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Empowering tribal women through value addition: Impact of training on knowledge, economic motivation, and livelihood enhancement in Uttarakhand

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Abstract

Empowering tribal women through skill development and livelihood enhancement initiatives is crucial for fostering economic independence, decision making ability and social well-being. The present study examines the impact of value addition training on the knowledge, economic motivation, and livelihood security of tribal women in Uttarakhand. The training focused on enhancing their skills in producing, packaging, and marketing value added products. A pre-and post-training evaluation was conducted to assess changes in their understanding, and knowledge of value added products. The findings reveal a significant improvement in the knowledge levels of participants, with an average knowledge improvement from 14.7 per cent before training to 70.8 per cent after training, resulting in an overall gain of 56.1 points. Additionally, the study highlights the role of such capacity-building programs in strengthening tribal women's participation in the local economy and promoting sustainable livelihood practices. The results emphasize the need for continued support through policy interventions, financial assistance, and market linkages to ensure the long-term impact of these initiatives.

Keywords: Tribal women, value addition, skill development, economic motivation

Introduction

The role of women in rural economies, particularly among tribal communities, has been a subject of increasing interest in recent years. Across the world, women in rural areas play a significant role in household, agriculture, and other allied activities. However, due to limited access to resources, inadequate training, and socio-economic constraints, their contribution often remains undervalued and underutilized. The status of tribal women is also very similar, where tribal women have previously encountered several obstacles to achieve empowerment (Miheisah, 2003) ^[5], further strengthened by very old patriarchal traditions and socio economic disparities, despite multiple efforts to address their socio-economic issues (Meera & Yekta, 2021) ^[4]. Value addition in agricultural and non-agricultural produce has emerged as a critical strategy to enhance the livelihoods of rural tribal women, especially in resource-constrained environments. Training programs aimed at skill development and capacity building in value addition can significantly impact their economic empowerment and overall socio-economic status. Through training, knowledge and skills are systematically enhanced, enabling women to carry out their responsibilities with effectiveness and

efficiency (Kumari *et al*, 2019) ^[3].

Value addition encompasses a range of processes that improve the economic worth of a product, such as food processing, packaging, branding, and diversification of products. In the context of rural tribal women, this could mean processing raw agricultural produce into ready-to-consume food items, making herbal products from forest resources, developing handloom and handicrafts, and adopting sustainable methods of production that align with contemporary market demands. By engaging in value-added activities, women can increase their income, reduce post-harvest losses, and contribute to the rural economy more effectively. Training programs in these areas, therefore, become a key instrument in enhancing their skills, building their confidence, and making them self-reliant entrepreneurs.

The broader implications of training on value addition extend beyond individual economic benefits. When rural tribal women engage in value addition, they contribute to the preservation of traditional knowledge, promote sustainable use of local resources, and create employment opportunities within their communities. This, in turn, leads to rural development, reduced migration to urban areas, and

the strengthening of local economies. Furthermore, as more women become financially independent, societal perceptions regarding gender roles gradually shifts, paving the way for greater gender equality and social progress. Empowering may be understood as enabling women, to acquire and to possess power and resources, in order to make their own decision or resist decisions that are made by others which affect them. A person may said to be powerful when he/she has control over a large portion of power resources in society (Gowda and Yogish 2006) [2]. By empowering tribal women, the main aim is to create a equitable society, where every individual has the opportunity to contribute meaningfully to their community's progress, leading to a more resilient and self-sufficient tribal population (Dutta & Das, 2024) [1]. The present study evaluates the impact of a training program conducted by G.B. Pant University and Krishi Vigyan Kendra (KVK) Kashipur under the Tribal Sub Plan (TSP) project of ICAR. The program aimed at enhancing the knowledge and skills of tribal women on value addition.

