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Relationship between knowledge of beneficiary farmers about Pradhan Mantri Fasal Bima Yojana (PMFBY) and their selected independent variables

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Abstract

The present study was conducted in Jaipur and Jodhpur division of Rajasthan. Jaipur and Sikar districts from Jaipur division and Jodhpur and Barmer districts from Jodhpur division were selected purposively as they were having the maximum number of beneficiary farmers under PMFBY. From each selected district, two tehsils were selected on the basis of maximum number of beneficiary farmers under PMFBY. 16 villages were selected from four selected districts. 20 beneficiary farmers from each selected village were selected randomly by using simple random sampling technique. Hence, the size of sample was comprised of 160 respondents from each division Jaipur and Jodhpur division by making the sample size of 320 respondents, for the present investigation. It was found that independent variables *viz.* education, occupation, social participation, farming experience, economic motivation, scientific orientation, extension contact and aspiration were significantly associated with the knowledge and age, annual income and size of land holding were not significantly associated with attitude of farmers about PMFBY in Jaipur division. Similarly, in Jodhpur division, education, occupation, annual income, size of land holding, social participation, farming experience, economic motivation, scientific orientation, extension contact and aspiration were significantly associated while age were not significantly associated with knowledge of farmers about PMFBY.

Keywords: Knowledge, PMFBY, relationship, independent variables, farmers

Introduction

The most recent agricultural insurance scheme, PMFBY has replaced the two previous insurance scheme namely National Agricultural Insurance Scheme and Modified National Agricultural Insurance Scheme due to some drawbacks in previous two scheme. The farmers' premium would be 1.50 percent for rabi food grains and oilseeds crops, while 2.00 percent for kharif food grains and oilseeds crops. Crop insurance can guard against disastrous effect of losses due to natural hazards. It does not only stabilize the farm income but also help the farmers to initiate production activity after a bad agricultural season or year. It cushions the shock of crop losses by providing farmers with a minimum amount of protection. It spreads the crop losses over space and time and encourages farmers make more investments in agriculture. However, one need to keep in mind that crop insurance should be part of overall risk management strategy. Insurance comes towards the end of risk management process. Insurance is redistribution of cost of losses of few among many, and cannot prevent economic loss. Goudappa *et al.* (2012) ^[2].

Materials and Methodes

The present study was conducted in Jaipur and Jodhpur division of Rajasthan. Jaipur division comprises five districts namely- Jaipur, Sikar, Dausa, Jhunjhunu, Alwar

and Jodhpur division comprises six districts namely- Jodhpur, Pali, Barmer, Jaisalmer, Jalor and Sirohi Out of these, Jaipur and Sikar districts from Jaipur division and Jodhpur and Barmer districts from Jodhpur division were selected purposively as they were having the maximum number of beneficiary farmers under PMFBY. From each selected district, two tehsils were selected on the basis of maximum number of beneficiary farmers under PMFBY. Hence, total eight tehsils were selected for study purpose. Two villages from each selected tehsil were selected randomly. In this way, 16 villages were selected from four selected districts. A comprehensive list of farmers from each selected village who covered under PMFBY was prepared with the help of concerned Patwari, Agriculture supervisor and Insurance related agency/banks. From so prepared list, 20 beneficiary farmers from each selected village were selected randomly by using simple random sampling technique. Hence, the size of sample was comprised of 160 respondents from each division Jaipur and Jodhpur division by making the sample size of 320 respondents, for the present investigation.

Correlation coefficient

The correlation coefficient ('r' value) was used to measure relationship between dependent and independent variables. The correlation coefficient between two groups was

calculated by using the following formula.

Where

r = Correlation Coefficient

X = Independent variable

Y = Dependent variable

n = Total number of respondents

Z test (Standard Normal Deviate test)

This test was used to observe significance of difference between two sample mean for large sample (viz., n>30). Formula for ‘Z’ test is as under:

Where,

X₁ = Mean of first sample

X₂ = Mean of second sample

S₁ = Standard deviation of first sample

S₂ = Standard deviation of second sample

n₁ = Size of first sample

n₂ = Size of the second sample

Arbitrary method

The arbitrary method was used to classify the respondents in to various categories namely very low, low, medium, high

and very high etc. For this purpose the range of the achievable score by a respondent was sort out and the minimum score was subtracted from maximum score and the value obtained was divided by the number of categories of any variable or item. The resulting division value was considered as the upper range value for the first category.

