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Socio-personal, communication and psychological determinants of farmers' perception regarding soil health management practices

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Abstract

Soil health management practices have emerged as essential components of sustainable agriculture due to their role in maintaining soil fertility, enhancing resource-use efficiency, and ensuring long-term agricultural productivity. Farmers' perception regarding these practices plays a critical role in determining their acceptance and adoption. The present study was conducted to examine the socio-personal profile of farmers and to analyze the relationship between selected socio-personal, economic, communication, and psychological characteristics and their perception regarding soil health management practices. A total of 300 farmers were included in the study. Data were collected through a structured interview schedule and analyzed using descriptive statistics and Pearson's correlation analysis. The findings revealed that the majority of respondents belonged to the middle-age category (56.34%), had matriculation-level education (31.67%), lived in joint families (66.33%), possessed medium-sized operational landholdings (41.00%), and had medium farming experience (51.33%). Correlation analysis indicated that education ($r = 0.404$), mass media exposure ($r = 0.507$), social participation ($r = 0.497$), extension contacts ($r = 0.449$), risk orientation ($r = 0.547$), economic motivation ($r = 0.286$), scientific orientation ($r = 0.308$), decision-making ability ($r = 0.132$), innovativeness ($r = 0.451$), ecological consciousness ($r = 0.274$), level of knowledge ($r = 0.330$), and extent of adoption ($r = 0.584$) were positively and significantly associated with perception regarding soil health management practices. Conversely, age exhibited a negative relationship with perception ($r = -0.143$), whereas operational landholding and annual income showed non-significant relationships. Extent of adoption emerged as the strongest correlate of perception, followed by risk orientation and mass media exposure. The study highlights the importance of extension services, communication channels, and farmer-centered capacity-building programmes in enhancing positive perceptions towards sustainable soil health management practices.

Keywords: Soil health management, perception, sustainable agriculture, extension contacts, adoption behaviour, ecological consciousness, mass media exposure, risk orientation, farmers

1. Introduction

Soil health is recognized globally as a cornerstone of sustainable agricultural production and environmental sustainability. Healthy soils provide essential ecosystem services, including nutrient cycling, water regulation, carbon sequestration, and biodiversity conservation, which collectively contribute to enhanced crop productivity and resilience against climatic stresses (Lal, 2015) [5]. However, intensive agricultural practices, excessive dependence on chemical fertilizers, residue burning, declining organic matter, and improper nutrient management have accelerated soil degradation across many agricultural regions, including India (FAO, 2022) [3].

In India, concerns regarding soil degradation have intensified due to continuous cultivation and unsustainable farming practices. Consequently, several soil health management interventions such as integrated nutrient management, green manuring, farmyard manure application, crop residue incorporation, direct-seeded rice, alternate

wetting and drying, laser land leveling, and soil test-based nutrient management have been promoted through governmental and institutional initiatives (Bhardwaj *et al.*, 2019; Choudhary *et al.*, 2021) [1, 2].

Despite the proven agronomic and environmental benefits of these practices, adoption rates remain uneven across farming communities. Farmers' perception regarding soil health management practices plays a crucial role in influencing adoption decisions. Perception can be defined as the process through which individuals receive, interpret, and evaluate information about innovations and subsequently develop attitudes toward them (Rogers, 2003) [8]. Positive perceptions facilitate technology adoption, whereas negative perceptions may hinder the implementation of beneficial agricultural practices.

Previous research has demonstrated that perception is influenced by several socio-personal, economic, communication, and psychological factors. Educational attainment, extension contacts, social participation, and

mass media exposure enhance access to agricultural information and improve awareness regarding sustainable farming technologies (Meena *et al.*, 2017) [6]. Similarly, psychological characteristics such as risk orientation, innovativeness, scientific orientation, economic motivation, and ecological consciousness have been found to influence farmers' acceptance of environmentally sustainable agricultural practices (Kumar and Bishnoi, 2018; Singh *et al.*, 2020) [4, 9].

Understanding the factors influencing farmers' perception is essential for designing effective extension programmes and policy interventions aimed at improving soil health and promoting sustainable agriculture. Therefore, the present study was undertaken to examine the socio-personal profile of farmers and analyze the relationship between selected independent variables and their perception regarding soil health management practices.

2. Objectives of the Study

1. To describe the socio-personal characteristics of farmers practicing soil health management practices.
2. To examine the relationship between selected independent variables and farmers' perception regarding soil health management practices.
3. To identify the major factors associated with favorable perception towards soil health management practices.

3. Materials and Methods

The study was conducted among 300 farmers adopting soil health management practices from five districts of Punjab i.e. Gurdaspur, Jalandhar, Firozpur, Sangrur and Ropar. Data were collected using a structured and pre-tested interview schedule.