Research Methodology

The study was conducted in two villages of Khatima district of Uttarakhand. A census sampling method was used, including all the 100 training participants in the study. The research aimed to analyze the socio-economic characteristics of the tribal women, assess their information seeking behaviour, evaluate economic motivation, and measure knowledge gains using a descriptive research design. Primary data was collected through pre- and post-training surveys, and in-depth interviews. The collected data were systematically scored, compiled, and analyzed using various statistical tools to reach meaningful conclusions. Socio-economic profile was analyzed using frequency distribution and percentages to illustrate gender, education level, and caste among participants. Information seeking behavior of tribal women was evaluated through the frequency of gaining information through different sources and analyzed using frequency distribution and percentages for three categories mainly, regularly, occasionally and never. Economic motivation was assessed through statements examining attitudes toward economic profits, risk-taking, financial planning, and willingness to explore new ventures, with responses recorded on a three-point Likert scale with responses as, Disagree, Neutral, and nrvr Agree scoring as 1,2,3 respectively). The data analysis was conducted using descriptive statistics, computing frequency and percentage distributions to understand respondents' characteristics and agreement levels on entrepreneurial statements.

The change in knowledge levels was assessed using pre- and post-test scores, with the mean percent knowledge scores calculated before and after the training program which were collected through a three point continuum scale having scores 2,1,0 for 2 for the high knowledge, 1 for low knowledge and 0 for the having the no knowledge about the topic. The mean percent knowledge was computed by the

following formula.

$$M.P.S = \frac{\text{Total Score Obtained}}{\text{Potential score}} \times 100$$

Knowledge Gain was derived by subtracting pre-training mean scores from post-training mean scores for each topic area. This allowed the study to quantify the knowledge enhancement achieved through the training sessions.

Results and Discussion

1. Profile characteristics of Tribal women

It is revealed in Table no. 1 that the majority (62%) of the training participants fall into the middle-aged category (29–43 years), followed by 22 per cent classified as young (<29) and 16 per cent as old (>43 years). This suggests that the tribal women are primarily in their productive years, which is beneficial for livelihood enhancement initiatives. In terms of level of education, 48 per cent tribal women have completed high school, 0% have studied up to middle school, and two per cent have primary education, while 29 per cent have reached the intermediate level and only 17 per cent hold a graduate degree. Notably, only four per cent of respondents are illiterate. Regarding marital status, majority (89%) of the respondents were married, while only 11 per cent were unmarried. Family size analysis shows that around 60 per cent of respondents belong to middle-sized families (4-8 members), while 35 per cent have small family size (<4 members), and only five per cent belong to large families (>8 members). Further, in terms of family type, 64 per cent of respondents belonged to nuclear families, whereas 36 per cent were from joint families. The higher proportion of nuclear families may indicate a shift towards independent decision-making, particularly in financial and livelihood-related matters, which could influence the women's participation in different training programs and income generating activities.

Additionally, it was revealed that a majority (74%) of respondents identified as housewives, while 11 per cent were unskilled workers, 7 per cent engaged in farming, and only 8 per cent were skilled workers. The absence of shop owners and service sector employees highlights the limited occupational diversity among the tribal women. Furthermore it was found that all respondents (100%) had received training exposure, which indicates a high level of awareness and involvement in skill development programs. Data related to social participation shows that 65 per cent of the respondents were involved in social activities without holding an official position, while 35 per cent were actively engaged in village activities. However, none of the respondents held official positions in multiple organizations or participated in financial contribution and fundraising activities. This indicates that while women are actively involved at the grassroots level, leadership and financial decision-making roles remain limited, suggesting a potential area for future empowerment interventions.

Table 1: Profile characteristics of Tribal women N=100

Sr No.	Characteristics	Category	Frequency	Percentage
1.	Age	Young (<29)	22	22
		Middle (29-43)	62	62
		Old (43<)	16	16
2.	Education	Illiterate	4	4
		Primary level	2	2
		Middle level	0	0
		High school	48	48
		Intermediate	29	29
		Graduate or higher	17	17
3.	Marital status	Unmarried	11	11
		Married	89	89
		Widow	0	0
		Divorcee	0	0
4.	Family size	Small (<4)	35	35
		Middle (4-8)	60	60
		Large (8<)	5	5
5.	Family type	Nuclear	64	64
		Joint	36	36
6.	Occupation	Housewife	74	74
		Unskilled worker	11	11
		Farming	7	7
		Skilled worker	8	8
		Shop owner	0	0
		Service	0	0
		Others	0	0
7.	Training exposure	No	0	0
		Yes	100	100
8.	Social Participation	Without official position	65	65
		Active in village activities	35	35
		Official position in more than one organization	0	0
		Financial contribution and fundraising	0	0

