***Original Research Article***

**Women's Participation and Constraints in Sericulture: A Study from Karnataka, India**

**ABSTRACT**

The study on contribution and constraints of women in sericulture was conducted across selected villages of Tumakuru and Chikkaballapura districts in Karnataka. A total of 30 women engaged in various field-level sericulture activities were surveyed. Garrett’s Ranking Technique was employed to identify most significant contributions and constraints. The results revealed that women were predominantly involved in key sericulture operations such as cocoon harvesting, mounting of worms, leaf harvesting, and silkworm feeding, with the age group of 26–45 years being most active. However, their participation was limited in tasks involving pesticide application, land preparation, and marketing. The major constraints faced by women included excessive workload due to dual responsibility, low wages, limited access to training, and health-related issues. The study underscores the need for gender-sensitive interventions such as capacity building, wage equity, ergonomic tools, women specific rewards and incentives and improved access to training and credit to enhance the productivity along with socio-economic empowerment of women in sericulture.

**Key words:** Women, constraints, contributions, Garret score, ranking, Age-group

1. **INTRODUCTION**

In India, women make up nearly 48 per cent of the total population and play a crucial role in both the organized and unorganized sectors of the economy (Mehta & Sethi, 1977). Agriculture, which supports around 70 per cent of Indian households, employs approximately 60 per cent of the population and contributes about 18 per cent to the national GDP (Geeks for Geeks, 2025). Women account for nearly 33 per cent of the agricultural workforce and 48 per cent as self-employed cultivators. With the advent of industrialization and urban migration, many men have transitioned to urban jobs in search of stable incomes (Drishti IAS, 2025). Particularly striking, however, is the fact that rural women, more than their male counterparts, take the lead in agricultural activities, making up to 60-80 percent of labour forceAs a result, women have increasingly taken on the responsibility of managing agricultural operations, serving as cultivators, laborers, and entrepreneurs. Their involvement extends to labor-intensive tasks as well such as cattle care, fodder gathering, and threshing. Beyond the mainstream agriculture, sericulture has emerged as a significant sector that is not only labor-intensive but also empowering for rural women by providing them with economic opportunities and self-reliance (Sharma and Kapoor, 2020).

In India, more than 60-70 per cent of the workers in sericulture sector are women, particularly in states like Karnataka, Tamil Nadu, Andhra Pradesh, Assam and Odisha (Ray, 2024). Hence, it becomes vital to study the role, contributions, challenges and opportunities for women in sericulture. Therefore, a comprehensive study which addresses all these areas was conducted to assess women’s participation in various sericulture activities, different age group women associated with activities and identify the constraints they face and explore potential areas for empowerment and support.

1. **METHODOLOGY**

The present study was carried out during 2024 in Chinnivaranahalli, Tamadihalli, Hiregundgal and Buchanahalli villages of Tumakuru district and Hunasenahalli village of Chikkaballapura district. A total of 30 women involved in sericulture filed level activities were surveyed and studied. The selection of women was random to ascertain women of all age group are considered for evaluation and to ensure contributions and constraints from different age group women can be centered. Personal interview and questionnaire methods were followed to collect data. Garret’s ranking method provides the change of orders of constraints and advantages into numerical scores. The prime advantage of this technique over simple frequency distribution is that the constraints are arranged based on their severity from the point of view of respondents Zalkuwi *et al*. (2015). Hence, the same number of respondents on more than one constraints can have been given different rank. To identify and rank the contribution and challenges faced by the women farmers Garret’s ranking method was used. Garret's formula for converting ranks into per cents is given by, Percent position = 100\*(Rij – 0.5)/Nj, where, Rij = Ranking given to the ith attribute by the jth individual Nj = Number of attributes ranked by the jth individual. The percentage position of each rank was then converted into scores following to the table given by Garret and Woodworth (1969). For every factor the scores of individual respondents were added and divided by total number of the respondents for whom the scores were added. The mean scores for all factors were arranged in descending order and ranks were given and the most important factors were identified, Sharma *et al*. (2020).

