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RESEARCH STUDY

Capacity Building in Value Addition for Tribal Women through TSP

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ABSTRACT

The study emphasizes value-addition activities such as processing, packaging, branding, and marketing of agricultural products, which hold the potential to transform raw farm produce into profitable, market-oriented goods. Data were collected from 500 tribal women across the Udham Singh Nagar district of Uttarakhand through structured interviews and pre–post knowledge assessments during ten value addition–based training programmes. Findings revealed a remarkable improvement in awareness and knowledge levels as a result of TSP interventions. Pre-training knowledge across various topics ranged from only 11–15 percent, which significantly increased to 90–94 percent post-training, indicating an average knowledge gain of 79 percent. Skills in mushroom processing, organic jaggery and honey products, milk value addition, bakery items, and spices improved substantially, supported by hands-on demonstrations and participatory learning methods. These trainings not only enhanced technical competencies but also strengthened entrepreneurial attitudes, with many women expressing confidence in initiating micro-enterprises. Approximately 75 percent of participants showed improved educational engagement, 65 percent adopted improved value-addition practices, and 58 percent reported increased income through new livelihood activities. The study concludes that the training organized under Tribal Sub Plan has been highly effective in integrating education with livelihood security by linking traditional knowledge systems to modern techniques of value addition. The programme significantly contributed to capacity building, women's empowerment, and the promotion of grassroots entrepreneurship.

Key words: Education, inclusion, literacy, rural development, scheduled tribes, tribal sub-plan

INTRODUCTION

The Tribal Sub-Plan (TSP) was introduced as a strategic initiative to ensure the socioeconomic development of Scheduled Tribes and other marginalized communities by addressing their specific educational, livelihood, and infrastructure needs. Despite forming a significant portion of the rural population, tribal communities often face challenges, such as low literacy, limited access to resources, inadequate training, and restricted participation in mainstream economic activities. These challenges limit their ability to benefit fully from agricultural innovations, government schemes, and market opportunities.

In rural and tribal areas, women play a crucial role in agriculture, household management, and small-scale processing of farm produce. However, limited education and technical knowledge restrict their capacity to engage in value-added activities or entrepreneurial ventures. Value addition – transforming raw agricultural products into processed, market-ready goods – provides an effective pathway to enhance income, reduce post-harvest losses, and promote self-reliance.

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Several studies have emphasized the significance of skill development and education among rural women for livelihood enhancement. Sharma and Joshi (2017) reported that training programs significantly improve livelihood opportunities for tribal women by enhancing their knowledge and practical skills. Rao and Verma (2016) highlighted that engagement in value-added agricultural activities not only increases income but also empowers women socially and economically. Kumar and Singh (2019) found that structured skill development interventions under government schemes positively influence the adoption of new technologies and entrepreneurial initiatives among rural communities. The ICAR (2021) stressed that integrating traditional knowledge with modern techniques in value-added production ensures sustainable livelihood generation. These findings indicate that systematic education and skill-based interventions under programs, such as the TSP, can bridge knowledge gaps, strengthen capacity, and foster economic empowerment.

The TSP addresses these gaps by providing education and skill development programs aimed at equipping rural populations, particularly women, with the knowledge and capabilities to undertake value addition. By linking traditional knowledge with modern techniques, TSP interventions help improve agricultural productivity, generate supplementary income, and empower women socially and economically.

Objectives of the Study

1. To assess the socioeconomic profile of rural women participating in TSP interventions
2. To evaluate the effectiveness of TSP training programs in imparting knowledge and skills related to value-added agricultural products
3. To measure pre- and post-training knowledge levels and quantify knowledge gain among tribal women.