2. Information seeking behaviour of tribal women

It is indicated in table no. 2, that friends are a significant source of information, with 48 per cent of tribal women regularly seeking information from them and around 52 per cent doing so occasionally. The absence of respondents who never seek information from friends highlights the strong role of peer networks in knowledge exchange among tribal women. Similarly, relatives serve as another key source, with 42 per cent of women regularly consulting them and 58 per cent consulting them occasionally. This suggests that familial ties play a vital role in information dissemination, possibly due to trust and familiarity within family structures. Additionally, local leaders also serve as an important source of information, with 36 per cent of respondents regularly seeking their guidance while 64 per cent respondents contact with them occasionally. The fact that none of the respondents avoid consulting local leaders suggests their credibility and influence in rural decision-making processes. Further, neighbors are frequently consulted for information, with 45 per cent of respondents regularly seeking their advice and more than half (55%) doing so occasionally. This reinforces the importance of social networks at the

community level, where women rely on their immediate surroundings for knowledge.

Among mass media sources, television emerges as the most widely used information source, with majority (90%) of respondents regularly relying on it and only 10 per cent using it occasionally. The absence of respondents who never use television highlights its effectiveness as a medium for reaching rural women with news, educational programs, and awareness content. Newspapers, however, show a contrasting trend, with 59 per cent of respondents never seeking information from them and only 41 per cent seeking occasionally. The complete absence of regular newspaper readers suggests limited accessibility or a preference for more interactive and audiovisual sources of information. Internet-enabled devices are regularly used by more than half (54%) of women, while 30 per cent use them occasionally, and only 16 per cent never seek information through them. This indicates a growing reliance on digital platforms for information access. Magazines are the least utilized information source, with 100 per cent of respondents never referring to them.

Table 2: Information seeking behaviour of tribal women N=100

Sr No.	Source	Information Seeking behaviour					
		Regularly		Occasionally		Never	
		Freq	%	Freq	%	Freq.	%
1.	Friends	48	48.00	52	52.00	0	0.00
2.	Relatives	42	42.00	58	58.00	0	0.00
3.	Local leaders	36	36.00	64	64.00	0	0.00
4.	Neighbors	45	45.00	55	55.00	0	0.00
5.	Television	90	90.00	10	10.00	0	0.00
6.	Newspaper	0	0.00	41	41.00	59	59.00
7.	Internet devices	54	54.00	30	30.00	16	16.00
8.	Magazines	0	0.00	0	0.00	100	100

3. Economic motivation of Tribal women

The economic perception of respondents indicates that around 74 per cent tribal women agree that economic profit is a key goal in their work, and 64 per cent believe that the most successful individuals are those who earn the highest profits. Additionally, 64 per cent express willingness to try new income-generating ideas, and about 69 per cent agree that selling products in towns yields better monetary returns than selling in villages. Financial security is seen as crucial, with 76% per cent believing that children need economic support for a good start and 82 per cent agreeing that financial assistance is required to establish a successful venture. While 62 per cent tribal women consider economic

profit as their primary life motive, only 17 per cent disagree, suggesting that some respondents value non-economic aspects of life. Moreover, 66 per cent believe that earning a living is crucial but that the most important things in life cannot always be measured in financial terms. The findings of the study also show that about 60 per cent respondents believe financial stability can be achieved by continuously adopting new enterprises, while 80 per cent agree that one should work towards both yield and economic profit. These results highlight a strong inclination towards financial success, risk-taking, and entrepreneurship, while also acknowledging the importance of social and personal well-being in economic decision-making.

