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Impact assessment of vocational training on cutting and tailoring on skill development vis-à-vis social and economic upliftment of farm women of Yamunanagar district

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Abstract

This study examines the impact of a vocational training program in cutting and tailoring, conducted by CCSHAU Krishi Vigyan Kendra, Yamunanagar, on the socio-economic and entrepreneurial capabilities of Scheduled Caste (SC) farm women in Haryana. A sample of 60 SC women was selected for a five-day training program. Baseline data revealed high economic marginalization and low literacy, with 92% earning under INR 15,000 monthly. Post-training assessments showed significant improvements in technical skills, including stitching (42%), cutting (27%), and machine maintenance (13%). Economic empowerment was evident, with 100% of participants reporting increased income. Socially, participants reported enhanced self-esteem and decision-making power. The study concludes that vocational training can significantly improve the socio-economic status and entrepreneurship of marginalized communities, promoting sustainable development and social equity.

Keywords: Socio-economic empowerment, skill development, community empowerment, sustainable development

Introduction

Schedule Caste (SC) farm women in rural areas face several socio-economic challenges that impact their livelihoods, well-being, and overall quality of life. These challenges are often exacerbated by factors such as caste-based discrimination (Mathur 2021) [3], limited access to resources, and traditional gender roles. According to the 2011 Census, the Scheduled Caste population in Yamunanagar district comprises 25.26% of total population with 4,77,813 people (2,76,833 males and 2,00,980 females) residing in rural area and 3,54,644 (1,97,960 males and 1,56,684 females) residing in urban areas. Out of 4,77,813 around 3,06,743 (64%) are literate but limited literacy beyond higher secondary (Statistical abstracts of Haryana, 2023-24).

Limited education restricts their access to information, skills training, and better economic opportunities. In addition to that, limited access to land ownership and control over resources restrict their risk taking ability. They often work as agricultural laborers or in low-paying jobs, which offer little economic security which results in restrictions on mobility, decision-making power within households, and participation in community affairs (Doss *et al.*, 2021) [2]. Due to their socio-economic vulnerability, SC women are often exploited in labor markets, getting lower wages and harsh working conditions without adequate legal protections. Vocational training plays a crucial role in enhancing skills (Budria and Telhado, 2009) and socio-economic empowerment, particularly for marginalized groups like Schedule Caste (SC) women in rural areas. It

provides specific technical skills relevant to various trades such as cutting, tailoring, agriculture, handicrafts, etc (Sing *et al.*, 2014; Rana *et al.*, 2015) [5]. These skills are directly applicable to income-generating activities. Alongside technical skills, training often includes development of soft skills such as communication, financial literacy, and entrepreneurship. These skills enhance SC women's confidence and ability to navigate economic opportunities. Vocational training equips SC women with skills to generate income independently through self-employment or employment in sectors traditionally dominated by men. By diversifying income sources and improving earning potential, vocational training reduces economic dependency and enhances financial independence of family as a whole. KVKs play a significant role in filling that gap through skill development trainings for rural populations. Krishi Vigyan Kendras (KVKs) and vocational training programs are integral to fostering agricultural development and improving livelihoods in rural areas. By providing targeted training and resources, they support skill development, enhance productivity, and contribute to the economic growth and empowerment of rural communities.

Materials and Methods

1. Study Area

The study was conducted by CCSHAU- Krishi Vigyan Kendra Yamunanagar during the month of August, 2024 in Yamunanagar district of Haryana, which has a significant population of Scheduled Castes (SC). The district's demographic profile and socio-economic conditions

provided a suitable context for assessing the impact of vocational training on cutting and tailoring among SC farm women.

2. Selection of Villages

To ensure the focus on areas with a substantial SC population, villages where the SC population exceeds 40% were identified. This criterion was used to select the target villages for the study.

- **Data Source:** The latest Census of India data and district statistical records were used to identify the villages with more than 40% SC population.
- **Village Selection:** A list of eligible villages was compiled based on the specified criterion. The villages in remote locations with no prior exposure to such skill development trainings were given preference. For this study participants from “Katarwali” and “Dalour” villages from Block: Bilaspur; “Damopura”, “Ashapura” from Block: Chachrauli; “JhoorMajra” from Block: Sadhaura and “Bhojpur” from block: Jagadhari were selected.

