivators find themselves.<sup>[5]</sup> The indebtedness itself results from a mismatch in the cost of production and market price that the cultivator receives.<sup>[5]</sup> Many times private moneylender is the only source to small and marginal farmers, when they are in need. Along with the debt, other important causes of stress are chronic and recurrent drought, high cost of cultivation, lack of remuneration prices of crop products, lack of on time loan from banks & lack of sustainable irrigation facilities. Many of the factors causing mental and emotional stress are uncontrollable like weather, disease, pests, lack of equipment, electricity, proper government help and lack of accessible and affordable health care.<sup>[3]</sup> Due to this, constant stress that they experienced lead to physical, emotional and behavioural problems. Stress is linked to numerous illness and diseases, ulcers, hypertension and infection.<sup>[3]</sup> Since very few studies have done on psychosocial problems of farmers and factors associated with it, the present study is been

planned with objectives of studying psychosocial problems of farmers and risk factors associated with psychological problems in farmers in Marathwada region of Maharashtra (India).

## MATERIAL AND METHODS

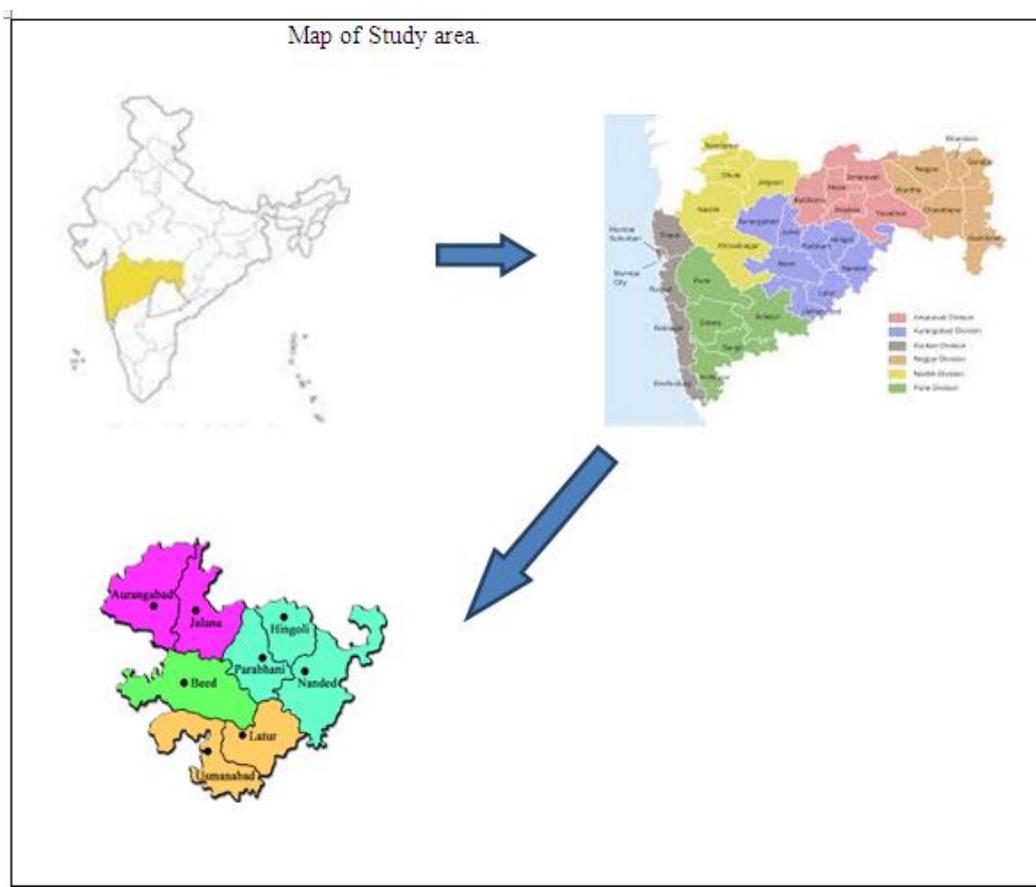
The present study is a cross sectional study on male farmers\* of 8 villages of 4 different districts of Marathwada region of Maharashtra, India. [\*Farmers=Households having cultivation as the source of major income.<sup>[15]</sup>]

Multistage sampling method was used- out of total 8 districts of Marathwada, 4 districts were selected randomly and from each district one taluka was selected randomly and further two villages from each taluka were

selected randomly. The study participants from total 8 villages were selected by probability proportional to size sampling technique.