Table 3: Economic motivation of Tribal women N=100

S.no.	Statement	Disagree		Neutral		Agree	
		Freq	%	Freq	%	Freq	%
1	I should work for economic profits	9	9.00	17	17.00	74	74.00
2	The most successful is one who makes the most profit	13	13.00	23	23.00	64	64.00
3	I should try any new idea which may earn more money	15	15.00	21	21.00	64	64.00
4	I should sell products in towns to increase monetary profits in comparison to sell the product in village	6	6.00	25	25.00	69	69.00
5	It is difficult for the children to make good start unless he provides them with economic assistance	8	8.00	16	16.00	76	76.00
6	One must learn his living but most important thing in life cannot be defined in economic terms	9	9.00	25	25.00	66	66.00
7	I will select that venture which lead to maximize the profit	0	0.00	18	18.00	82	82.00
8	Economic profit is the only motive of my life	17	17.00	21	21.00	62	62.00
9	Financial assistance is required to make a good start	5	5.00	13	13.00	82	82.00
10	One should forget about gain or loss if one wants to get new experience.	23	23.00	35	35.00	42	42.00
11	In order to have a good financial standing, one should always go on adopting new enterprise.	9	9.00	31	31.00	60	60.00
12	One should work towards yield and economic profit.	3	3.00	17	17.00	80	80.00

4. Change in level of knowledge of tribal women after the training program

The data on knowledge gain related to **honey** indicates a significant improvement after training. Initially, only 25 per cent of respondents knew that honey never spoils if stored properly, which increased to 79 per cent, showing a knowledge gain of 54 points. Similarly, awareness about raw honey being more nutritious than processed honey rose from 25.5 per cent to 84 per cent, with a gain of 58.5 points. The understanding of honey’s natural antibacterial and antifungal properties improved from 24.5 per cent to 82.5 per cent (gain of 58 points). Knowledge about honey as a natural remedy for cough and sore throat also increased significantly from 28 per cent to 85.5 per cent (gain of 57.5 points). These findings suggest that training effectively enhanced awareness about the nutritional and medicinal properties of honey.

For sugarcane products, the knowledge gain was substantial. Awareness that sugarcane juice is rich in vitamins and antioxidants increased from 23 per cent to 85 percent,

resulting in a gain of 62 points. Similarly, understanding that sugarcane is used to produce sugar and jaggery improved from 26.5 per cent to 87 per cent, with a gain of 60.5 points. These results highlight the effectiveness of the training in enhancing knowledge about the health benefits and uses of sugarcane.

Regarding jaggery, participants showed notable improvement in their knowledge. Awareness that jaggery is made from sugarcane or palm sap increased from 16 per cent to 71.5 per cent (gain of 55.5 points). Knowledge that jaggery is a rich source of iron and helps in preventing anemia saw the highest increase, from only 6.5 per cent to 67 per cent, with a gain of about 60.5 points. Awareness of jaggery as a healthier alternative to refined sugar improved from 17.5 per cent to 69.5 per cent (gain of 52 points), while its role in digestion and detoxification increased from 14 per cent to 73.5 per cent (gain of 59.5 points). The understanding that jaggery has a longer shelf life compared to honey improved from 9 per cent to 70 per cent (gain of 61 points). These results highlight the effectiveness of the

training in promoting jaggery as a nutritious and beneficial sugar alternative.

The knowledge gain about millets was also remarkable. Awareness that ragi biscuits and cakes help improve heart health, reduce cholesterol, and boost immunity increased from only 6 per cent to 70.5 per cent (gain of 62.5 points). Additionally, understanding that millets are good for diabetic patients improved from 12.5 per cent to 69.5 per cent (gain of 57 points). Knowledge about the high fiber content in millet biscuits, which aids digestion and weight management, saw a significant rise from about 7.5 per cent to 75 per cent (gain of an overwhelming 67.5 points). Similarly, awareness that millet biscuits are rich in calcium, iron, and other minerals that strengthen bones improved from 15.5 per cent to 79 per cent (gain of 63.5 points). These findings indicate a strong impact of training in promoting millets as a healthy dietary option.

For **pasta**, knowledge about whole grain pasta being high in fiber and aiding weight loss increased from 7 per cent to 68.5 per cent (gain of 61.5 points). Awareness that whole grain pasta contains vitamins and minerals that may help in preventing cancer rose from 8.5 per cent to 73 per cent (gain

of 64.7 points). This suggests that the training was effective in educating participants about the health benefits of whole grain pasta.

