

Study of relationship between adoption, knowledge and social-personal economic psychological and communication characteristic of wheat Growers of Panna block of Panna district

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Abstract

This study investigates the intricate interplay between adoption rates of various practices, levels of knowledge, and a spectrum of socio-personal, economic, psychological, and communication characteristics within the context of Panna Block, situated in Panna District. With increasing emphasis on sustainable development and community empowerment, understanding the dynamics of adoption behaviors and their underlying determinants becomes imperative. Through a mixed-method approach comprising surveys, interviews, and observational studies, data was collected from a diverse sample representing the demographic spectrum of the Panna Block population. The study identifies correlations between adoption rates and the socio-economic status of individuals, highlighting the role of education, income, and access to resources in influencing adoption behaviors. Furthermore, the analysis delves into the psychological factors such as attitudes, beliefs, and perceptions that shape individuals' willingness to adopt new practices. Moreover, the study examines the role of interpersonal communication and community networks in facilitating or hindering the spread of adoption. Findings indicate a complex web of interactions wherein knowledge acts as a catalyst for adoption, but its impact is mediated by various socio-personal and economic factors. The study underscores the importance of tailored interventions that not only disseminate knowledge but also address the underlying socio-economic and psychological barriers to adoption. By elucidating the nuanced relationship between adoption, knowledge, and socio-personal economic psychological, and communication characteristics, this research contributes to the development of more effective strategies for promoting sustainable development and community well-being in Panna Block and similar contexts.

Introduction

The Panna Block within the Panna District represents a microcosm of the intricate dynamics that govern the adoption of new practices, the dissemination of knowledge, and the multifaceted socio-personal, economic, psychological, and communication characteristics prevalent in rural communities. In recent years, there has been a growing recognition of the pivotal role that adoption of sustainable practices plays in fostering community development and resilience,

particularly in regions like Panna Block, where socio-economic disparities persist alongside environmental challenges.

This study aims to bridge this gap by conducting a comprehensive examination of the relationship between adoption rates, levels of knowledge, and a range of socio-personal, economic, psychological, and communication characteristics in Panna Block. By employing a mixed-method approach encompassing surveys, interviews, and observational studies, this research seeks to uncover the underlying determinants and mechanisms that shape adoption behaviors within the local community

The adoption of new practices and innovations within communities is a multifaceted process influenced by a myriad of factors, including levels of knowledge, socio-personal characteristics, economic status, psychological traits, and communication dynamics. Understanding the intricate relationship between adoption, knowledge, and these diverse characteristics is essential for promoting sustainable development, fostering community resilience, and improving overall well-being.

This study seeks to address these gaps by conducting a comprehensive investigation into the relationship between adoption, knowledge, and socio-personal, economic, psychological, and communication characteristics within Panna Block. By employing a mixed-method approach encompassing surveys, interviews, and observational studies, this research aims to uncover the underlying mechanisms driving adoption behaviors and identify opportunities for targeted interventions

Ultimately, the findings of this study have the potential to inform the design and implementation of initiatives aimed at promoting sustainable development and enhancing community well-being not only in Panna Block but also in similar rural contexts worldwide. Through a deeper understanding of the dynamics of adoption and its determinants, we can work towards building more resilient, equitable, and sustainable communities.

Research methodology

3.3.1 Independent variables

Socio-personal and educational	Socio-economic	Communicational	Socio-psychological	Other
<ul style="list-style-type: none"> ❖ Age ❖ Education ❖ Caste ❖ Size of 	<ul style="list-style-type: none"> □ Size of land holding □ Occupation 	<ul style="list-style-type: none"> ❖ Source of information ❖ Contact with 	<ul style="list-style-type: none"> □ Scientific Orientation 	Irrigation availability

Family ❖ Social Participation	<input type="checkbox"/> Annual income <input type="checkbox"/> Credit acquisition	extension agencies		
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3.4.1 Socio-personal and educational characteristics of the respondents

3.4.1.1 Age

The Age of respondents were categorized as follows: viz. Young, meddle and Old on the

Basis of Mean (\bar{X}) \pm S.D.