Results and Discussion

Relationship between knowledge of beneficiary farmers with their selected independent variables

The relationship between knowledge of the farmers about PMFBY and independent variables viz., age, education, occupation, income, size of land holding, social participation, farming experience, economic motivation, scientific orientation extension contact and aspiration was measured, for which knowledge index was worked out in term of correlation coefficient (“r”). On the basis of operational measures used for the variables, research hypotheses in null form were derived for testing the relationship and significance on zero order correlation. The zero order correlation (r values) is given in table 1.1 and its characteristics wise relationship is described in subsequent pages.

Table 1: Relationship between knowledge of beneficiary farmers about PMFBY and their selected independent variables

S. No.	Name of Variable	Coefficient of correlation (r)	
		Jaipur division (n ₁ = 160)	Jodhpur division (n ₁ = 160)
1	Age	0.068	0.097
2	Education	0.222**	0.216**
3	Occupation	0.162*	0.277**
4	Annual income	0.104	0.172*
5	Size of Land holding	0.045	0.183*
6	Social participation	0.167*	0.170*
7	Farming experience	0.157*	0.253**
8	Economic motivation	0.268**	0.300**
9	Scientific orientation	0.182*	0.186*
10	Extension contact	0.186*	0.200*
11	Aspiration	0.177*	0.227**

** Significant at 1 percent level of significance

* Significant at 5 percent level of significance

Age and knowledge

The data given in table 1 reveal that age had positive and non-significant correlation with knowledge of farmers about PMFBY in both divisions (Jaipur and Jodhpur). Hence, the null hypothesis (H_{06.1}) “There is no significant relationship between age and knowledge of farmers about Pradhan Mantri Fasal Bima Yojana” was, therefore, accepted. It means that there was no relationship between age of farmers and their knowledge about PMFBY. This indicates that knowledge of farmers about PMFBY was not influenced by their age.

It might due to facts that farmer may have acquired knowledge and experience over time, while younger farmers may have access to more recent information and technology which means all the age groups might have equally benefitted under PMFBY. Additionally, the level of education and exposure to agricultural practices helped all the farmers equally to form the same knowledge about PMFBY. This finding is in concurrence with the findings of Valamannavar *et al.* (2018) [5] and Yogesh *et al.* (2023) [7]. They revealed that age had non-significant relationship with

knowledge level of farmers.

Education and Knowledge

The data presented in table 1.1 express that education had positive and significant correlation with knowledge of farmers about PMFBY in both divisions (Jaipur and Jodhpur). Hence, the null hypothesis (H_{06.2}) “There is no significant relationship between education and knowledge of farmers about Pradhan Mantri Fasal Bima Yojana” was, therefore, rejected and alternative hypothesis was accepted. It means that there was relationship between education of farmers and their knowledge about PMFBY. This indicates that knowledge of farmers was influenced by their education level.

It might be due to the facts that higher level of education often provides farmers with access to better resources, information and training programs enhanced their knowledge. Educated farmers are more likely to be aware of government schemes like PMFBY and understand the benefits and procedures associated with it. Education equips farmers with the skill to navigate through the complexities

of agricultural insurance and make informed about decision regarding their crops which might have given such type of results.

These findings are in agreement with the findings reported by Valamannavar *et al.* (2018) ^[5], who reported that education had positively correlated with knowledge level of farmers.

Occupation and knowledge

The data given in table 1 express that occupation had positive and significant correlation with knowledge of farmers about PMFBY in both divisions (Jaipur and Jodhpur). Hence, the null hypothesis ($H_{06.3}$) "There is no significant relationship between occupation and knowledge of farmers about Pradhan Mantri Fasal Bima Yojana" was, therefore, rejected and alternative hypothesis was accepted. It may be concluded from the findings that there was relationship between occupation of farmers and their knowledge about PMFBY. It means that the knowledge of farmers about PMFBY was influenced by their occupation. It might be due to the facts that agricultural professionals or those involved in farming-related activities might have more exposure and direct involvement with government schemes like PMFBY. They might have access to specialized training, workshops, or information networks that enhance their understanding about the scheme *viz.*, PMFBY.

This finding is in agreement with the findings reported by Yogesh *et al.* (2023) ^[7] and Kumar *et al.* (2015) They revealed that education, occupation, family type, land holding, social participation, economic motivation, innovativeness, scientific orientation and risk orientation showed positive and significant relationship with knowledge level and in regression analysis education, scientific orientation were positive and had significant contribution to the knowledge level of respondents about knowledge regarding agro meteorological parameters

Income and Knowledge

The data given in table 1 express that income had positive and significant correlation with knowledge of farmers about PMFBY in Jodhpur division. Hence, the null hypothesis ($H_{06.4}$) "There is no significant relationship between income and knowledge of farmers towards Pradhan Mantri Fasal Bima Yojana" was, therefore, rejected and alternative hypothesis was accepted. It means that there was relationship between income of farmers and their knowledge about PMFBY. Similarly, In Jaipur Division, income had positive and non-significant correlation with knowledge of farmers about PMFBY. Hence the null hypothesis ($H_{06.4}$) "There is no significant relationship between income and knowledge of farmers towards Pradhan Mantri Fasal Bima Yojana" was accepted, it means that there was no relationship between income of farmers and their knowledge about PMFBY.