RESEARCH METHODOLOGY

The present investigation was carried out in Udham Singh Nagar district of Uttarakhand, India, which has a considerable tribal population. For the implementation of the TSP, the villages of Haripura, Ratanpur, Anjaniya, Madnapur, Lalpuri, Lauka, Sadhunagar, Jaganpuri, Bhadabutiya, and Charanpur located in the blocks of Gadarpur, Khateema, and Sitarganj were purposively selected. The study was designed to assess the extent of participation of tribal farm women in TSP activities, with a particular focus on value addition–based trainings. A total of 400 tribal farm women were purposively selected from the villages covered under the program. A total of ten trainings were organized. These trainings primarily concentrated on value addition of agricultural produce, including preparation of pickles, jams, squashes, bakery products, and spice powders, along with sessions on packaging, branding, and marketing. Primary data were collected through structured interview schedules prepared in consultation with subject matter specialists. The schedule included questions on socioeconomic profile, participation in trainings, extent of involvement in planning, execution, and marketing stages, as well as constraints faced by farmers. Data were collected by personal interviews at the farmers' households and during training sessions. The collected data were classified, tabulated, and analyzed using both descriptive and inferential statistics. (A) Descriptive statistics, such as frequency, percentage, and mean scores were used to measure the extent of participation. (B) Correlation analysis was employed to examine the relationship between farmers' socioeconomic and personal variables.

RESULTS AND DISCUSSION

The socioeconomic characteristics of 500 farm women respondents provide valuable insights into their living conditions, educational status, and livelihood patterns. These characteristics are crucial in understanding the effectiveness of the TSP interventions in enhancing educational and livelihood opportunities.

Age Distribution

The study shows that a majority of respondents (49%) belonged to the middle age group (31–50 years), followed by 29% in the young group (18–30 years) and 22% in the old age group (51 years and

above). The predominance of middle-aged women reflects their active engagement in agriculture and household management. Young women, who form nearly one-third of the respondents, represent a dynamic group with greater adaptability to new ideas and technologies. The elderly women, though fewer, contribute to traditional knowledge, but their participation in intensive farm work and training activities is relatively lower.

Educational Status

Education plays a vital role in empowering women and enabling them to access schemes, adopt innovations, and support children's education. The results indicate that 24% of farm women were read and write, while 32% had primary education, 28% secondary, and only 16% higher secondary and above. The high percentage of illiteracy highlights the need for functional literacy programs. Moreover, the limited presence of women with higher education underscores a persistent gender gap in rural education. Lack of adequate education restricts women's ability to understand modern agricultural techniques, record-keeping, and market-related activities, thereby limiting their empowerment.

Occupation

The occupation profile reveals that agriculture remains the primary occupation for 62% of farm women, while 18% were engaged in wage labor, 13% in animal husbandry, and 7% in other services, such as handicrafts. This indicates that agriculture continues to dominate rural women's livelihoods. The substantial share of women engaged in wage labor reflects economic vulnerability and the seasonal nature of their employment. Animal husbandry is another important occupation, often complementing crop farming and ensuring nutritional security. The small fraction in services and crafts indicates limited diversification of livelihood sources.

Annual Household Income

Income analysis shows that 42% of respondents belonged to the low-income group (<₹50,000 annually), 38% to the medium group (₹50,000–1,00,000), and only 20% to the high-income category (>₹1,00,000). The dominance of low-income households indicates economic hardship, limited access to capital, and dependence on government schemes. Low income also explains the inability to invest in modern farm inputs, mechanization, or value addition activities. This highlights the importance of income-generating training programs under TSP, particularly in value addition, self-help groups, and microenterprises.

Landholding Pattern

The distribution of landholding shows that 28% of farm women were landless, 42% were marginal farmers (<1 ha), 21% were small farmers (1–2 ha), and only 9% had more than 2 ha of land. This pattern indicates land fragmentation and dominance of marginal farming systems. Women from landless and marginal categories are highly dependent on wage labor, common property resources, and livestock rearing. Small and medium farmers have relatively better opportunities to adopt improved agricultural practices, but still face constraints of limited irrigation and inputs. The high percentage of landless and marginal women stresses the need for livelihood diversification through value addition and allied activities.