The independent variables included age, education,

operational landholding, annual income, mass media exposure, social participation, extension contacts, risk orientation, economic motivation, scientific orientation, decision-making ability, innovativeness, ecological consciousness, level of knowledge, and extent of adoption. The dependent variable was farmers' perception regarding soil health management practices.

Descriptive statistics such as frequency, percentage, mean, and standard deviation were employed to describe respondents' socio-personal characteristics. Pearson's correlation coefficient was used to determine the relationship between selected independent variables and perception.

4. Results and Discussion

4.1 Socio-Personal Characteristics of Respondents

The socio-personal profile revealed that the majority of respondents (56.34%) belonged to the middle-age category, followed by young (22.66%) and old (21.00%) age groups. The mean age was 52.65 years. Regarding education, 31.67 percent of the respondents had completed matriculation, while 20.67 percent had middle-level education. The average educational attainment was 10.34 years.

Most respondents belonged to joint families (66.33%) and had medium family size (57.66%). Agriculture was the primary occupation of all respondents, while dairy farming served as an important subsidiary occupation for 56.66 percent of farmers.

The average operational landholding was 14.05 acres, with 41.00 percent of respondents belonging to the medium landholding category. More than half (51.33%) had medium farming experience, with an average of 36.26 years. Tube wells were the predominant source of irrigation for 89.33 percent of respondents.

Table 1: Distribution of respondents according to socio-personal characteristics (n = 300)

S. No.	Variable	Category	Frequency	Percentage (%)
1	Age (years)	Young (23–40)	68	22.66
		Middle (40–57)	169	56.34
		Old (57–74)	63	21.00
		Mean $\pm$ SD	52.65 $\pm$ 9.60	
2	Education	Illiterate	32	10.66
		Primary	36	12.00
		Middle	62	20.67
		Matriculation	95	31.67
		Senior Secondary	48	16.00
		Graduate	27	9.00
		Mean $\pm$ SD	10.34 $\pm$ 2.60	
3	Family Type	Nuclear	101	33.67
		Joint	199	66.33
4	Family Size	Small (3–5)	106	35.33
		Medium (5–7)	173	57.66
		Large (7–9)	21	7.00
		Mean $\pm$ SD	5.20 $\pm$ 1.46	
5*	Occupation Followed	Agriculture	300	100.00
		Dairy	170	56.66
		Job	3	1.00
		Business	5	1.66
		Poultry	2	0.66
6	Operational Land Holding (acres)	Marginal (<2.5)	5	1.66
		Small (2.5–5.0)	45	15.00
		Semi-medium (5–10)	92	30.67
		Medium (10–25)	123	41.00

		Large (>25)	35	11.67
		Mean $\pm$ SD	14.05 $\pm$ 9.52	
7	Farming Experience (years)	Low (8–25)	50	16.66
		Medium (25–42)	154	51.33
		High (42–60)	96	32.00
		Mean $\pm$ SD	36.26 $\pm$ 10.09	
8	Annual Gross Income (₹)	Low (4–10 lakh)	44	14.66
		Medium (10–16 lakh)	129	43.00
		High (16–24 lakh)	127	42.33
		Mean $\pm$ SD	₹14,44,246 $\pm$ 4,50,123	
9*	Source of Irrigation	Canal	32	10.67
		Tube well (submersible)	268	89.33
		Both	32	10.67

Interpretation

The predominance of middle-aged farmers with substantial farming experience suggests that respondents possessed considerable practical exposure to agricultural activities. The relatively high educational status and medium-to-large landholding pattern indicate a favorable socio-economic environment for understanding and adopting soil health management practices.

4.2 Relationship Between Independent Variables and Perception Regarding Soil Health Management Practices

The relationship between selected independent variables and perception is presented in Table 2.

Table 2: Relationship between independent variables and perception regarding soil health management practices (n = 300)

S. No.	Independent Variable	r-value	p-value	Significance
1	Age	-0.143	0.013	NS
2	Education	0.404	<0.00001	**
3	Total operational land holding	0.020	0.730	NS
4	Total annual income	0.035	0.545	NS
5	Mass media exposure	0.507	<0.00001	**
6	Social participation	0.497	<0.00001	**
7	Extension contacts	0.449	<0.00001	**
8	Risk orientation	0.547	<0.00001	**
9	Economic motivation	0.286	<0.00001	**
10	Scientific orientation	0.308	<0.00001	**
11	Decision making ability	0.132	0.022	*
12	Innovativeness	0.451	<0.00001	**
13	Ecological consciousness	0.274	<0.00001	**
14	Level of knowledge	0.330	<0.00001	**
15	Extent of adoption	0.584	<0.00001	**

The results revealed that education ($r = 0.404$), mass media exposure ($r = 0.507$), social participation ($r = 0.497$), extension contacts ($r = 0.449$), risk orientation ($r = 0.547$), economic motivation ($r = 0.286$), scientific orientation ($r = 0.308$), decision-making ability ($r = 0.132$), innovativeness ($r = 0.451$), ecological consciousness ($r = 0.274$), level of knowledge ($r = 0.330$), and extent of adoption ($r = 0.584$) exhibited positive and significant relationships with perception.

