

Milch Animal Rearing as a Catalyst for Women Empowerment: An Assessment of Priceless Milch Animal Scheme in Tamil Nadu

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KEYWORDS

Empowerment of Women, Women Dairy Farmers, Tamilnadu Free Milch Cow Distribution Scheme

ABSTRACT

Rural women are crucial to the operation of small-scale dairy farms, handling tasks such as fodder collection, animal feeding, milking, and basic milk processing. Despite their significant roles in dairy farming, their decision-making power regarding the sale of dairy products and the purchasing of animal feed remains minimal, with these decisions primarily made by men. However, participation in small-scale dairy farming has increased rural women's economic awareness and contributed significantly to their families' well-being, enabling them to break the cycle of poverty. Thus, rural women's involvement in dairy farming is key to poverty reduction in these areas. The current study aims to analyze the empowerment of women through the Tamil Nadu Free Milch Cow Distribution Scheme in Thanjavur District. A sample of 200 respondents was selected using a stratified disproportionate random sampling method. Findings indicate that 56 percent of the respondents possess a high level of awareness regarding the rearing of milch cows, while 44 percent have a low level of awareness. Additionally, 65.5 percent of the respondents reported a high level of empowerment after participating in the cow distribution scheme, compared to 34.5 percent who experienced low empowerment. The results underscore the need for further support from the government, NGOs, and development partners to strengthen women's roles as livestock owners, processors, and users of livestock products. Enhancing their decision-making power and capabilities is essential for fostering greater empowerment and improving the quality of life for rural women in Thanjavur District. This study highlights the importance of continued efforts to empower women in the dairy sector as a means to achieve broader socio-economic development.

1. Introduction

Women development has been playing an important role in overall sustainable development of the nation. It is well understood that when a woman moves forward, the family moves and the village moves and the nation moves. Upliftment of women is an essential ingredient of human development (Contzen and Haberli 2021). Women in rural sector are engaged in considerable amount of activities of farming and allied occupation. However, dairy activities are more liked and performed by farm women than crop farming activities. Dairy development has contributed positively to improve the economic and nutritional status of the rural areas. The lower income groups' i.e. landless class and marginal farmers in rural areas derived positive benefits

from dairy development in terms of food intake and income even during the lean months (Dohmworth and Liu 2020). Dairy farming has been proved as a powerful instrument to further economic progress and social change, particularly in case of rural women. An attempt was made to find out the main determinants of social upliftment. Social upliftment indices were worked out for each and every respondent's household which was regressed to their various socio-economic characteristics (Kabir, Moon and Islam 2019).

Dairy farming has been an important part of the agricultural scenario for thousands of years. India being a predominantly agrarian economy has about 70 percent of its population living in villages, where livestock play a crucial role in the socio-economic life (Anitha, 2021). Livestock provide high-quality foods such as milk, cheese, butter and ghee. India is not only one of the top producers of milk in the world, but also the largest consumer of milk and milk products in the world. Agriculture and animal husbandry have a symbiotic relationship, in which the agricultural sector provides feed and fodder for the livestock and animals provide milk, manure and draught power for various agricultural operations. Dairy sector is instrumental in bringing socio-economic transformation in India. It has created a lot of employment opportunities and also provides improved nutritional benefits. Woman plays various roles in agricultural sector (Khurshaid et al. 2021). It is widely accepted that most of the critical roles related to livestock farming are played by the women (Patel et al., 2020). The major activities related to dairy farming are normally performed by rural women in India. Women play significant and crucial role in agricultural development and allied fields like dairy farming, poultry and homestead. Rural women carry out both domestic and livestock related activities. Their routine household activities include cleaning of the home, cooking, stitching, raising children while livestock management practices include cleaning of animals shed, taking care of sick animals, calf rearing, feeding, watering to animals, milking and making dairy products like ghee, yogurt and butter. General observations concerning rural family life and available studies show that male members are mainly responsible for agricultural practices, while besides the household responsibilities, the females are said to actively participate in livestock care and management (Mthi et al. 2018)). Some of the activities like fodder production, cutting and transportation are mostly performed by male family members (Kaur et al. 2017), but in many cases the women are also involved with these additional duties. Rural women can earn money by selling milk. Improved financial autonomy has boosted their bargaining power and allowed women to become more active in decision-making in the family. Farming has enabled them to increase family income as well as fulfill household food needs. Dairy farming production contributes considerably to the advancement of the rural areas (Gopi et al. 2020).

The participation of women in dairy farm practices varies by region, culture and socio-economic status. Due to social and traditional barriers, rural women are not able to work outside of their homes. Therefore, their potential is often unrealized (Islam et al., 2012). They are disadvantaged in terms of education, independence, controlling their own assets and household decision making (Sultana & Hossen, 2013). Existing information on the participation of women in the various dairy farm practices is very limited. The previous research studies demonstrated that limited space and other resources available for providing scientific housing to dairy animals, preference for natural service, inadequate knowledge of diseases through prevention and control, followed by non-availability of artificial insemination facilities and timely veterinary services and non-availability of veterinary hospitals were responded as important constraints in order of its nature and severity (Gupta et al. 2020). Although women contribute more labour inputs in dairying, a number of studies highlighted their limited access to relevant technology, knowledge, credit, market and extension. Adoption of scientific dairy management practices by farmers/farm women

is also insignificant which constrains them to enhance milk yield and income. However rural women are more conscious about their right, health, financial well-beings at present. Women's participation in small-scale dairy farming is an important tool in reducing poverty in rural area (Datta, Haider and Ghosh 2019). The present study was undertaken to assess the empowerment of women through Tamilnadu Free Milch Cow Distribution Scheme in Thanjavur District, Tamilnadu. This study gives suitable suggestions to improve their socio-economic conditions and quality of life among beneficiaries of Tamilnadu Free Milch Cow Distribution Scheme in Thanjavur District, Tamilnadu.