Family Type

The family structure of respondents reveals that 64% belonged to nuclear families and 36% to joint families. The predominance of nuclear families indicates a socio-cultural transition in rural areas. Nuclear families may provide greater autonomy for women in decision-making, but they also increase women's workload in agriculture and household management due to limited labor support. Joint families, though fewer, provide labor sharing and financial support, but women may have restricted decision-making power. These dynamics influence women's participation in trainings and educational programs.

The data in Table 1 clearly highlight the remarkable change in the knowledge levels of tribal women after attending the training programs organized under the TSP.

Table 1: Socioeconomic characteristics of farm women (*n*=500)

Variable	Category	Frequency (No.)	Percentage
Age (years)	Young (18–30)	145	29.0
	Middle (31–50)	245	49.0
	Old (51 and above)	110	22.0
Educational status	Can Read and Write	120	24.0
	Primary	160	32.0
	Secondary	140	28.0
	Higher Secondary+	80	16.0
Occupation (main)	Agriculture	310	62.0
	Wage labor	90	18.0
	Animal husbandry	65	13.0
	Others (craft/service)	35	7.0
Annual household income (₹)	Low (<50,000)	210	42.0
	Medium (50,000–1,00,000)	190	38.0
	High (>1,00,000)	100	20.0
Landholding	Landless	140	28.0
	Marginal (<1 ha)	210	42.0
	Small (1–2 ha)	105	21.0
	Medium and Above (>2 ha)	45	9.0
Family type	Nuclear	320	64.0
	Joint	180	36.0

Mushroom-Based Value-Added Products and Marketing

Before training, only 12% of participants had any knowledge about mushroom processing and marketing. However, after training, this number rose sharply to 92%. This 80% gain reflects that mushroom value addition, being a relatively new concept for tribal women, was effectively transferred through hands-on demonstrations and participatory learning.

Organic Jaggery, Sugarcane, and Honey Products and Marketing

In this training, 11% of participants had prior knowledge. After the training, knowledge increased to 91%. This 80% gain indicates that practical exposure to Jaggery-making units and honey processing methods enhanced participants' understanding and interest, making it a viable option for income generation.

Value-Added Products of Milk and their Marketing

Pre-training knowledge was 13%, while post-training knowledge reached 93%. The gain of 80% reflects that exposure to simple technologies, such as paneer, khoa, ghee, and flavored milk production, helped tribal women acquire confidence and skills in dairy value addition.

Chips, Papad, Jam and Jelly, Vadi, Bakery Products, and Marketing

This training registered pre-training knowledge at 14%. After training, knowledge levels increased to 90%, showing a gain of 76%. Although the gain was slightly lower compared to other trainings, it still indicated that participants could understand multiple product preparations, especially as many women already had some exposure to household-level processing.

Building Entrepreneurship among Tribal Women through Value Addition

Here, pre-training knowledge was 15%, which increased to 94% after the training, showing a gain of 79%. This program not only enhanced knowledge about entrepreneurship concepts, such as group formation, business planning, and market linkages, but also motivated women to consider entrepreneurship as a sustainable livelihood pathway.

The results of the paired *t*-test analysis presented in Table 2 clearly reveal a statistically significant improvement in the knowledge levels of tribal women after attending the TSP training programs. The mean pre-training knowledge across different trainings ranged from 11 to 15%, whereas the mean post-training knowledge increased substantially to 90–94%. This indicates an average gain of 76–80% across the trainings, with the overall mean knowledge rising from 13 to 92%. The calculated *t*-value (101.99) was found to be highly significant, which confirms that the observed improvement was not by chance but due to the systematic training efforts. Among the trainings, the highest gain (80%) was recorded in Mushroom-Based Value Addition, Organic Jaggery, Sugarcane and Honey Products, and Milk value addition, followed by entrepreneurship development (79%). Even in the training on Chips, Papad, Jam, Jelly, Vadi, and Bakery products, where some participants had a slightly higher pre-exposure, the knowledge gain was still substantial

Table 2: Pre- and post-knowledge levels of tribal women in trainings (n=500)