Considering prevalence of insomnia and anxiety in farmers in Maharashtra region as 55 %, <sup>[7]</sup> the sample size was calculated by the formula  $4pq/l^2$  which was came as 396 and adding 10% of non response to it total the sample size to be 436.

After getting approval from institutional ethical committee the data collection was carried out in 2 months (July –August 2018). An informed consent was taken in mother tongue Marathi after explaining the purpose of research and procedure.



All the participants were interviewed by using pre-designed and pre-tested questionnaire, which includes relevant socio-demographic information, psychosocial problems and factors affecting it. Questions were asked in their local language Marathi. To study the anxiety & depression in farmers GAD 07 and PHQ 9 scale was used respectively.

The data was collected, compiled and then entered in MS Excel 2008 worksheet. It was analysed using SPSS trial version 16. Frequency, percentages were calculated and chi square test was applied.  $P < 0.05$  was considered as

statistically significant. Vancouver system was used for citing and listing of references.

## RESULTS

In the present study 450 farmers were interviewed , after visiting 8 villages, 2 each from 4 districts namely Parbhani, Beed, Nanded, Aurangabad of the Marathwada region, 450 farmers were interviewed using predefined and pretested proforma. Socio-demographic factors studied were occupation (farming only or any other secondary occupation), age, education, caste, religion,

farm size, income, ration card, loan, type of family, addiction, level of anxiety and depression.

25.6% of farmers were in age group of 41-50 years followed by 24.9% in age group between 31 to 40 years. In terms of education, illiteracy is still very high; nearly 23.1% farmers were illiterate, 47.1% farmers completed their secondary or higher secondary education, 21.3% completed primary education & 8.7% of farmers were graduate.

74.7% farmers depend only on farm to fulfil their needs while only 25.3% farmers had other secondary option to earn their bread and butter. 72.5% farmers belong to general category while 21.1% were from OBC and 6.4% were either SCs or STs. 90.9% farmers were Hindu, 2.9% were Muslim and 6.2% were Buddhist.

60.7% farmers were having land less than 2 hectares, 30.6% were having land between 2 to 5 hectares while only 8.7% farmers were having land of area more than 5 hectares. 66.2% farmers were having annual income between 25 thousands to 1 lakh. 15.4% farmers were with income less than 25,000 while 4.2% farmers were having income more than 4 lakhs. Out of total 450 farmers 409 farmers were using of ration card, in that 63.1% farmers had APL ration card and 26.7% had BPL ration card. (Table 1 A).

64 % farmers lived in a nuclear family, 28 % in three generation family, while 8 % lived in joint family. 55.1 % farmers were having addiction, in that 36.2 % farmers had addiction of tobacco only, while 10.7 % of cigarettes only and 3.3 % were having both tobacco and cigarettes. 4.9 % farmers drink alcohol. (Table 1 B).

82.2 % farmers had taken institutional (bank) loan, in that 50.4 % farmers had loan in between 50 thousand to 2 lakhs, while 13.6 % and 4.7 % farmers had loan between 2 lakhs to 5 lakhs and above 5 lakhs respectively. 52.7 % farmers borrowed loan from non institutional (moneylenders / savkar) , in that 24.2 % farmers had non-institutional loan of 2-5 lakhs while 5.6% farmers were in a debt of more than 5 lakhs. (Table 2).

91.5 % farmers suffered from an anxiety, in that 31.3 % farmers had mild anxiety while 42.4 % were suffering from moderate anxiety and 17.8 % from severe anxiety. Similar results we got in case of depression also, 91.8 % are those farmers who were suffering from any depression, in that 30 % farmers had mild depression, 33.1 % farmers had moderate depression and 19.6 % & 9.1 % farmers were suffering from moderately severe and severe depression respectively. (Table 3).

#### **Association of loan with anxiety and depression**

Farmers that have not borrowed any loan are relatively anxiety free (77.5 %) compared to farmers who were in debt (1.33 %). Majority of farmers who borrowed loan

were in anxiety (98.67 %) as compared to those which haven't borrowed loans (22.5 %). This association between anxiety and borrowing of loan was found to be statistically significant. Out of 450 farmers, 91.5 % farmers suffered from anxiety, in that 31.3 % farmers had mild, 42.4 % had moderate anxiety and 17.8 % were suffering from severe anxiety. (Table 4).