3. Sampling Method

A random sampling technique was employed to select SC farm women from the identified villages. This method ensured that every eligible woman had an equal chance of being included in the study, thereby reducing selection bias.

1. **Population Frame:** The population frame consisted of all SC farm women residing in the selected villages.
2. **Sample Size:** Determining an appropriate sample size was crucial for the study's validity. The sample size was calculated based on the total number of SC farm women in the selected villages, ensuring a statistically significant representation.
3. **Random Sampling Procedure**
 - **Step 1:** A comprehensive list of SC farm women was prepared for each selected village collected from village Sarpanch.
 - **Step 2:** Each woman on the list was assigned a unique identification number.
 - **Step 3:** A random number generator was used to select the required number of participants from each village. This process was repeated for each village until the desired sample size was achieved.

4. Participant Eligibility

To be eligible for participation in the vocational training program, women had to meet the following criteria:

- Belong to the Scheduled Caste community.
- Have basic educational qualification (5th pass), but school going students were intentionally excluded.
- Should be aged between 18 to 50 years.
- Permanent resident in one of the selected villages with more than 40% SC population.
- Express willingness to participate in the vocational training on cutting and tailoring and interested in starting her own enterprise.

5. Data Collection

Data were collected through a combination of primary and secondary sources to ensure comprehensive coverage of

relevant information.

- **Primary Data:** Structured interviews and questionnaires were administered to the selected participants to gather information on their socio-economic background, current skills, and interest in vocational training.
- **Secondary Data:** Village records from local authorities (Sarpanch) were used to verify and supplement the primary data.

6. Vocational Training Program

The vocational training program focused on cutting and tailoring, aiming to enhance the skills and socio-economic empowerment of SC farm women.

- **Training Curriculum:** The curriculum was designed to cover essential skills in cutting and tailoring, including practical sessions and theoretical knowledge.
- **Duration and Schedule:** The training program was conducted over a period of five days during the month of August, 2024, with regular daily sessions covering each and every aspect of training requirement.

7. Evaluation and Impact Assessment

The impact of the vocational training program was evaluated using pre- and post-training assessments.

- **Baseline Survey:** A baseline survey was conducted before the commencement of the training to assess the initial skill levels and socio-economic conditions of the participants.
- **Follow-up Survey:** A follow-up survey was conducted after the completion of the training program to measure improvements in skills, economic status, and overall empowerment.
- **Data Analysis:** The collected data were analysed using statistical methods to determine the effectiveness of the training program and its impact on the participants' lives.

t-Test

To compare the means of two related groups, a paired t-test was conducted using the following formula for analysis of before and after training effect:

$$t = \frac{\bar{d}}{s_d / \sqrt{n}}$$

where:

\bar{d} is the mean of the differences between paired observations,

s_d is the standard deviation of the differences,

n is the number of pairs

Fisher's Exact Test

It is used to determine if there are non-random associations between two categorical variables in a contingency table. It's particularly useful when dealing with small sample sizes and when the assumptions of the Chi-square test cannot be met. Fisher's Exact Test calculates the exact probability of obtaining the observed data, or something more extreme, under the null hypothesis that the row and column variables are independent.

The formula for the probability of a particular table configuration is:

$$P = \frac{(a + b)!(c + d)!(a + c)!(b + d)!}{(a!) (b!) (c!) (d!) (a + b)! (c + d)! (b + d)! (a + c)!} \frac{1}{(a + b + c + d)!}$$

where:

a, b, c, d are the cell counts in the 2x2 contingency table.

Preparation of graphs and figures: The graphs were prepared using open source R software (R Core Team, 2024) ^[4].

Results and Discussion

1. Participant Demographics

A total of 60 SC farm women from Yamunanagar district were selected for this vocational training program on cutting and tailoring. Overall, the demographic profile of the participants presents a predominantly young and well-educated group with a mix of marital statuses (Table 1). The study’s participant demographics reveal a diverse age distribution. The median age of participants was 31 years with youngest being 18 years and oldest being 49 years of age. A substantial portion of the sample, 43%, falls within the 18-26 years age range, indicating a younger demographic. Almost similar majority of participants, 38%, were in the 26-34 years range, showing a strong representation of individuals in their late twenties to early thirties. A smaller segment, 13%, were in the 34-42 years range and 6% in the age bracket of 42-50 years, suggesting fewer participants in the middle and late aged group.