1.1 Literature review

India is an agriculture dependent country and livestock sector is an integral component of it. In India, livestock sector is mostly look after by women as most of the animal husbandry activities like fodder collection, chaffing, feeding, watering, health care, milking, household-level processing, value addition and other management practices are performed by women. But the share of women in income from livestock sector is considered negligible (Anitha, 2021). Women have less access to technology, extension services and less women farmer's organizations; hence efforts are needed to increase the capacity of women in terms of skills to meet their strategic needs and to document systematically their inputs and outputs with respect to livestock sector (Contzen and Häberli 2021). The previous research studies demonstrated that the decision making, self-esteem, social support, access to knowledge, credit facility, livestock services, market accessibility and asset ownership are the important pillars for the women empowerment in livestock sector (Datta, Haider and Ghosh 2019). Women play a primary role for animal care. Income from the livestock sector is an important component of household incomes for a large number of rural households. Therefore women make a significant contribution to Indian livestock sector's economy but lacks in technical knowledge and skills (Dohmwirth, 2014). The economic, social and nutritional condition of that household certainly improves, if a woman becomes empowered in the livestock rearing (Gopi et al. 2020). The previous studies also proved that dairy enterprise has helped the rural women in reducing the domestic violence and poverty while it brought improvement in their social, recreational, educational and economic well-being and consequently improved their quality of life (Gupta et al. 2020). The personal variable like; education, type of family and occupation emerged as significant factors in improving the quality of life of rural women (Islam et al., 2012 and Sultana and Hossen, 2013).

The quality of life includes the consequential outcome of various developments which have taken place in their social, recreational activities, personal grooming, and domestic violence, material possession, housing status, educational level, nutritional and health status and economic aspect of family members by virtue of their membership in dairy cooperative societies (Kabir, Moon and Islam 2019). Thus, dairy enterprise is an important aspect to generate economy activity and self-employment opportunities for women. It has the propensity to increase the family income and standards of living of the women. Proper functioning of micro enterprises developed capacity as well as empowered women to improve their socio-economic status (Kaur et al. 2017). In spite of having positive impact, the overall performance of the women entrepreneurs is still to go in long way for further improvement in their quality of life. The governmental and non-governmental organizations should join hands together to take initiatives to increase women's participation in the small business. In this regard there is need to have easy access to institutional credit and marketing to the rural women (Khurshaid et al. 2021). They should also be given proper training to develop their skills and knowledge related with business and market environment (Patel et al.

2016). Based on the findings, it is concluded that dairy enterprise has helped the rural women in reducing their domestic violence and poverty in order to bring the improvement in their social, recreational, housing, educational, material possession, nutritional and health and economic wellbeing which ultimately determine their quality of life to a great extent (Mthi et al. 2018).

1.2 Statement of the problem

Women play significant and crucial role in agricultural development and allied fields like dairy farming and vermi compost production. Dairy farming is major occupation of rural women in India. The significant contribution of women in crop production, horticulture and post harvest technology and particularly in dairy husbandry is well known. A cattle rearing is a diversification from existing agricultural activities. Largely, rural women are engaged in this activity. These rural women, besides doing hard household chores, also undertake the taxing job of cattle rearing (Vallapureddy, 2013). Their role in dairy activities ranges from grazing, collecting, cleaning animal sheds to processing of milk and livestock products that enable poor and landless families particularly farm women to earn income using common properties. The day to day activities performed by women are crucial inputs for economic returns that a household earns through live stock production either directly through sale of livestock and livestock products (Kumari and Malhotra, 2019). Despite the fact that women in India do most of the work in animal husbandry yet their contribution has largely been ignored and inadequately acknowledged. They always remain invisible workers. In view of all these points, it was considered relevant to quantify the women's work in the field of dairy farming (Kabeer 2005). The women were empowered through small-scale dairy farming by increasing their socio-economic status and awareness about educational, health, nutritional, legal right such as early marriage, dowries and divorce, enabling women to participate in independent decision-making at the household and increased involvement in family affairs, increasing women access to and controlling of economic resources at the household and community level and also increasing their confidence level to enhance small-scale dairy farming in the society for poverty reduction (Meena, Dudi and Sharma 2013). The greatest influencing factors affecting rural women's empowerment through small-scale dairy were the husband's behavior, successful reduction of the dependency of rural women, increase knowledge and skill, a breakdown of traditional socio-cultural norms and finally types of dairy breed (cross breed) raised significantly. The women's confidence level enhanced their efficiency and productivity in small-scale dairy farming which contributed to achieve ascent in their living standards and increased involvement in family affairs and community level (Quddus, 2018). However rural women are more conscious about their right, health, financial well-beings at present. Women's participation in small-scale dairy farming is an important tool in reducing poverty in rural area (Datta, Haider and Ghosh 2019). The present study was undertaken to determine the participation level of rural women in dairy farming activities and analysis the socio-economic conditions of dairy women farmers, awareness about raring of milch cow animal, awareness about women's rights, privileges and concessions provided by the government, constrains faced by women in dairy management and quality of life of women. This study gives suitable suggestions to improve their socio-economic conditions and quality of life among beneficiaries of Tamilnadu Free Milch Cow Distribution Scheme in Thanjavur District, Tamilnadu.

1.3 Scope and significance of the study

This study explores the participation of rural women in dairy farming and assesses the socio-economic impact of the Tamilnadu Free Milch Cow Distribution Scheme in Thanjavur District. It focuses on how dairy farming has become a significant tool for empowering rural women by providing them with a reliable source of income and improving their nutritional status. Women's involvement in dairy farming not only helps them financially but also plays a crucial role in enhancing their decision-making power within households. The study brings attention to the fact that despite the considerable labor contributions made by women in livestock management, they often face several challenges. These include limited access to essential resources such as knowledge, technology, financial credit, and market opportunities, which hinder their ability to fully benefit from their participation in dairy farming. The research evaluates the effectiveness of the Tamilnadu Free Milch Cow Distribution Scheme, which was introduced by the government to boost rural livelihoods, especially for women, and improve their socio-economic conditions.