Categories		3.4.1.2 Education
Young (up to 30)	$< \bar{X} - S.D.$	The reading and writing ability acquired by the respondents were considered as their education status and it was categorized as under:
Middle (31 to 50)	(In between $\bar{X} \pm S. D.$)	
Old (above 50)	$> \bar{X} + S. D.$	

g ability acquired by the respondents were considered as their education status and it was categorized as under:

Categories	Score
Illiterate	0
Primary school (1 st to 5 th)	1
Middle school (6 th to 8 th)	2
High School (9 th to 10 th)	3
Higher Secondary School (11 th to 12 th)	4
Graduation and above	5

3.4.1.3 Caste

The caste of respondents were categorized as follows:

Categories	Score
Scheduled Tribe (ST)	1
Scheduled Caste (SC)	2
Other Backward class (OBC)	3
General	4

3.4.1.4 Size of family

The number of members living in the respondent's family was considered as size of family of the respondents. They were grouped in to three categories viz. small, medium and large on the basis of Mean (\bar{X}) \pm S.D.

Categories	
Small	$< \bar{X} - S. D.$
Medium	— (in between $\bar{X} \pm S. D.$)
Large	— $> \bar{X} + S. D.$

3.4.1.5 Social participation

The term social participation in this study refers to the degree of involvement of the Respondents in formal/informal organization as a member or executive, office bearer or both. A social participation score was computed for each respondent on the basis of his membership and position in various formal/informal organizations and categorized into following sub heads:

Categories	Score
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No member in any organization	0
Member of one organization	1
Member of more than one organization	2
Executive/office bearer in any organization	3

3.4.2 Socio-economic characteristics of the respondents

3.4.2.1 Size of land holding

It was operationally defined as the actual land holding of the respondents at the time of investigation. The categorization of the respondents was done under the following subheads:

Categories	Score
Marginal (up to 1 ha)	1
Small (1.1 to 2 ha)	2
Medium (2.1 to 4 ha)	3
Large (above 4 ha)	4

3.4.2.2 Occupation

The data collected from the respondents about their occupation were categorized into 7 groups and measured with score assigned as under:

Categories	Score
Farming	1
Farming (wheat cultivation)	2
Farming (wheat cultivation) + Labour	3

Farming (wheat cultivation) + Service	4
Farming (wheat cultivation) + Animal husbandry + Service	5
Farming (wheat cultivation) + Occupation + Service	6
Farming (wheat cultivation) + Others	7

3.4.2.3 Annual income

In this study, total annual income from all the available sources of the respondents was taken and categorized under the four categories following Yadav (2008) as under:

Categories

Up to Rs 35000
 Rs. 35001 – 60,000
 Rs.60,001 – 1,00,000
 More than Rs. 1,00,000

3.4.2.4 Credit acquisition

The availability of credit needed to purchase the required inputs may influence the extent of adoption of the farmers. The adoption of improved agricultural technology requires more investment of capital in farming to purchase the inputs like fertilizers, pesticides, improved seed, implements etc. sources of credit were identified including Cooperative society, nationalized banks, moneylenders, friends, neighbour relatives, etc and each source was given equal weight age and the availability of credit identified by farmers were then measured by the following scores:

Categories	Score
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Not acquired	0
Acquired	1
Period of credit	
Short-term	1
Medium-term	2
Long-term	3
Availability of credit	
Acquired easily	1
Acquired with difficulty	0

3.4.3 Communicational characteristics of the respondents

3.4.3 .1 Source of information

A set of 14 sources of information were identified including personal, group and mass media etc. And each source was given equal weightage and categories were made according to the use of information sources.

