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To study the adoption behavior and sociological behaviour of psychosomatic farmers. Satna district (Madhya Pradesh)

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Abstract

Agriculture is deeply influenced by the psychological and sociological behaviors of farmers, particularly those experiencing psychosomatic stress. This study examines the adoption behavior and sociological patterns of psychosomatic farmers in Satna District, Madhya Pradesh, focusing on their decision-making processes, coping mechanisms, and responses to modern agricultural practices. Using a mixed-methods approach, data were collected from a stratified sample of farmers through surveys and interviews. The study analyzes factors such as mental stress, economic conditions, social influences, and access to agricultural innovations that shape their adoption behavior. Findings indicate that psychosomatic farmers exhibit hesitation toward new technologies due to anxiety, financial constraints, and societal pressures. However, social support networks and targeted intervention programs significantly improve their willingness to adopt sustainable agricultural practices. The study underscores the need for integrated psychological and agricultural extension strategies to enhance their well-being and productivity.

Keywords: Psychosomatic farmers, adoption behavior, sociological influences, agricultural innovation, mental health

Introduction

Mental disorders include depression, anxiety, stress, schizophrenia, bipolar disorder, and emotional / psychological distress. The most common mental disorders are said to be anxiety and depressive disorders, which are a reaction to the stresses of life. A person with an anxiety disorder feels distressed a lot of the time, for no apparent reason, and a person with a depressive disorder can experience a long-term depressed mood and loss of interest in activities that used to be enjoyable. The burden of mental disorders continues to grow with substantial impacts on health and major social, human rights, and economic consequences around the world.

Given the growing farming pressures in many countries (e.g., declining productivity, declining terms of trade, worsening weather impacts, and deteriorating soil and water quality), evidence-based understanding of risk factors on farmer mental health will become increasingly more important to improve the efficiency of prevention efforts. Hence, we sought to understand what the potential key risks affecting farmers' mental health are, as well as if these risks vary across space and time.

A psychosomatic factor is the interaction between a person's mental state and their physical health. Farmers, due to the nature of their work, often contend with elevated levels of stress, anxiety, and depression. This stress, stemming from weather-dependent crop cultivation, financial instability, and unpredictable market conditions, can lead to psychosomatic symptoms, including exhaustion, disrupted sleep, and gastro intestinal issues.

Based on their own flexibility and affordability, farmers prefer to work. Young farmer promises great deeds for the future. The adoption of new technologies and techniques in agriculture presents a unique context not shared by theories primarily focused on individual-level behavior modification. In densely populated countries like India, where farmlands are physically adjacent and relatively small, the actions of a single farmer, who operates as an individual entrepreneur, have a direct impact on the practices of neighboring farmers. This interdependence among farmers in India is more pronounced compared to sparsely populated nations where significant geographic distances serve as clear boundaries between individual farmers. Consequently, the relationships between farmers in densely populated regions, influenced by factors such as land use, water harvesting, and chemical fertilizer utilization, possess a distinct contextual uniqueness. It has been noted that robust social networks built on household-to-household interaction assist farmers in acquiring knowledge, expertise, resources, and ideas that impact their decisions.

Research Methodology

Sampling Procedure

The current research was conducted in Satna district of Central India. The district has an area of 7,502 km² and a population of 2,228,935(2011 census). 240 respondents were taken for this study through purposive sampling technique.

Table 1: Selection of Villages and Respondents for Psychosomatic Farmer Study in Satna District, Madhya Pradesh

State	District	Block	No. of villages	No. of Pre surveyed villages having psychosomatic farmers	No. of Villages selected for study having Psychosomatic farmers	No. of respondents selected from selected villages
Madya Pradesh	Satna	Majhgava	368	39	5	29
		Amarpatan	187	20	5	30
		Unchehra	235	25	5	28
		Nagod	262	30	5	33
		Maihar	368	41	5	27
		Ramnagar	192	20	5	31
		Rampur Baghelan	225	30	5	30
		Sohawal	266	29	5	32
Total			2103	235	5	240

Table 2: Distribution of farmer's category wise

S. No	Category	No. of Farmers	Percentage
1.	Small	128	53.33
2.	Medium	76	31.66
3.	Large	36	15.00
Total		240	100.00

Processing and statistical analysis of data

Tabular Analysis is a method of organizing, summarizing, and interpreting data in a structured table format. It allows for easy comparison of variables, identification of patterns, and extraction of meaningful insights. This method is commonly used in research, statistics, and business analytics to systematically analyze numerical and categorical data.