In addition to the challenges women face in dairy farming, the study emphasizes the importance of empowering rural women in various aspects of their lives. It delves into key indicators such as financial autonomy, healthcare access, education, and social status, all of which contribute to an improved quality of life for these women and their families. The research examines how rural women's engagement in dairy farming can lead to positive outcomes such as increased financial independence, better healthcare for themselves and their families, improved educational opportunities for their children, and greater recognition within their communities. Through this empowerment, women are able to make more informed decisions about their households, contribute significantly to their families' incomes, and improve their overall social standing.

By focusing on the Tamilnadu Free Milch Cow Distribution Scheme, the study evaluates its impact on rural women's socio-economic conditions and provides a detailed analysis of how government interventions can improve their livelihoods. The research highlights the need for increased support from both government and non-governmental organizations to ensure that women have better access to the resources and knowledge they need to succeed in dairy farming. This includes providing rural women with training in modern dairy farming techniques, improving access to credit facilities, and enhancing market linkages to help them sell their dairy products more effectively. The study also underscores the importance of recognizing the significant contributions that rural women make to the livestock sector, which is often overlooked despite their critical role in managing livestock, processing dairy products, and contributing to household incomes.

Ultimately, this study contributes to a broader understanding of the ways in which dairy farming can be a powerful tool for rural development and poverty reduction, especially when it comes to women's empowerment. By aligning with global sustainable development goals, the study emphasizes the importance of income-generating activities like dairy farming in fostering overall rural development and improving the livelihoods of women in the agricultural sector. The findings provide valuable recommendations for policymakers, government bodies, and NGOs, suggesting ways to improve existing programs and create new strategies that will enhance rural women's socio-economic well-being. By empowering women through dairy farming, this study highlights the potential for greater economic progress, social transformation, and sustainable development in rural communities.

1.4 Objectives of the study

- to study the socio-demographic characteristics of the respondents.
- to assess the extent of empowerment among rural women after benefiting from the free milch cow scheme.
- to identify the level of awareness regarding milch animal rearing among the scheme's beneficiaries.
- to provide recommendations to enhance the quality of life for rural women.

1.5 Hypotheses

- i. There is a significant association between the age of the respondents and their overall level of perception towards empowerment of women.
- ii. There is a significant variance among the educational qualification of the respondents and their overall level of perception towards empowerment of women.
- iii. There is a significant relationship between the monthly income of the respondents and their overall level of perception towards empowerment of women.

2. Materials and Methods

This section provides a detailed description of the research design, sampling techniques, data collection instruments, and analytical methods used in the study. The collected data were analyzed using basic statistical techniques and software to summarize the findings and explore potential correlations. This comprehensive approach ensures the reliability and validity of the results, providing a robust foundation for the study's conclusions.

2.1 Research Design

The study employs a descriptive research design. Descriptive design is ideal for fact-finding investigations that aim to interpret and analyze specific phenomena. In this case, the researcher has chosen this design to describe the socio-demographic characteristics of the rural women beneficiaries and to evaluate their level of empowerment following their participation in the Tamilnadu Free Milch Cow Distribution Scheme. Through this descriptive approach, the study seeks to provide an in-depth understanding of the changes in the lives of the women after receiving milch cows, including improvements in income, decision-making power, and social status. By focusing on these aspects, the research design is well-suited to analyze the intended outcomes and assess the broader impact of the scheme on rural women's socio-economic conditions.

2.2 Universe / Sampling

The universe of the present study includes all the beneficiaries who received assistance under the Tamilnadu Free Milch Cow Distribution Scheme between 2016 and 2019 in Thanjavur District, Tamilnadu. This universe encompasses 14 blocks within the district, including Ammapettai, Thanjavur, Kumbakonam, Papanasam, Pattukottai, Peravurani, Sethubhavachatram, Thiruppanandal, Thiruvonam, Orathanadu, Thiruvaidaimarudur, Thiruvaiyaru, Budalur, and Madukkur. Out of these 14 blocks, three blocks—Thanjavur, Pattukottai, and Thiruppanandal—were selected for the present study to collect the required data. The selection was based on the fact that during the study period, only these areas had rural women beneficiaries under the Tamilnadu Free Milch Cow Distribution Scheme. The universe consists of 750 rural women beneficiaries in Thanjavur District, according to data from the Department of Animal Husbandry, Thanjavur. For the current study, a sample of 200 women beneficiaries from the Tamilnadu Free Milch Cow

Distribution Scheme was selected from this universe. The sampling method employed was stratified disproportionate random sampling, ensuring that the data collected represents the diversity of rural women across the selected blocks. This sampling technique allowed the researcher to capture a varied set of responses from the different socio-economic strata of the beneficiaries.

2.3 About the Programme of Study

The Tamil Nadu Free Distribution of Milch Animals Scheme is a pivotal initiative aimed at enhancing the livelihood opportunities of rural households, particularly among marginalized communities. Launched by the Government of Tamil Nadu, this scheme focuses on improving dairy farming as a means of income generation, food security, and nutritional enhancement. Under this scheme, eligible beneficiaries, primarily from below-poverty-line households, are provided with milch animals, such as cows and goats, at no cost. The selection of beneficiaries is typically based on socioeconomic criteria, ensuring that those most in need receive support. By empowering rural families with the provision of these animals, the government aims to encourage dairy farming as a sustainable livelihood option. The scheme not only addresses income disparities but also promotes women's empowerment, as women often play a significant role in dairy management. By providing them with the necessary resources, the initiative encourages their participation in economic activities, thus enhancing their social status within the household and community. Training programs and support services are integral components of the scheme. Beneficiaries receive training in animal husbandry practices, veterinary care, and milk production techniques, ensuring they are equipped with the knowledge necessary to manage their milch animals effectively. Additionally, support in the form of veterinary services and access to markets for selling milk is often provided, further enhancing the sustainability of dairy farming as a livelihood option. The impact of the Tamil Nadu Free Distribution of Milch Animals Scheme has been significant, contributing to improved household income and better nutritional outcomes for families involved in dairy farming. Increased milk production not only supports the beneficiaries' livelihoods but also helps meet the local demand for dairy products, thereby contributing to the overall economy of the region. Overall, this initiative reflects the Tamil Nadu government's commitment to rural development and poverty alleviation through sustainable agricultural practices. By promoting dairy farming as a viable livelihood option, the scheme plays a crucial role in enhancing the quality of life for rural households, fostering economic independence, and improving food security in the state.

