



# Extent of Awareness Regarding Indigenous Technical Knowledge (ITK) Practices among Paddy Growers in Bastar, Chhattisgarh, India

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## Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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## ABSTRACT

The purpose of the present study was to ascertain the relationship between characteristics of paddy growers and awareness of indigenous technological knowledge (ITKs) in the Bastar area of Chhattisgarh State. Twelve villages were chosen as the study area from two blocks (Tokapal and Lohandiguda) in the Bastar district. From each selected village, ten paddy growers were selected by a simple random sampling procedure, thus the sample size for the study was 120. The data

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were collected through well structured and pre-tested interview schedule. The study confirms that nearly half (46.66%) of the paddy growers had high level of awareness about indigenous technical knowledge. Regarding association, education, size of landholding, annual income, social participation, innovativeness, information-seeking behavior and mass media exposure were significantly associated with awareness of indigenous technological knowledge at 0.05 level of probability, whereas socio-economic status, extension participation and attitude towards ITK's were significantly associated at 0.01 level of probability with awareness of ITKs.

*Keywords: ITK; traditional knowledge; local knowledge; coefficient of association.*

## 1. INTRODUCTION

“Paddy is one of the most important cereal crops in the country. Chhattisgarh occupies a prominent place in paddy cultivation. In Chhattisgarh, rice occupies average of 3.77 million ha with the productivity of the state ranging between 1.2 to 1.6 t/ha depending upon the rainfall and the production is 8.58 MT. Chhattisgarh State has 7<sup>th</sup> rank for rice production with 6608.83 thousand tones in all over India. Chhattisgarh is the paddy dominated mono-cropped state with more than 80 percent Kharif cultivable area under paddy. India is a land of diversity and it has many cultures, many societies with different ways of living, live in a variety of agro-climatic and geographical situations” [1]. Indian rural society has its own complicated structure, belief systems, and functional mechanisms. Traditional beliefs are abundant, particularly among the rural community. Traditional agriculture is nothing but indigenous knowledge that can only serve as an alternative to modern agriculture. Indigenous technical knowledge (ITK) is the knowledge that the people in a given community have developed over time, and continue to develop it. It is based on experience, often tested over a long period of use, adapted to local culture and environment, dynamic and changing, and lays emphasis on minimizing the risks rather than maximizing the profit. Indigenous knowledge is dynamic, changing through indigenous mechanisms of creativity and innovativeness and contact with other local and international knowledge systems (IKS) [2].

“Indigenous knowledge is not confined to tribal groups or the original inhabitants of an area of any country. It is not even confined to rural people rather. Any community possesses indigenous knowledge, Rural or Urban. This is also called “Local Knowledge” and “Traditional Knowledge”. People have an intimate knowledge of many aspects of their surroundings and their daily lives. Over centuries people have learned

how to grow food and preserve and to survive in difficult environments” [3]. “They know what varieties of crops to plant when to sow and weed which plants are poisonous, which can be used for control of diseases in plants, livestock, and human beings. They know very well how to maintain the environment in harmony” [4]. Hence, in this context, the present study was undertaken to know the extent of awareness level regarding Indigenous Technological Knowledge (ITK) practices in paddy cultivation and association with their attributes.

## 2. METHODOLOGY

The present study was carried out ex-post facto research design in the purposively selected Bastar district of Chhattisgarh because of paddy is the main Kharif crop in that area. Bastar district has richness in indigenous technical knowledge practices. This district is situated in southern part of Chhattisgarh state. The district is bounded by the state Orrisa on its East and to its East-West lays Maharashtra. The Bastar district lies between latitude 19°56 N and longitude 81°69 E. The district is currently a part of the Red Corridor. The total geographical area of the district covers 10,755.76 km<sup>2</sup> and consists seven blocks out of which two blocks namely Tokapal and Lohandiguda were selected for the study in the consideration of the preponderance of paddy growers among the population. From the selected blocks, six villages from each block were selected through simple random sampling technique. In total twelve villages served as the representing unit for the study. The total sample size was 120. The data were collected through personal interview method with the help of well structured interview schedule. Statistical tools like percentage, average, standard deviation, coefficient of variation, chi-square test and coefficient of association were applied for drawing the inference of the study. The extent of association was calculated by using Karl Pearson formula for coefficient of association.

## 2.1 Chi-square Test

The association of different attributes of respondents with their adoption of ITK in paddy cultivation was tested by chi-square test ( $\chi^2$ ) for this purpose the following formula will be used.

