

Perceived Constraints on Participation of Rural Women in Decision-Making Process: Insights from Dairy Farming in Surguja District of Chhattisgarh

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Authors' contributions

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

Article Information

DOI: 10.9734/CJAST/2020/v39i2030804

Editor(s):

(1) Dr. Diyuan Li, Central South University, China.

Reviewers:

(1) Meena Kumari Bimal, Baba Farid University of Health Science, ESIC Model Hospital, India.

(2) Gafar Idowu Ayodeji, Tai Solarin University of Education Ijagun, Nigeria.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/58904>

Original Research Article

Received 04 May 2020
Accepted 10 July 2020
Published 27 July 2020

ABSTRACT

The women folk are considered the backbone of the nation and better half of the men in almost all spheres of community development. Rural women constitute about 50% of the total rural population. The present study was conducted in Surguja district of Chhattisgarh to know the extent of participation of rural women in the decision-making process of dairy farming. Data were collected from 120 rural women using a structured interview schedule. 30 women farmers were chosen from each selected village thus constituting a sample size of 120 by simple random method. The study showed that the five components have greater than one Eigenvalues which was named constraint on social perception toward women, constraint on backwardness related, constraint of knowledge, Constraint on Resource Ownership and constraint on attitude. Dairy farming in the study area holds a very good future because certain dairy farming related operations and taking decisions farm

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women have better than male farmers. But due to many constraints and obstacles in the participation of rural women in the decision making process of dairy farming, which undermined the efficiency of rural women.

Keywords: Constraints; dairy farming; decision-making; principal component analysis; social participation.

1. INTRODUCTION

Dairy enterprise has been regarded as an important instrument of economic and social change and supplement to the income and employment to rural women. There are certain agricultural operations in which female agricultural workers are considered better than male workers. Dairying, being an occupation, women from these families are also partners in animal husbandry activities' management as managers, decision-makers, and skilled workers. India is predominantly an agrarian society where animal husbandry forms the backbone of the national economy. It has been estimated that about 86 percent of the total rural women are working for various agricultural operations. It is established beyond doubt that women always participate in dairy and animal husbandry activities in addition to their daily household chores [1]. Women play a crucial and significant role in livestock rearing but their contribution to livestock rearing has not been given the due place they deserve and always remain invisible workers [2]. Rural women contribute a share of more than 75 per cent in animal husbandry operations like feeding, milking and sale of milk [3]. India is the world's largest milk producing country with a share of about 16 percent in the world's total milk production. India, the current leader in the dairy world, rank 1st in milk production with a production level of 132.4 million tonnes of milk growing steadily at a compound annual growth rate of about 6.5 percent. Where women constitute about 69% of the workforce engaged in the livestock sector [4].

Most of the work related to feeding and watering of animals was the sole responsibility of the womenfolk. They were responsible for tasks like feeding, watering, collection of fodder, storage of concentrates, feeding a young calf, soaking of concentrates, taking the animals for grazing, chaffing, and storage of fodder. Most of the farm women were involved in the storage of concentrates, feeding a young calf, watering the livestock, offering the concentrate mixture, and soaking of concentrates [2] and [5]. The women also looked after storage of feed and fodder (77.5 percent) in the form of haymaking. The act

of preparing feed i.e. mixing of concentrates with roughages or fodder was performed by 67.5 percent of farm women [6]. The involvement of farm women in the care of newborn calf and cleaning of utensils and a shed was 100 percent [7], [2] and [5]. Women performed activities like milking (90 percent), cleaning of animal sheds (89.16 percent) and disposal of cow dung or preparation of cow dung cakes 86.66 percent [6].

However, men contributed about 50 percent of the labour involved in grazing activity only. All other activities such as cleaning shed, milking, harvest, and transport of grass for livestock was performed exclusively by women [8]. The participation of farm women was least in the economic activities like taking loans, purchase and sale of animals and choosing animals for dairy. Traditional Indian culture, the decision regarding economic aspects has been taken by men. Moreover, farm women have less contact with progressive farmers, officials, and banks. This was also the reason for a low level of involvement in decision-making [9]. Milk and milk products play a vital role in the country's agricultural economy. Based on the foregoing, the current the constraints perceived on the participation of rural women in the decision-making process of dairy farming in the Surguja district of Chhattisgarh.