Regarding marital status, the majority of participants were married, making up 53% of the sample. A nearly equal portion, 45%, were unmarried or single. A small fraction, 2%, are either widowed or separated, indicating a minor representation of these statuses.

The educational background of the participants shows a range of attainment levels. About 20% have received primary education, while 35% have completed secondary education. A notable 38% have achieved higher secondary education, demonstrating a higher level of schooling. Finally, only 7% of participants hold a graduate degree or above, reflecting a smaller proportion with advanced educational qualifications. On average, each family reported having three dependents, with the number of dependents reaching up to a maximum of six per family.

Table 1: Socio-economic profile of participants of Cutting and tailoring vocational training N=60

Variables	Categories	Frequency	Percentage (%)
Age	18-26 years	26	43
	26-34 years	23	38
	34-42 years	8	13
	42-50 years	3	06
Marital status	Married	32	53
	Single	27	45
	Widowed	1	2
Education	Primary	12	20
	Secondary	21	35
	Higher	23	38

	Secondary		
	Graduate	4	7
Monthly Household income	< ₹ 5000	7	12
	₹ 5000- 10000	23	38
	₹ 10000- 15000	25	42
	₹ 15000-20000	1	2
Primary source of Income of family	> ₹ 20000	4	6
	Agriculture	6	10
	Private work	2	4
	Small business	5	8
Employment status before training	Daily wage labour	23	38
	Other work	24	40
	Employed	6	10
	Un-employed	54	90

2. Baseline Socio-Economic Conditions

Before commencing the vocational training, a baseline survey was conducted to assess the socio-economic conditions of the participants (Table 1). The findings reveal a diverse economic landscape among the group. In terms of household income, 12% of participants reported a monthly income below INR 5,000, indicating a segment struggling with very low earnings. The majority, 38%, fell within the income range of INR 5,000 to 10,000 per month, suggesting a moderate income level. A substantial 42% of participants reported earning between INR 10,000 and 15,000 monthly, representing the largest income bracket. Only 2% had a monthly household income between INR 15,000 and 20,000, and 6% reported incomes greater than INR 20,000, highlighting a smaller proportion of higher earners.

Regarding the primary sources of family income, a significant 38% of participants relied on daily wage labor, reflecting a reliance on temporary and often unstable employment. Another 40% reported 'other work' as their primary income source, which could include a variety of informal or irregular occupations. Small-scale agriculture was the main profession for 10% of participants, while 8% were engaged in small businesses. A small 4% derived their income from private work.

Employment status before the training indicated that 90% of participants were unemployed, highlighting a high level of joblessness within the group. Only 10% were employed, reflecting a limited presence of stable employment opportunities among participants.

Overall, the socio-economic assessment paints a picture of participants predominantly engaged in low-income, informal work with significant unemployment, setting the stage for the potential impact of the vocational training program.

3. Post-Training Results

a) Improvement in skill levels

After the vocational training program, post training assessment of trainees (Fig 1) revealed a marked improvement in cutting and tailoring skills among the participants. The training equipped them with various new skills, with 27% of participants learning cutting techniques, 12% gaining knowledge in fabric selection, and 13%

becoming proficient in machine maintenance. A significant 42% of participants enhanced their stitching skills, while only 7% reported that they did not acquire any new skills during the training.

The motivations for joining this training were varied, with the majority (57%) driven by a personal interest in cutting and tailoring. Another 23% sought to develop new skills, while 13% aimed to improve their financial situation, and 7% cited other reasons.

b) Effect on Employability

In terms of employability post-training, the participants had mixed perceptions (Fig 1). While 48% of participants felt confident in their employability after the training, this is

particularly significant considering that 90% of them were unemployed before the training. However, 52% did not share this optimism. This lack of confidence in employability could be attributed to several factors, such as limited job opportunities of cutting and tailoring in their local area, insufficient practical experience, or concerns about the market demand for their newly acquired skills. Regarding the type of employment they envisioned after training, 33% saw opportunities in home-based tailoring businesses, 32% considered becoming partners in tailoring boutiques, and 18% were inclined towards self-employment. However, 17% of participants did not see any job prospects in their current location, possibly due to the low demand for fashionable clothing in the remote areas of the district.