The respondents were grouped into three categories *viz.* low, medium and high on the basis of $\text{mean} \pm \text{S.D.}$

Categories

Low level use of sources of information	$(< \bar{X} - \text{S.D.})$
Medium level of use of sources of information	$(\text{in between } \bar{X} \pm \text{S.D.})$
High level use of sources of information	$(> \bar{X} + \text{S.D.})$

3.4.3 .2 Contact with extension agencies

This was operationally defined as the “frequency with which a respondent comes in contact with extension agencies i.e. Govt. agriculture department, agriculture university head quarter, krishivigyankendra, kisan call centre and non govt. organization within a specific period of time”. The extent of contact was measured into four categories viz., never, twice or thrice in a year, once in a month and weekly with a score 1, 2, 3 and 4 respectively.

The respondents were grouped into three categories viz. low, medium and high on the basis of $\text{mean} \pm \text{S.D.}$

Categories

Low level of contacts with extension agencies	$(< \bar{X} - \text{S.D.})$
Medium level of contact with extension agencies	(in between $\bar{X} \pm \text{S.D.}$)
High level of contact with extension agencies	$(> \bar{X} + \text{S.D.})$

3.4.4 Socio-psychological characteristics of the respondents

3.4.4.1 Scientific-orientation

It refers to the degree to which an individual is inclined to use scientific method in farming and decision-making. The scientific orientation scale developed by Supe (1975) was used for the measurement of scientific orientation of respondents. The statements of the original scale were suitably modified to measure the scientific orientation of respondents. The scale has six items. Out of these six items, number 1, 3, 4, 5 and 6 were positive items and number 2 was a negative item. The score for positive item were 5, 4, 3, 2 and 1 and for negative item scores were 1, 2, 3, 4 and 5 for the response categories strongly agree, agree, undecided, disagree and

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strongly disagree, respectively. The sum of scores of all the six statements was worked out. The respondents were categorized into following groups on the basis of mean \pm S.D.

Categories	
Low level of scientific orientation	($<\bar{X} - S.D.$)
Medium level of scientific orientation	(in between $\bar{X} \pm S.D.$)
High level of scientific orientation	($>\bar{X} + S.D.$)

3.4.5 Other characteristics

3.4.5 .1 Irrigation availability

The extent of availability of irrigation resources with the farmers may affect the adoption of wheat production technology. The respondents were asked to specify the availability of irrigation resources. On the basis of availability of irrigation, the respondents were classified as follows:

Categories	Score
Not available	0
Available	1

Sources of irrigation

Different sources of irrigation such as canal, well, pond, tube well, river were Identified

Categories	Score
Canal	1
Well	2
Pond	3
Tube well	4

River	5
Other	6

Results

4.3 Correlation analysis of independent variables with, knowledge and adoption of recommended Wheat production technology.

(A) Correlation analysis of independent variables with, knowledge.

Table 4.16: Correlation analysis of independent variables with the Knowledge of recommended Wheat production technology

S.N.	Independent variables	Coefficient of correlation “r” value
01.	Age	-0.06752 ^{NS}
02.	Education	0.2289*
03.	Caste	-0.01302 ^{NS}
04.	Size of Family	-0.02502 ^{NS}
05.	Social participation	0.2771**
06.	Size of land holding	0.2905*
07.	Occupation	0.2623**
08.	Annual income	0.2670**
09.	Credit acquisition	0.07184 ^{NS}
10.	Source of information	0.2205*
11.	Contact with extension agencies	0.2461**
12.	Scientific orientation	0.0484 ^{NS}
13.	Irrigation availability	0.2021*

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** Significant at 0.01 level of probability

* Significant at 0.05 level of probability

NS- Non Significant

The data furnished in Table 4.16 that the variables age, caste, size of family, credit acquisition and scientific orientation were found to have none significant relationship with Knowledge of recommended Wheat production technology. While education, size of land holding source of information and irrigation availability were found positively and significantly related with knowledge at 0.05 per cent level of significance. The significant relationship shows that when the levels of the above variables education, size of land holding source of information and irrigation availability increase than the knowledge of respondents will increase

However, the variables annual income, contact with extension agencies, occupation and social participation were found positively and highly significantly correlated with knowledge at 0.01 percent level of significance. The above result shows that when annual income, contact with extension agencies, occupation and social participation of the respondents increases than the knowledge of respondents correspondingly increase.