Rank order in statistics refers to the ordering of data points or observations based on their values, from lowest to highest (ascending order) or highest to lowest (descending order). It is used to assign ranks to individual observations in a dataset, which can help in various types of non-parametric statistical analyses.

Mean is the average of the given numbers and is calculated by dividing the sum of given numbers by the total number of numbers.

$\bar{x}=\sum x/n$

Were,
(sum) all of the data values
(x) and then divide the result by the number of values
(n). Since $\sum$ is the symbol used to indicate that values are to be summed (see Sigma Notation)

Percentage: The term 'Percentage' means a fraction whose denominator is 100 and the numerator of the fraction is called percentage**.**

$P = x/N\times10$

Were,
P= Percentage
X= Frequencies of respondents
N= Total number of respondents**.**

Mean Percentage Score (MPS) is a statistical measure used to the overall performance, perception, or effectiveness of variables based on responses from participants. It helps researchers interpret results in a standardized way, making comparisons easier across different groups or tests.

Formula for MPS

$$MPS = \frac{\sum(Individual\ Scores)}{Total\ Maximum\ Score \times Number\ of\ Respondents} \times 100$$

Result

Sociological behavior of psychosomatic farmers

Sociological behavior refers to the patterns of actions and interactions among individuals and groups within a society. Statement wise sociological behavior of the respondents was calculated in order to obtain a clear picture of the sociological behavior. In order to rank activities, the mean percent scores for each statement were also determined. Sociological behavior of the psychosomatic farmers is assessed by questioning a 30-point questionnaire designed to assess with the scale of fully agree, partially agree, neutral and the result analyzed is presented in the Table 3 is here by described and discussed statements wise sociological behavior of respondents

Here in the table all thirty statements are given with their mean percent score and rank. It can be concluded from in Table 3 that "Do you like doing religious activities" was the most sociological behavior of the respondent with total MPS 84.58 and was ranked first. Whereas "Do you like helping others" was ranked second with overall MPS 84.37.

Further examination of table shows that "Feeling of compassion towards people living in the society" stands at third position with MPS 83.33. "Sociological behavior about Have a feeling of compassion towards people and animals living in the society" stands at fourth position with MPS 81.04.

Table 3 further depicts that respondent had "Do you believe in the caste system." with MPS 80.20 and was positioned at fifth place. Respondents "Do you prefer to speak less" was positioned rank sixth with MPS 78.33.

Further examination of table shows that "Do you follow old customs" stands at seventh position with MPS 75.83. "Do you have control over your behavior?" stands at eighth position with MPS 73.95.

Table 3 further depicts that respondent had "You think many times before speaking." with MPS 73.33 and was positioned at ninth place. Respondents "Do you get frustrated every now and then" was positioned rank tenth with MPS 72.91.

Data present in Table 3 further shows that "Do you sleep well at night" with total MPS 72.29 was ranked eleventh by respondents. Respondents "Do you like cultural programs" with total MPS 70.62 ranked twelfth.

Further examination of table shows that "Do you keep remembering the mistakes of others" stands at thirteenth position with MPS 70.00. "You avoid eye contact with other people in public places" stands at fourteenth position with MPS 69.79.

Table 3 further depicts that respondent had "You get angry immediately if someone doesn't listen to you." with MPS 68.75 and was positioned at fifteenth place. Respondents "Do you have a feeling of service towards elder parents" was positioned rank sixteenth with MPS 67.91.