This might be due to facts that farmers of Jaipur division could be influence due to various factors. It's possible factors might be level of awareness and access to information about the scheme which may differ between the two divisions. In Jodhpur, there might be more efforts and initiatives were made by the agencies to educate farmers about PMFBY, leading to a higher correlation between income and knowledge. Additionally, factors like local

agricultural practices, outreach programs and government initiatives may also contribute to the difference in correlation between the two divisions.

This finding is in line with the findings of Yogesh *et al.* (2023) ^[7]. They revealed that education, income and attitude regarding Soil health card had significantly and positively correlated with knowledge level of Soil health card holder. Moreover, land holding, cropping intensity and productivity was positively and significantly correlated with knowledge level of Soil health card holder. Whereas age, experience, scientific orientation, source of information, innovativeness and cropping pattern had non- significant relationship with knowledge level of Soil health card holders. This data reveals that land holding, cropping intensity and productivity had maximum influence over the knowledge level of Soil health card holders.

Size of land holding and Knowledge

The data presented in table 1 reveal that land holding had positive and non-significant correlation with knowledge of farmers about PMFBY in Jaipur division. Hence the null hypothesis ($H_{06.5}$) "There is no significant relationship between land holding and knowledge of farmers towards Pradhan Mantri Fasal Bima Yojana" was accepted, it means that there was no relationship between land holding of farmers and their knowledge about PMFBY. This indicates that knowledge of farmers of Jaipur division was not influenced by their size of land holding. It might be due to the facts that the farmers from the different land holding groups were similar in taking benefits under PMFBY. On the other hand, in Jodhpur division, size of land holding of farmers had positive and significant correlation with their knowledge about PMFBY. Hence, the null hypothesis ($H_{06.5}$) was, therefore, rejected and alternative hypothesis was accepted. It means that there was relationship between land holding of farmers of Jodhpur divisions and their knowledge towards PMFBY.

Thus it might be concluded from the findings that size of land holding of farmers of Jodhpur division had exerted a significant effect on their level of knowledge about PMFBY. this might be due to the facts farmers of Jodhpur division might have benefitted through exposé visit and other training programmes related to PMFBY at various level.

The above results are dissimilar to results of Yogesh *et al.* (2023) ^[7].

Social participation and knowledge

The data given in table 1 indicate that social participation had positive and significant correlation with knowledge of farmers about PMFBY in both divisions (Jaipur and Jodhpur). Hence, the null hypothesis ($H_{06.6}$) "There is no significant relationship between social participation and knowledge of farmers towards Pradhan Mantri Fasal Bima Yojana" was, therefore, rejected and alternative hypothesis was accepted. It means that there was relationship between social participation of farmers and their knowledge about PMFBY. This might be concluded that knowledge of farmers was influenced by their social participation. This might be due to the facts that social participation might have increased the knowledge of beneficiary farmers to clearly understand about own needs, interest and benefits of

PMFBY which might have exerted a positive and significant effect on knowledge level of farmers about PMFBY.

This finding is in support with the findings reported by Ramesh *et al.* (2022) [4]. They revealed that social participation had positive and significant relationship with knowledge level of farmers.

Farming experience and knowledge

The data given in table 1 depict that farming experience had positive and significant correlation with knowledge of farmers about PMFBY in both divisions (Jaipur and Jodhpur). Hence, the null hypothesis ($H_{06.7}$) "There is no significant relationship between farming experience and knowledge of farmers towards Pradhan Mantri Fasal Bima Yojana" was, therefore, rejected and alternative hypothesis was accepted. It means that there was relationship between farming experience of farmers and their knowledge towards PMFBY. It may be inferred that knowledge of farmers about PMFBY was influenced by their farming experience. This might be due to the facts that more exposure about farming creates opportunities to gain and understand about the various programmes related to farming which might have helped the beneficiary farmers for positive and significant relation between farming experience and knowledge about PMFBY.