2. METHODOLOGY

The study was conducted during the year 2016-17 in Surguja district of the Chhattisgarh state. The methodology suggested by Ray and Mondal [10] was followed with required modifications as per the context and objective of the present study to investigate. Research design is the framework of research methods and techniques chosen by a researcher. It is the set of methods and procedures used in collecting and analyzing measures of the variables specified in the problem research. The present study will be followed ex – post facto Research Design in Surguja district of the Chhattisgarh state for study on the perceived constraints on participation of rural women in decision-making process.

The Chhattisgarh state consists of 27 districts, out of which the Surguja district was selected purposively because of the investigator's familiarity with the culture of peoples and command in Regional language was helped to develop the report from respondents for the present study. Out of a total of seven blocks in Surguja, only one block namely Ambikapur was selected purposively for the present study from Ambikapur block, 4 villages were selected based on maximum availability of animal husbandry in the villages. In this way, the villages, Sakalo, Sargawan, Bhitthi Kalan, Mendra Kalan from Ambikapur block were selected for the study. A list of farm families who are engaged in dairy farming was prepared. From the list of each selected village, 30 farm families were selected randomly. In this way, a total of 120 farm families ($30 \times 4 = 120$), were selected as respondents for the collection of data. The data were collected by personal interviews with the help of a pre-tested structure interview schedule. The statistical measures such as mean score, standard deviation and principal component analysis were used with the help of Statistical Package for the Social Science (SPSS) software version 16.0.

3. RESULTS AND DISCUSSION

According to Allison [11], the missing value will or will be a result of an uncertain value. Only three cases of missing values were used and the method of pair deletion was used under SPSS. This work used the Kolmogorov-Smirnov test to determine the normality of data as the sample size was more than 100. The normality of the data could be concluded as the significance

value was higher than .05. The findings of the analysis as well as the related discussion were summarised in the following subheadings-

3.1 Descriptive Analysis of Constraint Perceived on Participation of Rural Women in Decision Making Process of Dairy Farming

Descriptive statistics are split into central tendency and variability measurements (spread). Measures of central trend include mean, while measurements of variation include standard deviation, Table 1 outlined that the concise statistical analysis as mean and standard deviation of the twelve statements of the constraint perceived on the participation of rural women in the decision-making process of dairy farming in the study area.

3.2 Principal Component Analysis of Constraint Perceived on Participation of Rural Women in Decision Making Process of Dairy Farming

Analysis of the principal component is the oldest and best known multivariate data analysis technique. This was not commonly known or used until the advent of electronic computers, like many other multivariate approaches, but it is now well integrated in nearly every statistical software set. Principal Component Analysis (PCA) is the general name for a method that uses advanced mathematical underlying principles to turn many potentially associated variables into a smaller number of variables called principal components.

Table 1. Descriptive statistics analysis of constraint perceived on participation of rural women in decision making process of dairy farming

| Sl. no. | Statement | Mean | Std. deviation |
|---------|--|------|----------------|
| 1. | Male Dominance | 2.94 | 0.919 |
| 2. | Cultural norms | 2.85 | 0.718 |
| 3. | Lack of education among women | 2.96 | 0.793 |
| 4. | Control over Resources by male members | 2.88 | 0.913 |
| 5. | Lack of confidence | 2.4 | 0.691 |
| 6. | Lack of technical knowledge of farm women | 2.6 | 0.854 |
| 7. | Poor economic condition of family | 2.92 | 0.931 |
| 8. | Lack of communication. | 2.97 | 0.788 |
| 9. | Rural women's age. | 2.52 | 0.987 |
| 10. | Lack of awareness about their social rights. | 2.25 | 0.862 |
| 11. | Resistance from family members. | 2.82 | 1.029 |
| 12. | Large family size. | 2.79 | 1.003 |

3.3 Sample Size

Test is suitable for 100 subjects; standard: The primary element analysis is robust to assume normality. The normality of the data was assumed using the Kolmogorov- test (significance value larger than 0.05). Sampling adequacy: Bartlett's sphericity test and Kaiser--(KMO) measure the sampling appropriateness and can be used to determine the factorability of the entire matrix. If Bartlett's sphericity test is high and significant, and if the KMO exceeds 0.5, then it is assumed to be factorable. The sampling adequacy test of Kaiser-Meyer-Olkin (KMO) is a metric used to assess the suitability of factor analysis. High values (between 0.5 and 1.0) suggest an effective factor analysis [12].