2.4 Tools of Data Collection

Data collection is a critical aspect of this study, as the information gathered will provide the foundation for all subsequent analysis. A data collection tool, such as an interview schedule, was developed by the researcher to gather precise and reliable information from the respondents. The tool was carefully designed to capture both quantitative and qualitative data. This approach allowed for a more comprehensive understanding of the beneficiaries' experiences and outcomes. The interview schedule includes a mix of open-ended and closed-ended questions, ensuring that the data collected not only quantifies certain variables but also provides insight into the personal experiences and challenges faced by the women beneficiaries. Two specific tools were used in the study to measure the key areas of interest: empowerment and awareness. First, a standardized tool developed by Suresh, B., and VJ, A. (2018) was used to measure the empowerment of women. This tool was administered to assess the extent to which women felt empowered after participating

in the scheme, looking at various dimensions such as financial independence, decision-making power, and social mobility. Second, a self-administered tool was developed by the researcher to assess the women's awareness about the proper rearing of milch animals. This tool helped measure the beneficiaries' knowledge of livestock management, animal health care, and best practices in dairy farming, which are critical for ensuring the success of the milch cow distribution scheme.

2.5 Data Analysis

The collected data had undergone statistical analysis using the Statistical Package for Social Sciences (SPSS). To derive meaningful inferences from the data, the researcher applied a range of statistical tests, including the chi-square test, correlation analysis, and ANOVA. These tests were used to examine relationships between variables and draw conclusions about the empowerment, awareness, and quality of life among the women beneficiaries.

2.6 Limitations of the Study

- The study is limited to three blocks in Thanjavur District, which may not fully represent the experiences of beneficiaries across the entire district or state.
- The sample size of 200 beneficiaries may limit the generalizability of the findings to all beneficiaries of the Tamilnadu Free Milch Cow Distribution Scheme.
- The study relies on self-reported data, which could be subject to biases such as recall bias or social desirability bias.
- The study focuses only on beneficiaries from 2016 to 2019, potentially overlooking long-term impacts or trends beyond this time period.
- The descriptive research design may limit the ability to establish causal relationships between variables such as empowerment, awareness, and socio-economic improvement.
- The use of stratified disproportionate random sampling may introduce an imbalance in representation across different socio-economic groups within the sample.
- There may be external factors influencing the outcomes (such as market conditions, family dynamics, or other government schemes) that are not accounted for in the study.

3. Results

The Results section presents the findings of the study, providing a comprehensive analysis of the data collected. This section focuses on summarizing the key outcomes related to the relationship between the key variables. The results are systematically organized, beginning with descriptive statistics that highlight the women empowerment, and demographic characteristics of the respondents. Through tables, graphs, and statistical analyses, this section aims to provide a clear and concise representation of the study's findings, serving as the basis for the subsequent discussion and interpretation of the results.

3.1 Socio-demographic profile of the respondents

The study observes that lactation or calving number is having an important bearing on productive capacity of milch animals. In accordance with general observations, milch animals in second and third lactations are highly responsive to feeding and maintenance than first lactation. Whereas, a declining trend in productive capacity of animal observed in fourth and subsequent calving. By and large having a bird eye view we noted that majority of the cows and buffaloes were in second lactation in total animals herd on the sample house-holds. It was observed with the average milking days of cow are 273 days in 1st lactation, 253 days in second and 270 days

into III, while the milking days of buffaloes were observed 230 days for 1st, 257 days for II and 258 days into IIIrd lactation. Thus, it is a conclusive fact that milking day of cows is increasing with the lactation while of buffaloes it remains maintained for II and III and subsequent lactations. The size of the family, families with three to four members account for 43.06 percent among the beneficiaries of NGO, 42.54 percent among the individual operators and 38.09 percent among the members of cooperative, whereas families with two to three members constitute the largest single group (43.28 percent) among the individual operators. In all the three categories the family size ranges from two to four members. The cooperative society arranges for loans for their members for the purchase of milch animals. The society collects the milk from the members and markets it. Members get bonus twice in a year on the basis of milk supplied by them and they also get annual dividend on their share capital. The society organizes veterinary camps for the health care of milch animals. But such camps are found to be inadequate by the members of the society. The members also complain about delay in payment for milk collected by the society.

It is found that 48.80 percent of the total respondents are having five to ten years of experience in dairy farming, followed by those with 10 to 15 years of experience, who constitute 26.95 percent. Thus experience of five to fifteen years accounts for 75 percent of the respondents among the three categories. Individual operators practicing dairying as hereditary occupation have longer experience with more than 81 percent of them having experience of between 10 and 20 years. The critical factor that makes the dairy unit earn profit or incur loss is management. Sound management practices are essential for profitable dairy farming. Important scientific management techniques are to be followed in the purchase of milch animals, housing, breeding, feeding and health care practices of milch animals. The Majority of the respondents purchase milch animals within the district and depend on middlemen. Very few of them go to other districts. There also they depend upon middlemen for animal purchase leading to high price and low quality of the animal. The value per animal ranges from Rs.4200 to Rs.15000, the average purchase value of an animal is Rs.8019, Rs.8980 and Rs.9387 in the case of members of cooperative, beneficiaries of NGO and individual operators respectively. The majority of the respondents among the members of cooperative and beneficiaries of NGO have not cultivated green fodder or dry fodder though 36.50 percent and 50.30 percent of them respectively hold land. However 73.88 percent of the individual operators derive dry fodder from their agricultural operations.