This finding is in support with the findings reported by Nagesh *et al.* (2022) [3] who revealed that the variables like age, annual income, education, land holding, farming experience, extension contact, extension participation, scientific orientation, cosmopolitaness, achievement motivation, mass media exposure and crops cultivated had positive and significant association with knowledge level. Risk orientation, economic motivation and credit orientation had positive and significant. However social participation was found to be non-significantly associated with the knowledge on Pradhan Mantri Fasal Bima Yojana.

Economic motivation and Knowledge

The data given in table 1 reveal that economic motivation had positive and significant correlation with knowledge of farmers about PMFBY in both divisions (Jaipur and Jodhpur). Hence, the null hypothesis ($H_{06.8}$) "There is no significant relationship between economic motivation and attitude of farmers towards Pradhan Mantri Fasal Bima Yojana" was, therefore, rejected and alternative hypothesis was accepted. It means that there was relationship between economic motivation of farmers and their knowledge about PMFBY. It may be concluded from the findings that knowledge of farmers about PMFBY was influenced by their economic motivation. This might be due to facts that the farmers are motivated to take the benefits from government schemes to improve their living slandered and also helped them to mitigate the lossess incurred in crop during natural calamitied which might have increased the knowledge of farmers about PMFBY. Due to positive and significant relation between economic motivation and knowledge about PMFBY was observed.

This finding is in agreement with the results reported by Ramesh *et al.* (2022) [4]. Who reported that economic motivation had positive and significant relationship with knowledge level of farmers.

Scientific orientation and knowledge

The data given in table 1 indicate that scientific orientation had positive and significant correlation with knowledge of farmers about PMFBY in both divisions (Jaipur and Jodhpur). Hence, the null hypothesis ($H_{06.9}$) "There is no significant relationship between scientific orientation and knowledge of farmers towards Pradhan Mantri Fasal Bima Yojana" was, therefore, rejected and alternative hypothesis was accepted. It means that knowledge of farmers about PMFBY was influenced by their scientific orientation.

It may be inferred from the findings that increase in scientific orientation, increases the knowledge of farmers, due to which there was positive and significant relation between scientific orientation and knowledge.

This might be due to the facts that higher level of education, more active social participation, high extension contacts and high mass media exposure might have persuaded and motivated the farmers to gain new information related to scientific technology to secure their crop from natural calamities. Which enhanced the scientific orientation resulted in positive and significant knowledge of farmers about PMFBY.

These findings are in accordance with the findings of Ramesh *et al.* (2022) [4]. Who reported that scientific orientation had positive and significant relationship with knowledge level of farmers.

Extension contact and Knowledge

The data give in table 1 expressed that extension contact had positive and significant correlation with knowledge of farmers about PMFBY in both divisions (Jaipur and Jodhpur). Hence, the null hypothesis ($H_{06.10}$) "There is no significant relationship between extension contact and attitude of farmers towards Pradhan Mantri Fasal Bima Yojana" was, therefore, rejected and alternative hypothesis was accepted. It means that knowledge of farmers about PMFBY was influenced by their extension contact.

It may be inferred from the findings that farmers who have more contact with extension services are more likely to receive more enrich information and guidance about the scheme. This increased interaction with extension personnel can lead to a better understanding about PMFBY and its benefits.

These findings are supported by the findings of Ramesh *et al.* (2022) [4] and Valamannavar *et al.* (2018) [5]. Who reported that extension contact had positive and significant relationship with knowledge level of farmers

Aspiration and knowledge

The data given in table 1 express that aspiration had positive and significant correlation with knowledge of farmers about PMFBY in both divisions (Jaipur and Jodhpur). Hence, the null hypothesis ($H_{06.11}$) "There is no significant relationship between aspiration and knowledge of farmers towards Pradhan Mantri Fasal Bima Yojana" was, therefore, rejected and alternative hypothesis was accepted. It means that knowledge of farmers was influenced by their aspiration level.

This might be due to the facts that farmers were highly inspired about benefits of PMFBY through various extension activities like exposure visits, trainings etc. Which might have helped them to look forward about improvement

in living standards of their family by gaining more income which ultimately increase their level of aspiration and enhance the knowledge of farmers about PMFBY.

These findings are in accordance with the findings of Vishwanatha (2014)^[6].

Conclusion

It may be concluded that independent variables viz. education, occupation, social participation, farming experience, economic motivation, scientific orientation, extension contact and aspiration were significantly associated with the knowledge and age, annual income and size of land holding were not significantly associated with attitude of farmers about PMFBY in Jaipur division. Similarly, in Jodhpur division, education, occupation, annual income, size of land holding, social participation, farming experience, economic motivation, scientific orientation, extension contact and aspiration were significantly associated while age were not significantly associated with knowledge of farmers about PMFBY.

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