1. **RESULTS AND DISCUSSION**

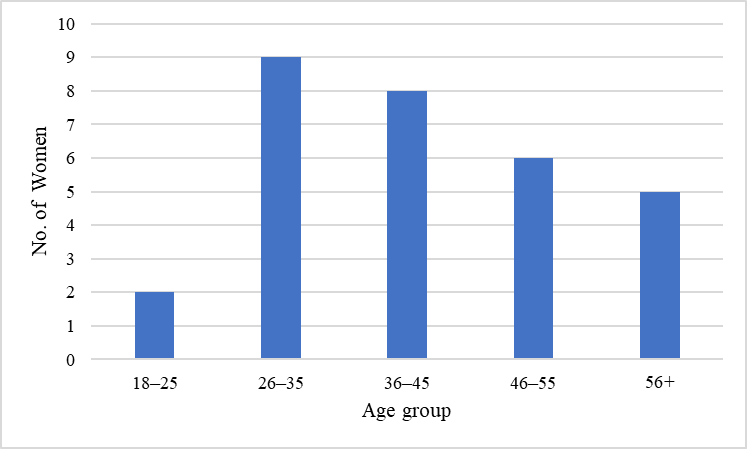
**3.1 Contribution of women in various activities of sericulture**

The results revealed that (Table 1) cocoon harvesting and deflossing was the top-ranked activity with the highest Garrett mean score of 72.40, suggesting womens’ are most actively involved in the final stages of silkworm rearing. Cocoon harvesting is done on 5th or 8th day of spinning. Harvest is critical period, as delay or early harvest hamper their market value. The second highest activity was picking and mounting of ripe worms (Garrett mean score: 70.80), which is a delicate and time-sensitive operation too. This finding is consistent with earlier studies highlighting that women are highly engaged in silkworm management during the ripening stage due to their attentiveness and availability during critical hours of worm maturity.

**Table 1: Contribution of women in various sericulture activities**

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| --- | --- | --- | --- |
| **Sl. No.** | **Factors** | **Garret mean score** | **Rank** |
| 1 | **Cocoon harvesting and deflossing** | 72.40 | I |
| 2 | **Picking and mounting of ripe worms** | 70.80 | II |
| 3 | **Leaf harvest/ garden pruning** | 65.63 | III |
| 4 | Weeding | 58.50 | IV |
| 5 | **Silkworm feeding** | 53.20 | V |
| 6 | **Silkworm brushing and bed cleaning** | 45.00 | VI |
| 7 | **Fertilizer/ pesticide application** | 41.87 | VII |
| 8 | Land preparation | 37.20 | VIII |
| 9 | Room disinfection | 32.27 | IX |
| 10 | Marketing of cocoons | 18.00 | X |

Leaf harvest and garden pruning (score: 65.63) showed significant female involvement, aligning with women’s central role in preparing quality feed for silkworms. Similarly, weeding ranked fourth (58.50), as women routinely participate in manual weeding in mulberry gardens. These tasks are physically demanding yet vital for maintaining healthy leaf yield. Mid-ranked activities include silkworm feeding (53.20) and brushing and bed cleaning (45.00), which require continuous monitoring during the larval development. These are labor-intensive and are often performed by women within or near the household, facilitating easier integration with domestic duties. Activities with relatively lower participation were fertilizer/pesticide application (41.87) and land preparation (37.20). This may be attributed to gender-based role divisions where men typically handle tasks involving heavy labor or chemical handling, due to social norms and limited access to equipment or protective gear for women. Room disinfection (Garrett score: 32.27) and marketing of cocoons (18.00) were the least ranked activities. This reflects a limited role of women in pre-rearing sanitation measures and post-rearing commercial transactions, possibly due to lack of awareness, mobility constraints, or decision-making power in marketing processes (Seshagiri *et al.,* 2019*).*



**Fig. 1. Age-wise Participation of Women in Sericulture Activities**

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**Fig. 2: Sericulture activities undertaken by women (from left): Silkworm feeding, monitoring, mounting and cocoon harvesting**

**3.2 Participation of women in sericulture across different age categories**

Figure 1 depicts age category wise involvement of women in sericulture. Majority of women interviewed belonged to the 26–35 years age (9 women), followed by the 36–45 years group (8 women). Women responses recorded says that , women in this category were involved in almost all activities of sericulture, particularly in labour-intensive and skill-demanding tasks such as silkworm rearing, leaf harvesting, cocoon harvesting etc. The 46–55 years group accounted for 6 women, showing continued engagement of older women in the sector. Respondents stated that this is due to accumulated experience and household dependence on sericulture as a livelihood source. Participation by the 56+ years category (5 women), reported that reduced physical capacity and less active mobility made them do sedentary activities more efficiently. Most of this age group women were involved in cocoon harvest and deflossing.