Regarding vermicelli, awareness that it is high in fiber and helps prevent constipation improved significantly from only 2.5 per cent to 64 per cent (gain of 62.5 points). Similarly, knowledge about semolina flour, which is used to make vermicelli and contains calcium and magnesium beneficial for muscle health, increased from 4.5 per cent to 62.5 per cent (gain of 58 points). These results indicate that training successfully enhanced understanding of the nutritional benefits of vermicelli.

Overall, the training led to a substantial increase in knowledge across all food products, with an average knowledge improvement from 14.7 per cent before training to 70.8 per cent after training, resulting in an overall gain of 56.1 points. This demonstrates the effectiveness of the training program in enhancing participants' awareness of the nutritional and health benefits of honey, sugarcane products, jaggery, millets, pasta, and vermicelli, which could contribute to better dietary choices and improved health outcomes.

Table 4: Change in level of knowledge of tribal women N=100

Particulars	Knowledge before training (M.S.P)	Knowledge after training (M.S.P)	Gain in knowledge (M.S.P)
Honey			
Honey never spoils if stored properly.	25	79	54
Raw honey is more nutritious than processed honey.	25.5	84	58.5
Honey contains natural antibacterial and antifungal properties.	24.5	82.5	58
Honey can be used as a natural remedy for cough and sore throat.	28	85.5	57.5
Sugarcane Products			
Sugarcane juice is rich in vitamins and antioxidants.	23	85	62
Sugarcane is used to produce sugar and jaggery.	26.5	87	60.5
Jaggery			
Jaggery is made from sugarcane or palm sap.	16	71.5	55.5
Jaggery is a rich source of iron and helps in preventing anemia.	6.5	67	60.5
Jaggery is a healthier alternative to refined sugar.	17.5	69.5	52
Jaggery aids digestion and acts as a body detoxifier.	14	73.5	59.5
Jaggery has a longer shelf life compared to honey.	9	70	61
Millets			
Ragi biscuit and cakes helps in improving heart health, reducing cholesterol and boosting immune system	6	70.5	62.5
It is good for diabetic patients	12.5	69.5	57
Millet biscuits are high in fiber, which can help with digestion and weight management	7.5	75	67.5
Millet biscuit are rich in calcium, iron and other minerals that can help strengthen bones.	15.5	79	63.5
Pasta			
Whole grain pasta is high in fiber, which helps in weight loss	7	68.5	61.5
Whole grain pastas can provide vitamins and minerals that may help in preventing cancer	8.5	73	64.7
Vermicelli			
Vermicelli is high in fiber, which can help in preventing constipation and other digestive issues	2.5	64	62.5
3Semolina flour, used to make vermicelli contains calcium and magnesium, which help in keeping the muscles healthy.	4.5	62.5	58
Overall	14.7	70.8	56.1

Conclusion

The study highlights the critical role of value addition training in enhancing the knowledge, economic motivation, and livelihood security of tribal women in Uttarakhand. The results demonstrate that skill development in processing,

packaging, and marketing agricultural products significantly improves their ability to generate sustainable income. By equipping them with technical and entrepreneurial skills, the training fosters economic self-reliance and strengthens their role in the local economy. The findings also revealed a

strong economic orientation among respondents, with a significant emphasis on financial success, entrepreneurship, and risk-taking. While economic profit is considered a key goal by the majority, there is also recognition of the importance of social and personal well-being in economic decision-making. The willingness to adopt new income-generating ideas and expand market reach reflects a progressive outlook toward financial stability. Overall, the study underscores the interplay between financial aspirations, socio-economic conditions, and personal values, suggesting that while economic security is a primary driver, non-economic factors also play a role in shaping livelihood decisions. Furthermore, the study highlights the importance of continued institutional support, including financial assistance, access to markets, and policy interventions, to sustain the long-term benefits of such capacity-building programs. Strengthening rural women's participation in value-added enterprises not only enhances household income but also contributes to community development and rural economic resilience. Future initiatives should focus on expanding training opportunities, ensuring access to necessary resources, and fostering linkages with markets to maximize the impact of these interventions.

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