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i} \quad \text{With d.f. (r-1) (c-1)}$$

Where,

- O<sub>i</sub> = Observed frequency
- E<sub>i</sub> = Expected frequency
- ∑ = Summation overall differences
- r = Number of rows
- c = Number of column on the contingency table

## 2.2 Co-efficient of Association

The extent of association was calculated by using Karl Pearson's formula for co-efficient of association (C).

$$C = \sqrt{\frac{\chi^2}{\chi^2 + N}}$$

Where,

- $\chi^2$  = Value of Chi-square
- N = Number of observation
- C = Co-efficient of association.

## 3. RESULTS AND DISCUSSION

Table 1 shows the respondents' indigenous technological knowledge in paddy cultivation. According to the study, the majority of paddy growers (46.66%) had high awareness of indigenous technological knowledge, followed by medium (39.17%) and low (14.17%) awareness. The mean level of awareness of paddy growers of indigenous technical knowledge was 78.24, with a standard deviation of 5.68. The coefficient of variance was 7.26 per cent, which shows that there was no variation in the paddy grower's awareness of ITKs. Similar results also reported by Sheikh et al. [5,6,7,8].

**Table 1. Distribution of paddy growers according to awareness level of indigenous technical knowledge**

Awareness	Respondents (n=120)		Mean	SD	CV
	No. of respondents	Percentage			
Low (<72.56)	17	14.17	78.24	5.68	7.26
Medium (72.57-83.91)	47	39.17			
High (>83.92)	56	46.66			
Total	120	100.00			

**Table 2. Association between attributes of paddy growers with awareness of indigenous technological knowledge**

Attributes	$\chi^2$ Value	d. f.	Co-efficient of association
Age	5.02 <sup>NS</sup>	4	-
Education	9.69*	4	0.27
Caste	9.53 <sup>NS</sup>	6	-
Type of family	3.07 <sup>NS</sup>	2	-
Size of land holding	16.54*	6	0.35
Annual income	11.29*	4	0.29
Social participation	10.58*	4	0.28
Socio-economic status	14.86**	4	0.33
Extension participation	16.30**	4	0.35
Innovativeness	10.57*	4	0.28
Information seeking behavior	11.87*	4	0.30
Attitude towards ITK	13.39**	4	0.32
Mass media exposure	12.69*	4	0.31

NS = Non Significant, \* and \*\* significance at 0.05 and 0.01 level of probability, respectively

It could be comprehended from Table 2 which indicates that association between attributes of paddy growers with awareness of indigenous technical knowledge. The result of association shows that, education ( $\chi^2 = 9.69^*$ ), size of landholding ( $\chi^2 = 16.54^*$ ), annual income ( $\chi^2 = 11.29^*$ ), social participation ( $\chi^2 = 10.58^*$ ), innovativeness ( $\chi^2 = 10.57^*$ ), information-seeking behavior ( $\chi^2 = 11.87^*$ ) and mass media exposure ( $\chi^2 = 12.69^*$ ) were significantly associated with awareness of indigenous technical knowledge (ITK's) at 0.05 level of probability, whereas socio-economic status ( $\chi^2 = 14.86^{**}$ ), extension participation ( $\chi^2 = 16.30^{**}$ ) and attitude towards ITK ( $\chi^2 = 13.39^{**}$ ) were significantly associated with awareness of indigenous technical knowledge at 0.01 level of probability. From the above finding it is concluded that farmers having higher education with inquisitive mind harvest the rich fruit of research resulted in rational pragmatic decision making. Thus, education plays an important role in changing their awareness level. Small landholdings keen to have more awareness about ITK as compare to medium land holding respondents and large landholding respondents. Social participation provides an opportunity to an individual to interact in a way which resulted in acquisition of knowledge and are likely to receive clues from other people that would serve as further, reinforce supporting the concept of innovation which motivate them to be more adaptive. These findings have been supported by the findings of Chaudhary et al. [9,10,11,12,13].

#### 4. CONCLUSION

As per the findings, the majority of paddy growers had a high level of awareness of indigenous technical knowledge, followed by medium and low level of awareness. In case of association, the education, size of landholding, annual income, social participation, socio-economic status, extension participation, innovativeness, information-seeking behavior, attitude towards ITK and mass media exposure were significantly associated with awareness of indigenous technical knowledge practices in paddy cultivation. According to the findings, most paddy growers in the Bastar district of Chhattisgarh had a high degree of awareness, which could lead to respondents in the Bastar district of Chhattisgarh retaining indigenous technical knowledge.

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#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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