Farmers who didn't borrow loan were relatively depression free (77.5 %) as compared to farmers who were in debt (1.46 %). This association between anxiety and borrowing of loan was found to be statistically significant. 30 % farmers had mild, 33.1 % had moderate while 19.6 % & 9.1 % farmers were suffering from moderately severe and severe depression respectively (Table 5).

#### **Association of institutional & non institutional loan with anxiety and depression.**

82.44 % and 52.66 % farmers were having institutional and non institutional loan respectively and 44 % farmers were having both the type of loans. (table 2).

98.66 % of farmers who had institutional loans and 97.89 % of farmers who had non institutional loans suffered from the anxiety.

98.66 % of farmers who were having institutional loan and 97.89 % of farmers who were having non institutional loan were suffering from anxiety, as compared to 59.50 % farmers who didn't have any institutional loan and 84.89 % of farmers who didn't have any non institutional loan were suffering from anxiety. (Table 4, 5).

Distribution of anxiety according to amount of institutional loan is shown in Fig 2. As amount of institutional loan increases percentage of farmers suffering from anxiety also increases. 98.39 % of farmers were having institutional loan and 98.73 % of farmers with non institutional loan suffering from the depression as compared to 60.75 % farmers who didn't have any institutional and 84.04 % of farmers who didn't have non institutional loan respectively were suffering from depression. (Table 4, 5).

Distribution of depression according amount of institutional loan is shown in Fig 3. As amount of institutional loan increases percentage of farmers suffering from depression also increases.

#### **Association of annual income with anxiety and depression**

All farmers with income below 25,000 were suffering from anxiety. Those with income more than 4 lakhs were free from anxiety free. Those farmers who had annual income between 25,000 to 1,00,000 99 % were suffering from anxiety and of those annual income between 1 lakh to 4 lakhs 76.57 % were suffering from anxiety. (Table 4, Fig 4).

Only 1.45 % farmers with income below 25 thousands were depression free while 73.86 % farmers with income more than 4 lakhs were depression free. Out of those farmers who had annual income between 25,000 to 1,00,000 - 97.31 % were suffering from depression while farmers whose annual income was between 1 lakh to 4 lakhs -78.31 % were suffering from depression.(Table 5).

#### **Association of education with anxiety and depression.**

Anxiety was found among 94.23 % of illiterate farmers as well as in 93.75 % of primary educated farmers and 81.57 % of those who were graduate. Depression was found among 95.20 % of illiterate farmers as well as in 94.79 % of primary educated farmers and 86.84 % of those who were graduate. (Table 4, 5).

#### **Association of farm size with anxiety and depression**

94.14 % farmers with farm size below 2 hectares suffered from anxiety and 89.79 % farmers with farm between 2 to 5 hectares suffered from anxiety. 94.14 % farmers with farm size below 2 hectares suffered from depression and 88.32 % farmers with farm between 2 to 5 hectares suffered from depression.(Table 4,5).

### **DISCUSSION**

#### **Socio-demographic data**

In this study 50.5 % of farmers were in age group 30 to 50 years. In study conducted by **Krishnamurthy NB** 82 % farmers were from middle age group,<sup>[13]</sup> while in study of **Gottmukkula B** et al 47 % farmers were above 50 years of age.<sup>[10]</sup>

In this study 23.1 % farmers were illiterate while 8.5 % farmers were graduate. Marathwada is much backward in the terms of human development index as compared to remaining Maharashtra.<sup>[15]</sup>

In study of **Gottmukkula B** et al 14 % farmers were graduate<sup>[10]</sup> while in study conducted by **Krishnamurthy NB** 8.34 % farmers were graduate and 33.33 % farmers studied up to primary level.<sup>[13]</sup>

In the present study, 74.7 % farmers were totally dependent on agriculture for their livelihood. Similarly observed by **Lakhwinder kaur**, that they don't have any other source of income.<sup>[6]</sup>

#### **Farm size**

In the present study, 60.7 % farmers were having land less than 2 hectares and 30.6 % farmers were the owner of land between 2 hectares to 5 hectares. Due to the division of lands from one generation to next, most of them were now marginal land holding farmers.