The suitability test for the Barlett Sphericity (BTS) and Kaiser-Meyer-Olkin (KMO) was performed to ensure the use of the principal component analysis (Table 2). The results (BTS 2.0403, Degree of Free 435, and the point of significance in P=0.00) showed that the data are appropriate for the key component analysis. KMO's sample adequacy calculation results were 0.529, indicating that there were enough things in each

element. Both assessments affirm the appropriateness of the principal component analysis.

It was graphically represented from the Fig. 1 that the analyse among the all components only five components Eigenvalue was more than one which is truly represented the relationship between the statements of factorial component because an eigenvalue number is telling how much variance is there in the data on that direction.

Table 3 and Fig. 2 show that there are more than one Eigenvalues for the five components (Fig. 2). only factors with Eigenvalues greater than one should be kept in compliance with the rules of the study of the principal component. The first component has Eigenvalue of 2.245, 18.705 variance percentages, and cumulative 18.705 percentages. The component is composed of three items. The items in this component are (X10) Lack of awareness about their social rights 0.83. This is the item with the highest factor loading other items (X1) Male Dominance 0.738 and (X12) Large family size - 0.677. The component is labeled as "Constraint on Social Perception toward Women".

Table 2. KMO and Bartlett's test of constraint perceived on participation of rural women in decision making process of dairy farming

| Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) | | 0.529 |
|--|--------------------|--------------|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 270.324 |
| | d.f. | 66 |
| | Sig. | 0 |

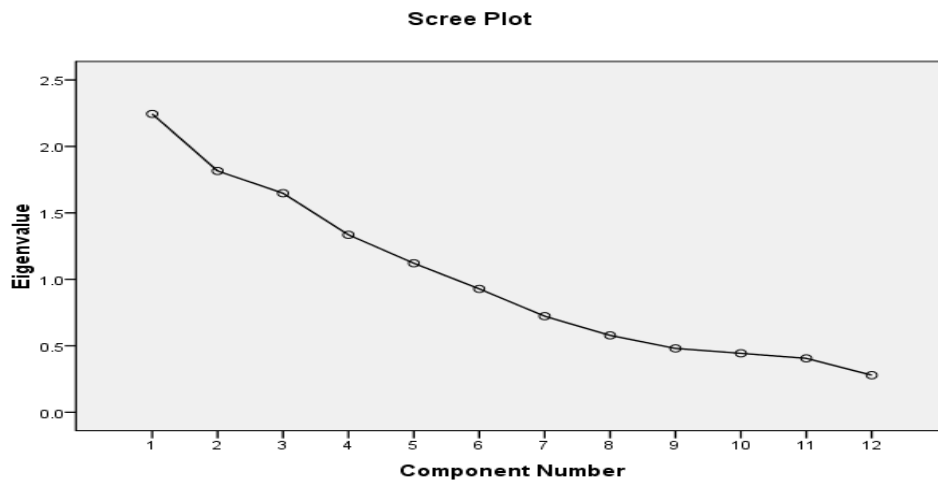


Fig. 1. Graphical representation of Eigenvalues for constraint perceived on participation of rural women in decision making process of dairy farming

The second component has an Eigen value of 1.815; a percentage of variance of 15.126 and a percentage of cumulative of 33.832. There are two items in the component. Items covered by this component include (X6) Lack of technical knowledge of farm women 0.806 and (X7) Poor Economic condition of family 0.714. The component is labeled "Constraint on Backwardness Related"

The third component has an Eigen value of 1.648, a percentage of variance of 13.732, and a percentage of cumulative of 47.564. The component is made up of items from the three. The items in this component are (X7) Poor Economic condition of family 0.719, (X8) Lack of communication 0.668, and (X3) Lack of education among women 0.564. The component is labeled "Constraint of knowledge".

The fourth component has an Eigenvalue of 1.335, a percentage of variance of 11.125, and a percentage of cumulative of 58.689. The

component is made up of items from the two. The items in this component are (X4) Control over Resources by male members 0.829 and (X9) Rural women's age 0.653. The component is labeled "Constraint on Resource Ownership".

The fifth component has an Eigenvalue of 1.121, a percentage of variance of 9.341, and a percentage of cumulative of 68.03. The component is made up of items from the two. The items in this component are (X2) Cultural norms 0.873 and (X5) Lack of confidence 0.602. The component is labeled "Constraint on Attitude".