Interestingly, the 18–25 years group had only 2 participants, suggesting lower engagement from younger women, possibly due to migration for education or alternative employment, lack of interest and experience in traditional farming and absence of attractive incentives for youth in sericulture. This age-wise analysis points to the need for youth-targeted training, technology interventions and financial incentives to sustain intergenerational continuity in sericulture (Sarkar *et al*., 2017). At the same time, support for older women in terms of ergonomic tools and health safeguards can help retain experienced female labourers in the sector.

**3.3 Constraints faced by women in sericulture activities**

The major constraints faced by women engaged in sericulture were studied (Table 2). The most pressing constraint reported was excessive workload due to dual responsibility (score: 73.17), ranking first. Women engaged in sericulture often juggle agricultural work with household responsibilities, leading to physical exhaustion and time poverty. This dual burden significantly limits their efficiency and restricts their ability to participate in skill-building or income-enhancing activities. Low wages for exhaustive works emerged as the second most critical constraint (70.10). Despite their dominant involvement in core sericulture tasks such as silkworm feeding, leaf harvesting and cocoon processing, women are often paid less than their male counterparts. In many cases, their labour goes unremunerated if classified as family labour, reflecting deep-rooted gender disparities in wage structures. The dynamics in the household decision-making affects technology adoption. The roles and responsibilities within household are often renegotiated when new technologies adopted, and women may be reluctant to provide labor if they do not receive some of the benefits (Doss, 1999).

**Table 2: Constraints faced by women in sericulture activities**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **Factors** | **Garret mean score** | **Rank** |
| 1 | Excessive workload due to dual responsibility | 73.17 | I |
| 2 | Low wages | 70.10 | II |
| 3 | Expand training and capacity building | 67.60 | III |
| 4 | Health issues | 60.00 | IV |
| 5 | Social and Cultural Constraints | 53.33 | V |
| 6 | Improve access to credit and subsidies | 44.36 | VI |
| 7 | Recognize and reward women’s achievements | 43.00 | VII |
| 8 | Limited participation in decision-making | 35.33 | VIII |
| 9 | Seasonal insecurity | 33.13 | IX |
| 10 | Absence of access to markets | 18.00 | X |

The third-ranked constraint (67.60) was the lack of training and capacity building. Many women reported limited access to formal training sessions, demonstrations or technical guidance. Barriers such as low literacy, mobility restrictions and timing of training programs often exclude women, preventing them from adopting improved practices or technologies. Health issues ranked fourth with a mean score of 60.00. Women face considerable health risks while handling mostly due to dual work nature, lowering her productivity and reducing the strength, exposure to pesticides and working in poorly ventilated rearing rooms also remain as major cause. . Among the constraints faced by women heavy work load stands top (37%) followed by insufficient time (34 %) to carry all activities and manage households at same time. (Bukhari *et al.,* 2019). Repetitive manual tasks, long hours and lack of ergonomic tools exacerbate physical strain. Providing proper equipments like masks, glows etc. to protect from ill effect during disinfection or chemical spray in field. Helping with travel allowances, and other rewards to encourage women and minimise burden of more work and less pay.

Social and cultural constraints such as restricted mobility, limited freedom to attend meetings, or societal perceptions about women working outdoors were ranked fifth (53.33). These constraints hinder women's access to information, markets and leadership roles in cooperatives or sericulture groups. The sixth and seventh ranked constraints were limited access to credit and subsidies (44.36) and lack of recognition and reward for women’s achievements (43.00). Without formal land titles or collateral, women struggle to avail institutional credit, which in turn restricts their ability to invest in inputs or rearing infrastructure. More women specific subsidies can take away such issues. Moreover, their contributions often go unacknowledged, reinforcing gender inequality in ownership and decision-making. Constraints such as limited participation in decision-making (35.33) and seasonal insecurity (33.13) were also significant. Women are frequently excluded from major farm or financial decisions, while irregular income during off-seasons (gap between two rearing or crop failure issues) pushes them toward alternative wage labour or household dependency. The least ranked constraint was absence of access to markets with a Garrett mean score of 18.00. Women though did not find this as a major constraint however; they were keen to get aware about marketing activities and wanted to know the further steps after harvest of cocoons. This would encourage her to more actively participate and uplift the field of sericulture.

1. **CONCLUSION**

The study clearly shows that women are deeply involved in various stages of sericulture. However, their role is limited in areas like marketing, pesticide use and decision-making due to several social, economic and cultural challenges. Most active participants were in the 26–45 age group, highlighting the importance of engaging women in their most productive years. Providing better access to training, fair wages and recognition can go a long way in improving their participation. Supporting women in underrepresented areas will help strengthen the sericulture sector and improve livelihoods.

Disclaimer (Artificial intelligence)

Authors hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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