Among all variables, extent of adoption showed the strongest positive association with perception, indicating that farmers who had adopted soil health management practices developed more favorable perceptions based on direct experience. Risk orientation and mass media exposure also emerged as important correlates, highlighting the

importance of progressive attitudes and access to information.

Age showed a negative association with perception ($r = -0.143$), suggesting that younger farmers were relatively more receptive to sustainable agricultural innovations. Operational landholding and annual income were not significantly related to perception, indicating that economic resources alone do not determine favorable perceptions toward soil health management practices.

5. Discussion

The findings highlight the importance of communication, psychological, and behavioral variables in shaping farmers' perception regarding soil health management practices. The strongest relationship observed between adoption and perception supports the proposition that experiential learning significantly contributes to the development of positive attitudes toward agricultural innovations (Rogers, 2003) [8]. Farmers who directly experience the benefits of soil health management practices are more likely to appreciate their usefulness and sustainability.

The significant influence of risk orientation indicates that progressive farmers are more willing to embrace innovative practices and evaluate their potential benefits. Similar findings have been reported by Kumar and Bishnoi (2018) [4], who observed that risk-taking ability significantly influences the adoption of sustainable agricultural technologies.

Communication-related variables such as mass media exposure, social participation, and extension contacts exhibited strong positive relationships with perception. These findings emphasize the critical role of agricultural communication systems in disseminating information and creating awareness regarding soil health management practices. Farmers who actively engage with extension agencies and social networks tend to develop a more favorable understanding of sustainable agricultural technologies.

The positive association of education with perception is consistent with previous studies suggesting that educated farmers possess greater ability to comprehend technical information and evaluate innovations objectively (Roco *et al.*, 2015) [7]. Similarly, scientific orientation, innovativeness, ecological consciousness, and economic motivation contribute to the development of favorable perceptions by encouraging farmers to adopt evidence-based and environmentally responsible farming practices.

The non-significant relationships of operational landholding and annual income indicate that favorable perceptions are

driven more by knowledge, information access, and psychological readiness than by economic resources alone. These findings suggest that extension programmes should focus on improving farmers' awareness, knowledge, and communication exposure rather than solely targeting resource-rich farmers.

6. Conclusion

The study concludes that communication exposure, psychological orientation, knowledge level, and adoption behaviour significantly influence farmers' perception regarding soil health management practices. Extent of adoption, risk orientation, mass media exposure, social participation, extension contacts, innovativeness, and education emerged as major determinants of perception. In contrast, operational landholding and annual income did not significantly influence perception.

The findings underscore the need for strengthening extension services, promoting mass media-based agricultural communication, encouraging farmer participation in social organizations, and enhancing experiential learning opportunities through demonstrations and field schools. Such interventions can improve farmers' perceptions and contribute to the wider adoption of sustainable soil health management practices.

References

1. Bhardwaj AK, Jasrotia P, Hamilton SK, Robertson GP. Ecological management of intensively cropped agro-ecosystems improves soil quality with sustained productivity. *Agriculture, Ecosystems and Environment*. 2019;285:106631.
2. Choudhary AK, Dhaliwal RK, Mohapatra L. Perceived constraints in adoption of paddy straw management techniques among farmers of Punjab. *Journal of Community Mobilization and Sustainable Development*. 2021;16(1):45-52.
3. Food and Agriculture Organization. *Global Assessment of Soil Health and Sustainable Soil Management*. Rome: Food and Agriculture Organization; 2022.
4. Kumar R, Bishnoi DK. Factors influencing adoption of sustainable agricultural practices among farmers. *Indian Journal of Extension Education*. 2018;54(4):97-102.
5. Lal R. Restoring soil quality to mitigate soil degradation. *Sustainability*. 2015;7(5):5875-5895.
6. Meena MS, Singh KM, Swanson BE. Communication behaviour of farmers and adoption of sustainable agricultural practices. *Indian Research Journal of Extension Education*. 2017;17(3):14-20.
7. Roco L, Engler A, Bravo-Ureta B, Jara-Rojas R. Farmers' perception of climate change and adaptation strategies. *Journal of Environmental Management*. 2015;148:107-114.
8. Rogers EM. *Diffusion of Innovations*. 5th ed. New York: Free Press; 2003.
9. Singh P, Sharma AK, Yadav VPS. Ecological consciousness and adoption of environmentally sustainable agricultural technologies. *Journal of Rural Studies*. 2020;76:102-110.