It's depicted graphically in Fig. 2 that the components plot in space rotated present a clearer presentation in which both the position of data in relation to the factorial component and the relationship between data provided by the twelve statements of Constraint perceived on the participation of rural women in the decision making process of dairy farming.

Table 3. Principal component factor analysis (varimax rotation), factor loading and communalities for constraint perceived on participation of rural women in decision making process of dairy farming

| Rotated component Matrix a | | | | | | |
|---|------------------|----------|----------|----------|----------|----------------------|
| Statement | Component | | | | | Communalities |
| | 1 | 2 | 3 | 4 | 5 | |
| (X10) Lack of awareness about their social rights | 0.83 | | | | | 0.80 |
| (X1) Male Dominance | 0.738 | | | | | 0.74 |
| (X12) Large family size | -0.677 | | | | | 0.64 |
| (X6) Lack of technical knowledge of farm women | | 0.806 | | | | 0.70 |
| (X7) Poor Economic condition of family | | 0.714 | | | | 0.66 |
| (X11) Resistance from family members | | | 0.719 | | | 0.68 |
| (X8) Lack of communication. | | | 0.668 | | | 0.71 |
| (X3) Lack of education among women | | | 0.564 | | | 0.35 |
| (X4) Control Over Resources by male members | | | | 0.829 | | 0.74 |
| (X9) Rural women's age. | | | | 0.653 | | 0.68 |
| (X2) Cultural norms | | | | | 0.873 | 0.77 |
| (X5) Lack of confidence | | | | | 0.602 | 0.69 |
| Eigen values | 2.245 | 1.815 | 1.648 | 1.335 | 1.121 | |
| Percentage of variance | 18.705 | 15.126 | 13.732 | 11.125 | 9.341 | |
| Percentage of Cumulative | 18.705 | 33.832 | 47.564 | 58.689 | 68.03 | |

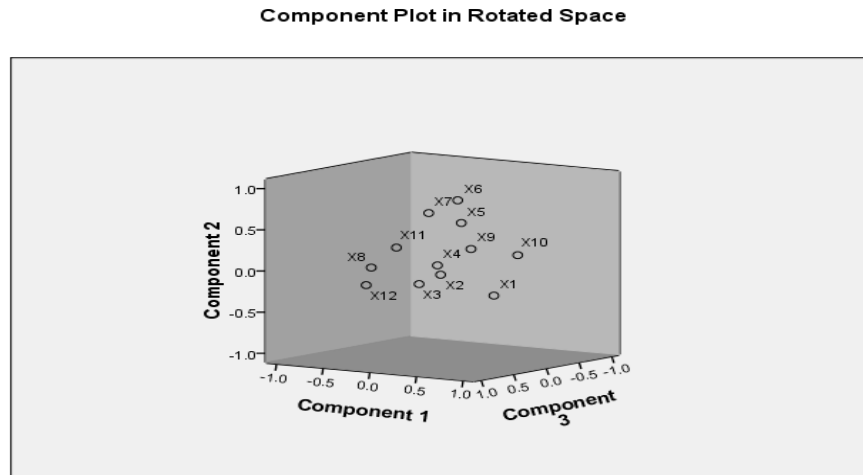


Fig. 2. Screen plots graphical representation for constraint perceived on participation of rural women in decision making process of dairy farming

4. CONCLUSION

The study concluded that the five components have greater than one Eigenvalues. The first component has an Eigen value of 2.245 and the component is made up of items from the three which is labeled as Constraint on Social Perception toward Women. The second component has an Eigen value of 1.815 and the component is made up of items from the two which is labeled as Constraint on Backwardness Related. The third component has an Eigenvalue of 1.648 and the component is made up of items from the three which is labeled as Constraint of knowledge. The fourth component has an Eigen value of 1.335 and the component is made up of items from the two which is labeled as Constraint of knowledge. The fifth component has an Eigenvalue of 1.121 and the component is made up of items from the two which is labeled as constraint on Attitude. Under the leveled some of the constraints in study area like shortage of water for green fodder production, non-availability of artificial insemination facilities in/around the village, high cost of veterinary medicines too costly and exotic cross-bred animals were perceived to a great intensity. The correct measured should have to be adopted in the study area so that the constraints can be completely eliminated. There is a also urgently need for strengthening the extension work by government and non government organizations to ensure a continuous flow of information to the rural women to overcome the obstacle in dairy farming practices and enhance their participation in decision – making process.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
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