This finding clearly indicates that most of the selected independent variables had significant relationship with knowledge regarding recommended Wheat production technology.

(B) Correlation analysis of independent variables with, adoption.

The data furnished in Table 4.17 that the variables age, caste, size of family, credit acquisition, irrigation availability and scientific orientation were found to have none significant relationship with adoption of recommended Wheat production technology. While education, social participation, contract with extension agencies and annual income were found positively and significantly related with adoption at 0.05 per cent level of significance. The significant relationship shows that when the levels of the above variables education, social participation,

contract with extension agencies and annual income, increase than the adoption of respondents will increase.

Table 4.17: Correlation analysis of independent variables with the adoption of recommended Wheat production technology

S.N.	Independent variables	Coefficient of correlation “r” value
01.	Age	-0.03045 ^{NS}
02.	Education	0.2356*
03.	Caste	0.0267 ^{NS}
04.	Size of Family	-0.1465 ^{NS}
05.	Social participation	0.1837*
06.	Size of land holding	0.2346**
07.	Occupation	0.3129**
08.	Annual income	0.1959*
09.	Credit acquisition	0.0420 ^{NS}
10.	Source of information	0.2415**
11.	Contact with extension agencies	0.1987*
12.	Scientific orientation	-0.0027 ^{NS}
13.	Irrigation availability	0.1850*

** Significant at 0.01 level of probability

* Significant at 0.05 level of probability

NS- Non significant

However, the variables size of land holding, occupation, sources of information were found positively and highly significantly correlated with adoption at 0.01 per cent level of

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significance. The above result shows that when the level land holding, occupation, sources of information of the respondents increases than the adoption of respondents correspondingly increase.

These findings clearly indicate that most of the selected independent variables had significant relationship with adoption regarding recommended Wheat production technology.

Discussion and conclusion

(a) relationship between knowledge and socio- personal and educational, socio- economic, socio-psychological and communicational characteristics of Wheat growers.

The result reveals that the variables age, caste, size of family, credit acquisition and scientific orientation were found to have non significant relationship with knowledge. While education, size of land holding, source of information and irrigation availability were found positively and significantly related with knowledge at 0.05 percent level of significance. The significant relationship shows that when the level of the above variables education, land holding, source of information and irrigation availability increases than the knowledge of respondents will increase. However, the variables annual income, contact with extension agencies, social participation, occupation were found positively and highly significantly correlated with adoption at 0.01 per cent level of significance. The above result shows that when the annual income, contact with extension agencies, sources of information and occupation of the respondents increases than the knowledge of respondents correspondingly increase.

The result reveals that the variables caste, size of family, credit acquisition and scientific orientation were found to have none significant relationship with adoption. While education, social participation, annual income, contact with extension agencies and irrigation availability were found positively and significantly related with adoption at 0.05 per cent level of significance. The significant relationship shows that when the level of the above variables education, social participation, annual income, contact with extension agencies, and irrigation availability increase than the adoption of respondents will increase. However, the variables size of land holding, occupation sources of information were found positively and highly significantly correlated with adoption at 0.01 per cent level of significance. The above result

shows that when the level landholding, occupation sources of information, of the respondents increases than the adoption of respondents correspondingly increase.

(b) relationship between adoption and socio- personal and educational, socio- economic, socio-psychological and communicational characteristics of Wheat growers.

The result reveals that the variables caste, size of family, credit acquisition and scientific orientation were found to have none significant relationship with adoption. While education, social participation, annual income, contact with extension agencies and irrigation availability were found positively and significantly related with adoption at 0.05 per cent level of significance. The significant relationship shows that when the level of the above variables education, social participation, annual income, contact with extension agencies and irrigation availability increase than the adoption of respondents will increase. However, the variables size of land holding, occupation, sources of information and knowledge were found positively and significantly correlated with adoption at 0.01 per cent level of significance. The above result shows that when the level land holding, occupation, sources of information and knowledge of the respondent's increases than the adoption of respondents correspondingly increase.

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