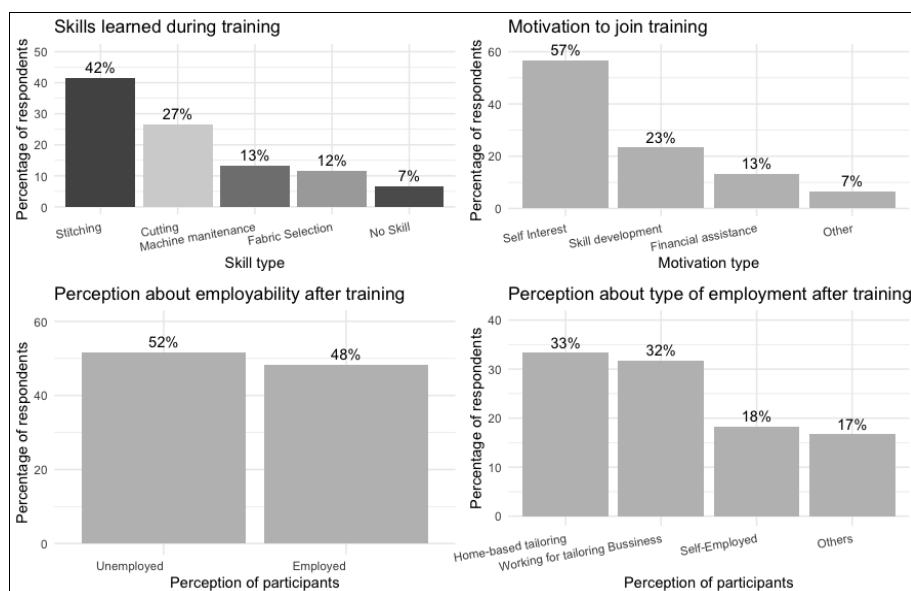


Fig 1: Post training assessment of trainees on a) skills learned during training, b) motivation to join training, c) perception about employability and d) type of employment after training

c) Improvement in knowledge base of participants

A paired t-test was conducted to compare the percentage marks of participants before training and after training (Table 2). The results of the paired t-test show a significant improvement in percentage of marks obtained after the

training, with a mean difference of 13%. Given the very low p-value (<0.01), we can conclude that this increase is statistically significant, suggesting that the training might have had a substantial impact on participants' performance and skill development.

Table 2: Results of paired t-test on improvement in skill of trainees

Statistic	Before training	After Training
Mean percentage of marks obtained	32.7 ± 14.9%	45.7 ± 13.1%
Minimum percentage	0%	20%
Maximum percentage	60%	75%
t-value	7.4	
Degrees of freedom	59	
p-value	5.95e-10	
Mean difference	13%	

d) Possible Economic impact of training

The majority of participants expect to earn between INR 2000 and 4000, with 40% anticipating this income range (Table 3). This suggests that a significant portion of individuals project modest earnings, possibly due to the initial phase of establishing their tailoring and cutting businesses or the prevailing market rates. Another 38% expect to earn between INR 4000 and 6000, reflecting a

slightly higher income expectation, which might indicate confidence in their skills or market demand.

A smaller percentage, 5%, expects to generate income in the range of INR 6000 to 8000, suggesting that while some participants are optimistic about higher earnings, they are in the minority. Only 3% foresee earning more than INR 8000, which could be attributed to the relatively niche market or higher competition in this income bracket.