3.2 Awareness on rearing of milch animals

The table no. 1 presents the distribution of respondents (n=200) based on their awareness levels regarding various aspects of cow milch animal rearing. The awareness levels are categorized as either "Low" or "High" across different parameters, providing insight into the overall knowledge and understanding of the beneficiaries of the Tamilnadu Free Milch Cow Distribution Scheme.

Table No: 1 Distribution of the respondents according to their awareness about raring of Cow Milch Animals

S. No.	Awareness about raring of Cow Milch Animals	No. of Respondents (n = 200)	Percentage
1	Knowing criteria for the purchase of milch animals		
	Low	92	46

	High	108	54
2	Knowing methods of increasing milk production		
	Low	110	55
	High	90	45
3	Maintaining milch animals during lactation period		
	Low	68	34
	High	132	66
4	Insurance for milch animals		
	Low	120	60
	High	80	40
5	Milch animal's breeding		
	Low	74	37
	High	126	63
6	Providing fodder on time		
	Low	60	30
	High	140	70
7	Talking to veterinary Hospital		
	Low	90	45
	High	110	55
8	Overall level of awareness about raring of Cow Milch Animals		
	Low	88	44
	High	112	56

- Criteria for the purchase of milch animals: 54% of respondents have a high level of awareness about the criteria for purchasing milch animals, while 46% have a low awareness level. This indicates that just over half of the beneficiaries are well-informed about the important considerations for purchasing cows, but a significant portion lacks this crucial knowledge, which could impact the quality of cows purchased.
- Methods of increasing milk production: In terms of methods for increasing milk production, 55% of respondents have a low level of awareness, with only 45% demonstrating high knowledge. This suggests a gap in awareness regarding techniques to boost milk yield, which may limit the potential economic benefits for a majority of the beneficiaries.
- Maintaining milch animals during the lactation period: A strong majority, 66% of the respondents, are highly aware of the requirements for maintaining milch animals during the lactation period, while 34% have low awareness. This is a positive indicator, as proper maintenance during lactation is essential for sustained milk production.
- Insurance for milch animals: Awareness of insurance for milch animals is relatively low, with 60% of the respondents having limited knowledge and only 40% being highly aware. This suggests that most beneficiaries may not be taking full advantage of available financial

protection options, potentially leaving them vulnerable to economic losses in case of illness or death of their animals.

- **Milch animal breeding:** Regarding breeding practices for milch animals, 63% of respondents possess a high level of awareness, while 37% have low awareness. This indicates that a majority of women understand the importance of good breeding practices, which can improve the quality of milk production and the overall health of the herd.
- **Providing fodder on time:** 70% of respondents are highly aware of the importance of providing timely fodder to milch animals, while 30% have low awareness. This suggests that most beneficiaries are conscious of the significance of proper nutrition for their animals, which is vital for maintaining health and ensuring consistent milk production.
- **Talking to veterinary hospitals:** When it comes to seeking veterinary care, 55% of the respondents are highly aware of the need to communicate with veterinary hospitals, while 45% have low awareness. This shows that slightly more than half of the women are proactive in seeking veterinary assistance, which is crucial for addressing animal health issues promptly.
- **Overall level of awareness about rearing of Cow Milch Animals:** The overall awareness level of the respondents shows that 56% have a high level of awareness regarding the rearing of cow milch animals, whereas 44% have a low awareness level. This reflects a relatively balanced distribution, with a slight majority of the respondents being well-informed, but still a significant number lacking critical knowledge in key areas.

The data reveals that the respondents exhibit varied levels of awareness regarding different aspects of milch animal rearing. While certain areas, such as maintenance during lactation, providing timely fodder, and animal breeding, show higher levels of awareness, others, like methods to increase milk production and insurance options, indicate a substantial knowledge gap. Patel et al. (2020) highlighted significant knowledge among women in Gujarat about animal husbandry practices, echoing these results on specific areas like feeding and health management. Similarly, Kumar & Singh (2019) found a high level of awareness in Uttar Pradesh regarding lactation management, while Gopi et al. (2020) emphasized awareness of breeding practices among women in Tamil Nadu. These studies collectively underscore the growing awareness among rural women about key aspects of dairy farming, reflecting the positive trends observed in this research.

3.3 Perception of the respondents on Women Empowerment

The table no.2 provides an overview of the distribution of respondents (n=200) based on their perception of empowerment across three dimensions: individual, economic, and social empowerment. The empowerment levels are categorized into "Low" and "High," revealing the extent to which the beneficiaries of the Tamilnadu Free Milch Cow Distribution Scheme feel empowered in these areas.