In study conducted by **Krishnamurthy NB**, 36.67 % were marginal land holding farmers with 20 % small land holding farmers. While in a case study conducted in Vidarbha region of Maharashtra, 48.3 % farmers were owner of land less than hectares and 31.7 % were owner of 2-5 hectares.<sup>[13]</sup>

#### **Family annual Income**

Economical crises are the main reason of farmer's depression and if it continues, it may lead to farmer's suicide. 81.6 % of studied farmers have income below or up to 1 lakh per annum.

In study of **Gottmukkula B** et, al 78 % farmers have annual income less than or up to 1 lakh. Due to increase in cost of production, low prices of farm products, lack of any secondary occupation, irregularity in rain time and amount, farmer's annual income decreases tremendously.<sup>[10]</sup>

#### **Family type**

In present study, 64 % farmers were living in nuclear family. According to **Kale et al**, 63 % suicide victims were from nuclear family. Due to influence of western culture, family system converts from joint or three generation to nuclear and it causes high economical burden which leads to suicide.<sup>[9]</sup>

#### **Addiction**

In the rural area of India, prevalence of addiction is increasing now-a-days, especially of tobacco chewing, which is further causing health issues and increased economical stress. (In the present studied population, 55.1 % farmers were having addiction. 44.2 % farmers chew tobacco and 16.7 % smoke cigarettes).

#### **Loan**

In the studied population of farmers, 82.2 % were having institutional loan, out of those 68.7 % farmers were having institutional loan more than 50 thousand. In present study, 52.7 % farmers had to take loan from private money lenders. 31.1 % farmers were under the non-institutional debt of more than 50 thousand.

According to study of **Merriott D.** et al, increasing indebtedness is the predominant cause of farmer suicide. Due to much slower and complicated procedure of banks, many small and marginal farmers had to go to money lenders. (Due to high interest rate of loan, amount increases much more than principal).<sup>[11]</sup>

**Kale NM et al** found that 47 % farmers were having only institutional loan and 51.5 % farmers were having both institutional and non institutional loan.<sup>[9]</sup>

#### **Anxiety and Depression.**

In present study population 42.4 % and 17.8 % farmers suffered from moderate and severe type anxiety respectively. Also in case of depression, condition is not different, 61.8 % farmers were suffering from moderate to severe depression. Just 8.2 % farmers were free from depression.

According to study of **Ghatul D.** on constrain and stress level of farmers, 21.66 % of the studied farmers were under severe stress while 17.53 % faced the high level of stress and farmers with the moderate and low stress

levels observed were 21.06 % and 20 % respectively. Almost all the farmers were put under constraints with 85.39 % farmers were found to have a moderate level of constraints and farmers with high level of constrain were more than 14 %.<sup>[4]</sup>

Similar results were seen in the study of **Ramesh A S** et al on occupational stress among farming population, which showed that, out of 200 respondents 118 were having high amount of stress and 81 were having moderate amount of stress.<sup>[3]</sup>

In the case study from Vidarbha region on mental state of farmers in Maharashtra, about 55 % of farmers were suffering from anxiety and insomnia while 24 % farmers were having severe depression.<sup>[14]</sup>

#### **Association of loan with anxiety and depression**

In present study, there was a significant relation between loan with anxiety and depression. Those farmers who didn't take any loans, 22.5 % suffered from anxiety while that those who had taken loan, 98.67 % were having anxiety.

In the study of **Merriott D.** et al, they discussed about indebtedness and concluded that increase indebtedness is the predominant cause of farmer's suicide.<sup>[11]</sup>

In the study of **Nagthan S et al** on socio-economical and psychological profile of farmers' suicide in Karnataka, focused on fact that Marriages of farmers' daughter or sister retrospectively identified as a responsible factor in 40 % of cases.<sup>[8]</sup>

Not only institutional but also private moneylenders were important source of both loan and stress. According to case study held in Vidarbha region, 72.2 % farmers suffered from mental problem, who borrowed loan more than 25,000 from moneylender.<sup>[14]</sup>

#### **Association of annual income with anxiety and depression**

In present study, all farmers with income below 25,000 were suffering from anxiety. Those with income more than 4 lakhs were free from anxiety. Out of those farmers who had annual income between 25,000 to 1,00,000 - 99 % were suffering from anxiety and of those annual income between 1 lakh to 4 lakhs 76.57 % were suffering from anxiety.