Table 3: Expected income (₹) from tailoring and cutting business as an enterprise

Categories	Frequency	Percentage (%)
<₹ 2000	8	14
₹ 2000- 4000	24	40
₹ 4000-6000	23	38
₹ 6000-8000	3	5
>₹ 8000	2	3

4. Social and Personal Impact

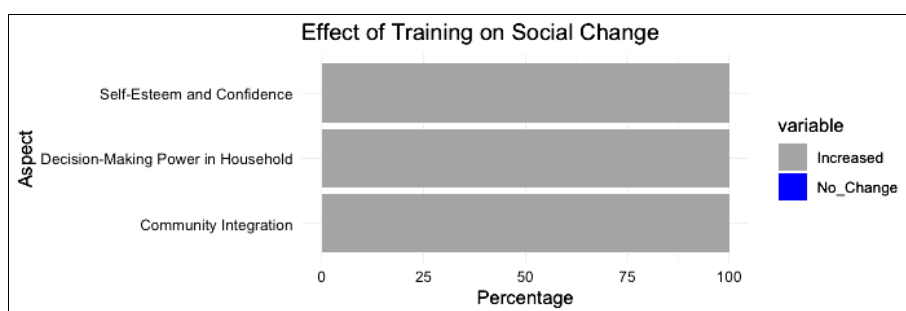
The training had a significant impact on both the social and personal aspects of the participants' lives, contributing to their empowerment and social status (Fig 2).

Firstly, the training led to a complete enhancement in self-esteem and confidence among all participants. Every participant reported an increase in self-esteem and confidence, highlighting the training's effectiveness in boosting personal development and self-worth.

In terms of community integration, all participants experienced greater involvement in community activities. This complete shift indicates that the training not only improved individual skills but also positively influenced participants' engagement with their local communities, fostering stronger social connections and networks.

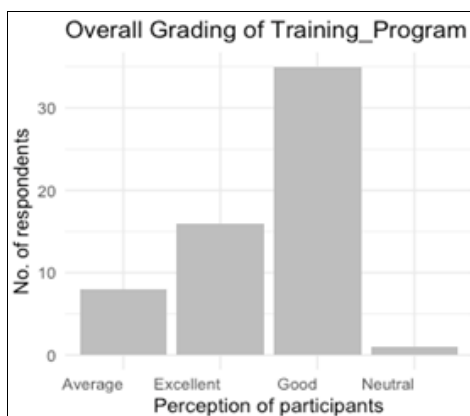
Regarding decision-making power within their households, every participant saw an improvement in their ability to make decisions. This suggests that the training empowered individuals by enhancing their influence in household matters, reflecting a broader impact on their role and status within their families.

The uniform positive outcomes in self-esteem, community participation, and decision-making power suggest that the training program was highly effective in empowering participants and elevating their social status, leading to holistic personal and social benefits.

**Fig 2:** Expected impact of training of social personalities of trainees

5. Overall grading of training

The overall grading of the training program (Fig 3 and table 4) indicates a generally positive reception from participants. A significant 27% rated the training as "Excellent," and the majority, 58%, considered it "Good." Additionally, 13% of participants rated the training as "Average," while a small 2% remained "Neutral." The high percentage of "Good" ratings suggests that most participants were satisfied with the training, though there may be areas for further enhancement like duration, scalability etc. to reach an "Excellent" level for more individuals. The "Excellent" ratings highlight that a substantial portion of participants found the training highly effective and beneficial, while the "Neutral" ratings may reflect participants who felt the training was adequate but did not stand out in any particular way.

**Fig 3:** Overall grading of training program**Table 4:** Overall grading of training

Grading type	Percentage (%)
Excellent	27
Good	58
Average	13
Neutral	2

6. Association between age groups and probable reason for joining the training (Fisher exact test)

Fisher's Exact Test was employed to evaluate the association between age groups and reasons for participation in the training program. Low p-value indicates that, the distribution of reasons for participation in vocational training on cutting and tailoring varies significantly with age group of participants (fig 4). In the 15-25 years age group, there is a high count of participants selecting Self Interest (16), which suggests that younger participants are particularly motivated by personal interest. While in the 25-35 years age group, counts are more balanced but still show higher counts in Self Interest (10) and Skill Development (7). In the 35-45 age group, there is a notably lower count across all reasons, with no participants selecting "financial assistance" and lower counts in Skill Development (2) and Self Interest (5). The significant association found by Fisher's Exact Test suggests that the training program could be improved by considering these age-related differences. For example, younger participants might benefit from programs that emphasize personal interest and skill development, while older participants might have different needs or motivations. Understanding that motivations vary significantly by age can help in designing more tailored and

effective training programs, addressing the specific needs and interests of each age group.