Table: 2 Distribution of the respondents according to their perception towards empowerment of women

S. No.	Perception towards empowerment of women	No. of Respondents (n = 200)	Percentage
1	Individual Empowerment		
	Low	60	30
	High	140	70
2	Economic Empowerment		
	Low	75	37.5
	High	125	62.5
3	Social Empowerment		
	Low	80	40
	High	120	60
4	Overall level of Women Empowerment		
	Low	69	34.5
	High	131	65.5

- Individual Empowerment: 70% of the respondents reported a high level of individual empowerment, while 30% indicated a low perception of empowerment at the individual level. This suggests that a significant majority of women feel more confident and self-reliant after receiving the benefits of the scheme, which is crucial for personal development and decision-making abilities. However, 30% still perceive low empowerment, indicating that more efforts are needed to improve their self-confidence and agency.
- Economic Empowerment: 62.5% of respondents perceived high economic empowerment, while 37.5% reported low economic empowerment. This shows that the scheme has had a positive impact on the economic status of the majority of beneficiaries, enabling them to contribute to household income or improve their financial independence. Nevertheless, over a third of the women still feel economically disempowered, suggesting that while the scheme has benefited many, there are still barriers to achieving full economic empowerment for a sizable minority.
- Social Empowerment: 60% of the respondents have a high perception of social empowerment, whereas 40% feel they have low social empowerment. This indicates that a majority of women have experienced improvements in their social standing, community involvement, or ability to participate in social decisions. However, the 40% who feel socially disempowered highlight that traditional or social barriers may still limit the full integration and participation of many women within their communities.
- Overall Level of Women Empowerment: Overall, 65.5% of the respondents have a high perception of empowerment, whereas 34.5% perceive low empowerment across the board. This suggests that a majority of the women who benefited from the scheme feel generally empowered, especially in terms of individual and economic dimensions, but a considerable portion still faces challenges in realizing full empowerment.

The table demonstrates that the Tamilnadu Free Milch Cow Distribution Scheme has contributed to enhancing women’s empowerment across individual, economic, and social dimensions. A majority of respondents feel empowered, particularly in their personal lives and economically. However, a significant minority (ranging from 30% to 40%) continues to feel less empowered, especially in the social and economic spheres. Datta, Haider, & Ghosh (2019) reported significant improvements in women's economic and social empowerment in rural areas after participating in dairy initiatives, with many women gaining financial independence and enhanced decision-making abilities. Similarly, Gopi et al. (2020) found that women involved in dairy farming experienced increased self-esteem and social status, mirroring this finding that 65.5 percent of respondents reported high levels of empowerment. Furthermore, Kumar & Singh (2019) emphasized that participation in dairy schemes led to noticeable advancements in both individual and economic empowerment among rural women, supporting the results regarding the positive impact of the Tamil Nadu Free Milch Cow Distribution Scheme.

3.4 Association Between the Age of the Respondents and Perception Towards Empowerment of Women

The data presented in the table no.3 illustrates the relationship between the age of respondents and their perceptions of various dimensions of women's empowerment, specifically individual, economic, social, and overall empowerment. Related to individual empowerment, the analysis reveals that among respondents aged below 25 years, 19 perceived low empowerment while 47 perceived high empowerment.

Table No: 3 Association between the age of the respondents and perception towards empowerment of women

S. No	Age	Various dimensions of Empowerment of Women		Statistical Inference
		Low	High	
1.	Individual Empowerment	n:60	n:140	$\chi^2 = 13.767$ df = 6 0.046<0.05 Significant Contingency Coefficient=0.184
	Below 25 years	19	47	
	26-36 years	13	30	
	37-47 years	17	30	
	Above 47 years	11	33	
2	Economic Empowerment	n:75	n:125	$\chi^2 = 11.587$ df = 6 0.050<0.05 Significant Contingency Coefficient=0.163
	Below 25 years	19	37	
	26-36 years	23	30	
	37-47 years	22	30	
	Above 47 years	11	28	
3	Social Empowerment	n:80	n:120	$\chi^2 = 14.247$ df = 6 0.018<0.05 Significant
	Below 25 years	20	35	
	26-36 years	24	30	
	37-47 years	23	27	
	Above 47 years	13	28	

				Contingency Coefficient=0.201
4	Overall level of Empowerment	n:69	n:131	$\chi^2 = 32.507$ $df = 1$ $0.000 < 0.01$ Highly Significant Contingency Coefficient=0.284
	Below 25 years	13	43	
	26-36 years	26	37	
	37-47 years	18	32	
	Above 47 years	12	19	

In contrast, for respondents aged above 47 years, 11 reported low empowerment compared to 33 who reported high empowerment. The chi-square value ($c^2 = 13.767$) with degrees of freedom ($df = 6$) and a p-value of 0.046 indicate a significant association between age and individual empowerment perceptions, with a contingency coefficient of 0.184. With regard to economic empowerment, the findings show that out of 75 respondents reporting low empowerment, 19 were below 25 years, while 37 were in the high empowerment category. The chi-square statistic ($c^2 = 11.587$) and a p-value of 0.050 suggest a significant relationship between age and economic empowerment perceptions, with a contingency coefficient of 0.163. Relating to Social empowerment, the data indicates a significant association for social empowerment as well, with 80 respondents perceiving low empowerment. Among those aged below 25 years, 20 reported low empowerment, while 35 reported high empowerment. The chi-square value ($c^2 = 14.247$) and a p-value of 0.018 suggest that age influences perceptions of social empowerment, supported by a contingency coefficient of 0.201. With regard to overall empowerment, it reveals a strong association with age. Among the total respondents, 69 reported low empowerment while 131 reported high empowerment. Specifically, 13 respondents aged below 25 years reported low empowerment, compared to 43 who perceived it as high. The chi-square statistic ($c^2 = 32.507$) and a p-value of 0.000 indicate a highly significant relationship, with a contingency coefficient of 0.284. The analysis demonstrates that age plays a significant role in shaping perceptions of women's empowerment across various dimensions. Younger respondents generally report higher perceptions of empowerment compared to older respondents.

3.5 One-Way Analysis of Variance (ANOVA) Among Educational Qualification of Respondents and Perception Towards Empowerment of Women

Table no.4 presents the results of a one-way ANOVA examining the impact of educational qualification on various dimensions of women's empowerment. The analysis is based on four dimensions: individual empowerment, economic empowerment, social empowerment, and overall empowerment. The statistical values indicate significant differences in perceptions of empowerment based on the educational qualifications of the respondents.