Further examination of table shows that "Sometimes you start talking to yourself" stands at seventeenth position with MPS 67.70. "Do you try to stay away from society" stands at eighteenth position with MPS 67.50.

Table 3 further depicts that respondent had "Do you forget things." with MPS 67.29 and was positioned at nineteenth place. Respondents "Do you hit back or fight with children" was positioned rank twenty with MPS 66.45.

Further examination of table shows that "Do you beat your wife when you have an argument with her" stands at twenty-one positions with MPS 66.25. "Does your blood pressure keep fluctuating?" stands at twenty-two positions with MPS 66.04.

Table 3 further depicts that respondent had "Do you remember the mistake you made again and again" with MPS 65.83 and was positioned at twenty third places. Respondents "You feel that the people around you and the society" was positioned rank twenty fourth with MPS 65.62.

Data present in Table 3 further shows that "Providing assistance in household work done by wife" with total MPS 64.37 was ranked twenty fifth by respondents. Respondents "Does your behavior not remain the same but keeps changing" with total MPS 62.70 ranked twenty sixth.

Further examination of table shows that "Do you keep working without any goal" stands at twenty seventh positions with MPS 61.65. "Do you have a bullying nature" stands at twenty eighth positions with MPS 61.04.

Data present in Table 3 further shows that "Don't you feel like eating" with total MPS 58.54 was ranked twenty ninth by respondents. Lastly respondents "Do you use drugs to reduce anxiety or stress" with total MPS 56.66 ranked thirty.

Table 3: Study of statement wise sociological behavior perceived by respondents, (n=240)

S. No.	Statement	MPS	RANK
1	Do you use drugs to reduce anxiety or stress?	56.66	30
2	You avoid eye contact with other people in public places	69.79	14
3	Do you have control over your behavior?	73.95	8
4	You think many times before speaking	73.33	9
5	Do you remember the mistake you made again and again	65.83	23
6	Sometimes you start talking to yourself	67.70	17
7	Do you prefer to speak less?	78.33	6
8	You get angry immediately if someone doesn't listen to you	68.75	15
9	Do you keep remembering the mistakes of others?	70.00	13
10	Do you try to stay away from society?	67.50	18
11	Do you forget things	67.29	19
12	Do you sleep well at night	72.29	11
13	Do you hit back or fight with children?	66.45	20
14	Do you beat your wife when you have an argument with her?	66.25	21
15	Do you have a feeling of service towards elder parents?	67.91	16
16	Do you like cultural programs?	70.62	12
17	You feel that the people around you and the society	65.62	24
18	Do you get frustrated every now and then?	72.91	10
19	Does your behavior not remain the same but keeps changing?	62.70	26
20	Does your blood pressure keep fluctuating?	66.04	22
21	Don't you feel like eating?	58.54	29
22	Do you keep working without any goal?	61.65	27
23	Do you have a bullying nature?	61.04	28
24	Providing assistance in household work done by wife	64.37	25
25	Do you like helping others?	84.37	2
26	Do you like doing religious activities?	84.58	1
27	Do you follow old customs?	75.83	7
28	Feeling of compassion towards people living in the society	83.33	3
29	Do you believe in the caste system?	80.20	5
30	Have a feeling of compassion towards people and animals living in the society.	81.04	4

To work out the adoption behavior of psychosomatic farmers for different agriculture practices

The Table 4 provides the information regarding frequency distribution of farmers having 'adoption gap' during the course of adopting certain recommended practices. In case of adoption of improved seed related practices, the adoption is quite high. Most of the farmers had adopted the use of improved seeds (61.80%) with 58.10% of farmers treat their

seeds with chemicals before sowing. Near about 60% of farmers grade and store seeds for next sowing and among the study participants, 56.80% use modern technology for storing seeds.