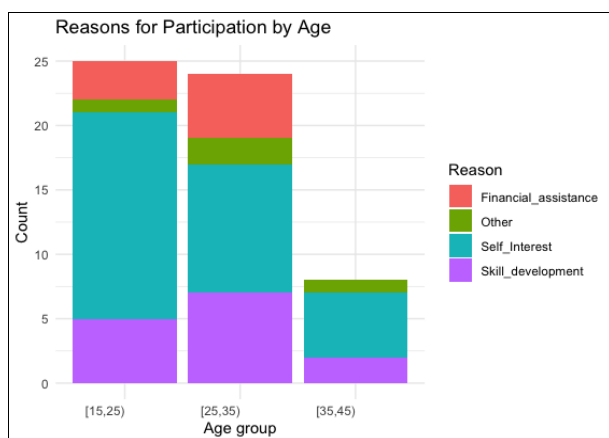


Fig 4: Participants motivation for enrolling in vocational training for cutting and tailoring, analysed by age

7. Expected income as influenced by age and education levels of participants

Participants with a graduate-level education, seem to have a wide range of expected incomes, especially in the age groups 20-30 (Fig 6). This may indicate a broader range of career paths or industries option available to graduates, with

varying income expectations. Expected income for participants with secondary and higher secondary education is generally lower than that of graduates, with most incomes clustering between 2500 to 7500. Few participants in the higher age brackets have only primary education, and those that do expect lower incomes. The 20-30 age group has the most diverse expected income, with higher variance. This might reflect early career uncertainty, where individuals with similar educational backgrounds might expect different incomes based on their career paths. Expected income appears more stable for 30-40 age group participants, particularly among graduates.



Fig 5: Participants of cutting and tailoring training at KVK Yamunanagar

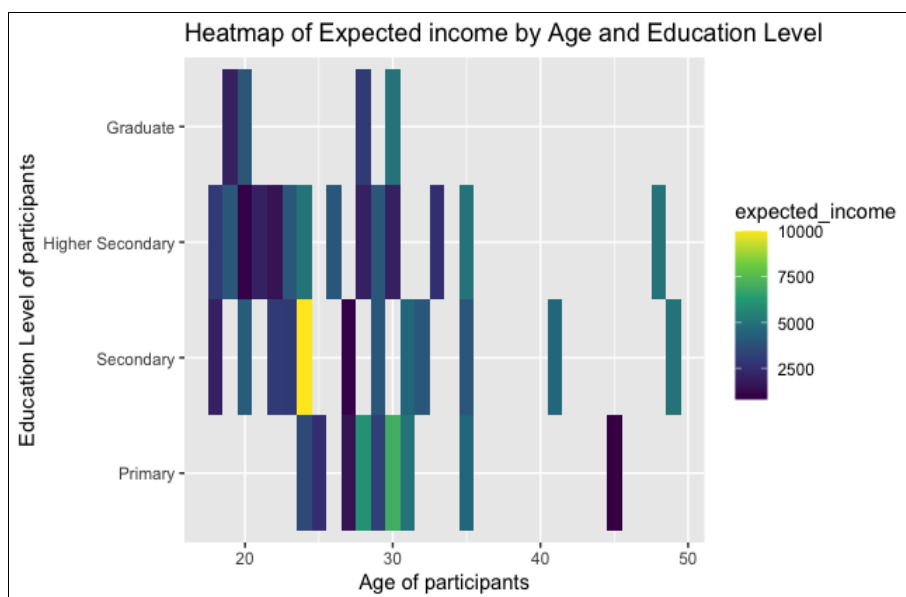


Fig 6: Depiction of expected income of participants as influenced by their age and education levels

Conclusion

The vocational training program on cutting and tailoring has demonstrated significant positive impacts on the lives of SC farm women in Yamunanagar district. By enhancing their skills, increasing their income, and empowering them socially and economically, the program has paved the way for a brighter and more self-sufficient future for these women. The findings of this study highlight the critical role of vocational training in fostering inclusive growth and social equity, offering valuable insights for policymakers and practitioners aiming to empower marginalized communities through skill development.

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