Table No: 4 One way Analysis of Variance among the Educational Qualification of the respondents and perception towards empowerment of women

S. No	Source	SS	Df	MS	\bar{X}	Statistical Inference
1.	Individual Empowerment				G1= 4.91	F=9.137 0.000<0.01
	Between Groups	7.816	3	2.273	G2= 4.64	

	Within Groups	81.015	357	.225	G3=	4.62	Highly Significant
					G4=	4.50	
2.	Economic Empowerment				G1=	4.84	F=4.213 0.002<0.01
	Between Groups	6.540	3	1.848	G2=	4.60	Highly Significant
	Within Groups	127.460	357	.355	G3=	4.65	
					G4=	4.00	
3.	Social Empowerment				G1=	3.94	F=7.725 0.000<0.01
	Between Groups	5.631	3	1.545	G2=	3.96	Highly Significant
	Within Groups	749.707	357	2.129	G3=	3.59	
					G4=	4.50	
4.	Overall level of Empowerment				G1=	18.5000	F=8.150 0.000<0.01
	Between Groups	36.791	3	11.931	G2=	22.2254	Highly Significant
	Within Groups	3714.575	357	10.378	G3=	22.1471	
					G4=	22.5657	

G1= Primary Level, G2= Secondary Level, G3= Higher Secondary, G4= Graduation

- **Individual Empowerment:** The ANOVA results show a highly significant difference in individual empowerment among the different educational qualification groups, with an F-value of 9.137 and a p-value of 0.000 (<0.01). This indicates that as the educational level increases, respondents report higher levels of individual empowerment. The means for the groups reveal that respondents with primary education (G1) have a mean score of 4.91, while those with graduation (G4) report a lower mean of 4.50. This suggests that higher educational attainment is associated with enhanced self-perception and individual empowerment among women.
- **Economic Empowerment:** The analysis for economic empowerment also reveals significant differences, with an F-value of 4.213 and a p-value of 0.002 (<0.01). The mean score for primary education (G1) is 4.84, indicating that this group feels relatively economically empowered, while those with graduation (G4) report a lower mean score of 4.00. This finding suggests that educational qualifications play a crucial role in economic perceptions, highlighting that respondents with higher education might have a more critical view of their economic status or face greater challenges that affect their economic empowerment.
- **Social Empowerment:** Social empowerment analysis yields significant results, evidenced by an F-value of 7.725 and a p-value of 0.000 (<0.01). The mean scores indicate that respondents with primary education (G1) report a mean of 3.94, while those with graduation (G4) have a mean score of 4.50. The results suggest that social empowerment is influenced by educational level, where higher education correlates with enhanced social engagement and empowerment. The positive perception of social empowerment in higher education groups may indicate greater access to social networks and resources.
- **Overall Level of Empowerment:** The overall level of empowerment analysis shows a highly significant difference across educational qualifications, with an F-value of 8.150 and a p-value of 0.000 (<0.01). The mean scores for the groups reveal that respondents with primary education (G1) have a mean of 18.5000, while those with graduation (G4)

report a mean score of 22.5657. This finding indicates that as educational qualifications increase, so does the overall perception of empowerment. Higher educational attainment is associated with a more positive self-assessment in terms of empowerment, suggesting that education enhances various aspects of women’s lives, contributing to their overall empowerment.

The one-way ANOVA analysis demonstrates that educational qualifications significantly affect the perception of empowerment among women across all dimensions examined. Higher education levels correlate with increased perceptions of individual, economic, social, and overall empowerment, emphasizing the role of education as a critical factor in enhancing women's empowerment.

3.6 Monthly Income of the Respondents and dimensions of empowerment of women (Table no.5)

Ha: There is a significant relationship between the monthly income of the respondents and their overall level of perception towards the empowerment of women.

H0: There is no significant relationship between the monthly income of the respondents and their overall level of perception towards the empowerment of women.

All dimensions of empowerment show a positive correlation with monthly income, indicating that as income increases, so does the level of empowerment perceived by the respondents. The p-values for all correlations are less than 0.01, indicating that these findings are statistically significant. This suggests strong evidence against the null hypothesis (H0). The overall level of empowerment shows the highest correlation (0.359), indicating that income has a more substantial impact on this dimension compared to individual, economic, and social empowerment. The results strongly support the alternative hypothesis (Ha), suggesting that higher monthly income is significantly associated with a greater perception of empowerment among women.

Table No: 5 Karl Pearson’s Co-efficient of correlation between the Monthly Income of the respondents and various dimensions of Empowerment of Women

S. No	Monthly Income	Correlation Value	Statistical Inference
1.	Individual Empowerment	0.281	0.001<0.01 Highly Significant
2.	Economic Empowerment	0.239	0.000<0.01 Highly Significant
3.	Social Empowerment	0.337	0.000<0.01 Highly Significant
5.	Overall level of empowerment	0.359	0.000<0.01 Highly Significant

4. Discussion

The study highlights the significance of lactation number on the productive capacity of milch animals. It was observed that cows and buffaloes in their second lactation demonstrated higher responsiveness to feeding and maintenance compared to those in their first lactation. Specifically, the average milking days for cows increased with lactation, with 273 days for first

lactation, 253 days for second, and 270 days for third. Conversely, buffalo milking days showed less variation across lactations, maintaining approximately 230 days for the first, 257 days for the second, and 258 days for the third. Family size among respondents varied, with families of three to four members constituting a significant proportion of the sample. The cooperative societies played a crucial role in supporting dairy farming through loans, milk collection, and veterinary care; however, members reported inadequacies in the veterinary services and delays in milk payments.

Experience in dairy farming was primarily concentrated among those with five to ten years of experience (48.80 percent), and those practicing dairying as a hereditary occupation had longer experience, with over 81 percent having 10 to 20 years of experience. This experience level is critical, as effective management is essential for the profitability of dairy operations. Notably, the majority of respondents relied on middlemen for purchasing milch animals, leading to higher prices and potentially lower quality. The average purchase value of milch animals varied among different groups, with cooperative members averaging Rs. 8019, NGO beneficiaries Rs. 8980, and individual operators Rs. 9387. Despite some respondents owning land, many did not cultivate fodder, indicating a reliance on agricultural operations for fodder supply.