In terms of adopting the use of chemicals and fertilizers, 64.90% and 63.90% of farmers use weedicides and pesticides in crops respectively and majority of farmers 58.60% and 55.20% use chemical and organic fertilizers respectively. In the case of green manures, 62.10% of study farmers use the same in cultivation. But, on the other hand, remaining farmers had not adopted the use of chemicals for controlling pests and weeds or fertilizers, because of the high cost of the chemicals. Majority of farmers were aware about various improved irrigation practices. Around 60.70% of farmers use irrigation sources such as bore wells, canals etc. while 39.30% depends on rainfed agriculture. 64.90% of farmers have electric, diesel or solar pump for irrigation. As far as use of modern methods of irrigation concerned, around 59.10% of study farmers use them. 64.80% of farmers are benefitted from the irrigation projects run by government. Majority of farmers have knowledge that water management increases production and among the study participants 65.20% of farmers have drainage facilities for their fields.

In terms of harvesting techniques, 65.80% of farmers use machines for harvesting while 62.00% of farmers harvests the crop by employing labors. Majority of farmers (64.90%) use shout for threshing the crop while half of the study participants (57.60%) employ labors for threshing the crop. Among the study participants, 63.10% of farmers estimate the value of crop themselves after harvesting.

When coming to the soil and its related operations, 61.90% of farmers have knowledge on the type of soil in their field. 63.50% of study participants have worked at least once to increase the fertility of soil by various means and 59.30% of farmers had their soil tested at least once. On the other hand, in case of crop rotation 59.60% of farmers have knowledge on it and also followed at least once. As far as usage of machines concerned, 57.20% of farmers use indigenous machines while 60.20% of farmers under study use modern machines in cultivation.

Table 4: Adoption behavior of psychosomatic farmers for different agriculture practices

Technology	Statement	Yes	No
Soil and related operations	Do you know what type of soil is in the field?	61.90	38.10
	Have you ever done a soil test?	59.30	40.70
	Have you worked to increase the fertility of your soil?	63.50	36.50
	Do you use organic fertilizers?	65.40	34.60
	do you follow crop rotation	59.60	40.40
Use of Machines	Indigenous	57.20	42.80
	Modern	60.20	39.80
Seed	Do you use improved seeds?	61.80	38.20
	Are seeds treated before sowing?	58.10	41.90
	Do you grade and store seeds?	60.00	40.00
	Do you use modern technology for storing seeds?	56.80	43.20
Use of Chemicals and Fertilizers	Do you use weedicide in crops?	64.90	35.10
	Do you use pesticides in crops?	63.90	36.10
	Do you use chemicals in crops?	56.10	43.90
	Do you use chemical fertilizers	58.60	41.40
	Do you use organic fertilizers?	55.20	44.80
	Do you use green manure?	62.10	37.90
Irrigation	Do you use irrigation sources?	60.70	39.30
	Do you have an electric, diesel or solar pump?	64.90	35.10
	Do you use modern methods of irrigation?	59.10	40.90
	You are benefitted from the irrigation project run by the government	64.80	35.20
	Do you have drainage facilities?	65.20	34.80
	Do you know that water management increases production?	56.80	43.20
Harvesting	Do you harvest crops using machines?	65.80	34.20
	Do you harvest crops with laborers?	62.00	38.00
	After harvesting, do you estimate the value of the crop.	63.10	36.90
	Do you the shout your crop using thresher	64.90	35.10
	Do you thresh your crop using labour	57.60	42.40

Conclusion

The study found that many participants use drugs to manage anxiety, avoid eye contact, and prefer minimal social interaction. Farmers, in particular, experience mood swings, frustration, forgetfulness, and inconsistent behavior. Most participants struggle with anger management and tend to dwell on past mistakes. A significant number of farmers rely on modern agricultural practices, including improved seeds, chemical treatments, and irrigation techniques, while some avoid chemicals due to high costs. Almost all farmers use machines for harvesting, and many employ labor for threshing. Additionally, a majority are aware of soil fertility management, irrigation benefits, and crop rotation. However, adherence to traditional customs, including belief in the caste system, remains prevalent.

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