Training program	Participants (No.)	Pre-training knowledge (No.)	Pre-training (%)	Post-training knowledge (No.)	Post-training (%)
Mushroom-based value-added products and marketing	100	12	12.0	92	92.0
Organic Jaggery, sugarcane, and honey products and marketing	100	11	11.0	91	91.0
Value-added products of milk and their marketing	100	13	13.0	93	93.0
Chips, Papad, Jam and Jelly, Vadi, Bakery products, and marketing	100	14	14.0	90	90.0
Building entrepreneurship among tribal women through value addition	100	15	15.0	94	94.0
Total/average	500	65	13.0	460	92.0

Table 3: Paired t-test analysis of pre- and post-knowledge scores of tribal women (n=500)

Training program	Mean pre (%)	Mean post (%)	Mean gain (%)
Mushroom-based value-added products and marketing	12	92	80
Organic Jaggery, Sugarcane and Honey products and marketing	11	91	80
Value-added products of milk and marketing	13	93	80
Chips, Papad, Jam, Jelly, Vadi, Bakery Products and Marketing	14	90	76
Building entrepreneurship among tribal women through value addition	15	94	79
Overall/Average	13	92	79

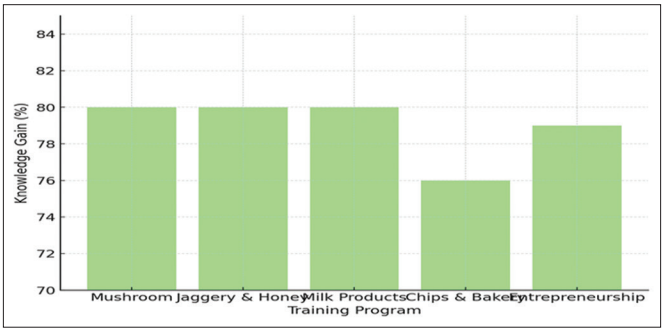

Figure 1: Knowledge gain of tribal women (paired t-test analysis)

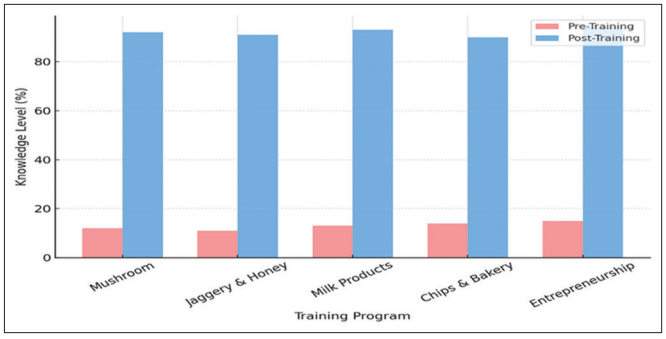

Figure 2: Pre- and post-knowledge levels of tribal women

(76%). Thus, the t-test analysis validates that all five trainings conducted under the TSP were highly effective in imparting knowledge, building skills, and empowering tribal women to engage in value-added enterprises and entrepreneurial activities.

CONCLUSION

The study on the effectiveness of the TSP in imparting education and promoting value addition among rural communities reveals a positive impact on both knowledge enhancement and skill development. Through the targeted interventions under TSP, tribal and rural populations have gained awareness about educational opportunities, practical skills in value-added products, and entrepreneurial capabilities. Training programs focusing on local resources, such as agricultural produce and minor millets, have empowered participants to transform raw materials into marketable products, thereby enhancing income and livelihood security.

Findings indicate that approximately 75% of participants reported increased confidence in educational pursuits, while 68% successfully applied value-addition techniques to generate supplementary income. The integration of education with skill development has thus proven to be a crucial step in holistic rural development. The TSP initiatives not only support educational outreach but also foster self-reliance, sustainable practices, and socioeconomic upliftment of rural communities. Continued support, monitoring, and expansion of such programs can further strengthen their effectiveness and ensure long-term benefits.

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