Only 1.45 % farmers with income below 25 thousands were depression free while 73.68 % farmers with income more than 4 lakhs were depression free. Out of those farmers who had annual income between 25,000 to 1,00,000- 97.31 % were suffering from depression while farmers of those annual income between 1 lakh to 4 lakhs 78.31 % were suffering from depression.

According to **Ghatul DB** study, low annual income is one of the prime reason of constrain.<sup>[4]</sup>

#### **Association between education with anxiety and depression**

In this study, 94.23 % illiterate farmers and 93.75 % primary educated were suffering anxiety as compared to 81.57 % graduate farmers suffering from anxiety. 95.20 % illiterate farmers and 94.79 % primary educated were suffering anxiety as compared to 86.84 % graduate farmers suffering from depression.

According to study of **Lakhwinder kaur et al.**(2016) on causes and cure of farmer's suicide found that because of lack of education and information of modern techniques, they still engaged in orthodox type of farming and it increases loan amount further.<sup>[6]</sup>

Study of **Kale NM et al.**(2014) on socio economical, psychological and situational causes of suicides of farmers in Vidarbha region of Maharashtra focused on fact that 16.5 % of suicide victims were illiterate.<sup>[9]</sup>

Similar results were observed by **Nagthan S et al.** in their study. They observed that 30 % of suicide cases were illiterate as compared to 6.7 % illiterate controls.<sup>[8]</sup>

#### **Association of farm size with anxiety and depression**

In the Marathwada region, most of the farms were rain fed; very less farms had continuous supply of irrigated water. Land quality also was not same all over the region, so farm size did not have any significant relation with income and also with the anxiety and depression. There was a slight decrease in the level of anxiety i.e. 94.14 % to 89.79 % in farmers of farm size 0-2 hectares and 2-5 hectares respectively. And in case of depression with the same size of farm it was 94.14 % and 88.32 % respectively.

According to study of **Roy DD** on self efficiency of agricultural farmer (2009), demographic data like age, year of experience, land size, family size and education level were not significantly correlated with self efficacy.<sup>[7]</sup>

#### **CONCLUSION**

Farmers in Marathwada region, Maharashtra (India) are fighting with lots of problems. The main problem of farming can be differentiated into two main types: one is man-made and other is natural. High crop production cost, low output prices of crops, high rate of interest of non institutional loans, unavailability of early and easy bank loans, dowry, lack of accessible and affordable good educational facilities. health facilities are also beyond their reach that are some of the main man-made reasons while recurrent drought, low productivity of land in some areas, flood or sudden raining when crops are about to harvest are natural ones.

74.7 % farmers depend only on farm product, they don't have any other way of earning and in remaining 25.3 % farmers most of them are engaged in low income occupation like working as a labour in other's farm or in

factory, driver, having a small shop. 81.6 % farmers had annual income less than 1 lakh, huge population in rural India is under poverty. 55.1 % farmers had addiction; most of them chew tobacco (44.2%) or smoke cigarettes (16.7%). 91.3 % farmers had farm land size less than 5 H and very few of them have accessible irrigation facilities throughout the year.

In the present study we can conclude that there is no significant relation between education and farm size with the level of anxiety and depression, but comparatively higher proportion of depression and anxiety is seen in illiterate & primary educated farmers than higher educated ones.

There was a significant relation between loan (both institutional and non institutional) and annual income with anxiety & depression. 60.2 % farmers suffered from moderate to severe anxiety and 61.8 % farmers suffered from moderate to severe depression. 82.2 % farmers had bank loan while 52.7 % farmers borrowed loans from private moneylenders. So, from the present study we could conclude that annual income of farmer and loan (both institutional and non institutional) significantly affect the mental state of farmers by increasing anxiety and depression.

Further study is required to assess the factors which can prevent farmers from committing suicide by controlling the anxiety and depression in farmers. The further study is also required to find factors associate with other psychological factors like social dysfunction, insomnia and suicidal tendency in farmers.

Thus, along with the economical packages social and spiritual interventions are required to reduced anxiety and depression among the farmers to intervene in the vicious cycle.

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**Conflicts of interest:** No.

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