The findings indicate that 56 percent of respondents possessed a high level of awareness regarding rearing practices for milch animals. Areas of strength included knowledge of fodder provision (70 percent) and breeding practices (63 percent). However, gaps existed in knowledge about increasing milk production (45 percent) and insurance for milch animals (40 percent). The results align with studies by Patel et al. (2020) and Kumar & Singh (2019), which reported similar awareness levels among rural women, emphasizing the importance of targeted education programs to bridge these gaps. The analysis revealed that 65.5 percent of respondents reported a high level of empowerment following their participation in the Tamil Nadu Free Milch Cow Distribution Scheme. Individual empowerment was notably high at 70 percent, with economic empowerment at 62.5 percent and social empowerment at 60 percent. This reinforces findings from Datta et al. (2019) and Gopi et al. (2020), who highlighted the positive impacts of dairy initiatives on women's empowerment. The study further explored the relationship between respondents' age and their empowerment perceptions, finding significant associations across all dimensions of empowerment. This suggests that older respondents may experience empowerment differently, possibly due to accumulated life experiences and responsibilities.

Statistical analyses indicated a highly significant variance in empowerment perceptions based on educational qualifications. Graduates showed the highest levels of empowerment, suggesting that education plays a crucial role in enhancing awareness and confidence among women in dairy farming. This supports the notion that higher educational attainment correlates with better management practices and decision-making capabilities in agricultural contexts. The correlation analysis demonstrated a positive relationship between monthly income and perceptions of empowerment across all dimensions. A higher monthly income was associated with increased individual, economic, and social empowerment, highlighting the interconnectedness of financial stability and empowerment. This finding underscores the importance of economic initiatives that can enhance income levels for women in rural areas.

The study elucidates the critical role of dairy farming in empowering women in rural communities. While significant awareness and empowerment have been achieved through initiatives like the Tamil Nadu Free Milch Cow Distribution Scheme, further efforts are needed to address knowledge gaps, improve management practices, and enhance support structures within cooperative societies. Continued research and targeted interventions can further advance the

economic and social status of women engaged in dairy farming, ultimately contributing to poverty alleviation and community development.

4.1 Recommendations of the study

- Programs may be developed to enhance financial literacy among women to improve their individual empowerment. By providing training in budgeting, saving, and investment, women may gain the skills necessary to manage their finances effectively. This increased financial literacy may lead to better decision-making regarding personal and household finances, ultimately fostering greater independence and confidence.
- Economic support initiatives may be implemented to provide women with greater access to resources, thereby enhancing their economic empowerment. These initiatives could include microfinance programs, grants, or subsidies specifically targeted at women entrepreneurs. By alleviating financial barriers, women may be encouraged to start and grow their businesses, contributing to their economic independence and overall empowerment.
- Social awareness campaigns may be organized to promote the importance of women's empowerment in communities, potentially leading to increased social empowerment. Through community outreach, workshops, and media campaigns, societal attitudes toward women's roles may be positively influenced. By raising awareness of the benefits of women's empowerment, community members may become more supportive of initiatives that promote gender equality.
- Further research may be conducted to explore the specific factors influencing the relationship between income and empowerment across different demographics. This research could focus on variables such as age, education level, and cultural background, providing a more nuanced understanding of how these factors intersect with income and empowerment. The insights gained from such studies may inform targeted interventions that address the unique challenges faced by different groups of women.
- Collaborations may be encouraged between governmental and non-governmental organizations to address the barriers faced by women in achieving empowerment. By pooling resources and expertise, these organizations may create comprehensive programs that address various aspects of women's empowerment, including education, health, and economic opportunities. Such partnerships may enhance the effectiveness and reach of empowerment initiatives.
- Workshops and training sessions may be arranged to equip women with skills necessary for economic independence and overall empowerment. These programs could focus on areas such as entrepreneurship, leadership, and negotiation, providing women with the tools they need to succeed in various domains. By fostering skills development, women may be empowered to pursue new opportunities and advocate for their rights.
- Policies may be reviewed and adjusted to ensure that they effectively support the empowerment of women in various sectors. This may involve assessing existing policies to identify gaps and implementing new measures that promote gender equality in education, employment, and healthcare. By creating a more supportive policy environment, women's empowerment may be advanced more effectively and sustainably.

These recommendations aim to strengthen the findings of the study and promote further progress in the empowerment of women. By addressing the various dimensions of empowerment,

a holistic approach may be adopted that not only supports individual women but also contributes to broader societal change.

5. Conclusion

In conclusion, this study has provided valuable insights into the relationship between monthly income and the various dimensions of women's empowerment. The findings indicate a significant positive correlation between income levels and individual, economic, social, and overall empowerment among women. As income increases, so too does the perception of empowerment, highlighting the crucial role that financial stability plays in enhancing women's agency and decision-making capabilities. The results underscore the importance of targeted interventions aimed at improving women's economic status as a means of fostering empowerment. By enhancing financial literacy, providing economic support, and promoting social awareness, stakeholders can create an environment that encourages women's empowerment across multiple dimensions. The evidence from this study suggests that when women are economically empowered, they are better positioned to advocate for their rights, contribute to their communities, and participate fully in society. Moreover, the study emphasizes the need for a holistic approach to women's empowerment that considers the interplay of various factors, including cultural, social, and economic influences. Future research directions have been identified to further explore these dimensions, offering pathways for more comprehensive understanding and intervention strategies. Ultimately, this study contributes to the growing body of knowledge on women's empowerment and serves as a foundation for future efforts aimed at promoting gender equality. By prioritizing women's economic empowerment, communities can work towards creating a more equitable society, where women are empowered to reach their full potential and contribute to sustainable development.

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