

Impact of Training Exposure on Knowledge and Entrepreneurial Potential of Women Mushroom Producers in Bihar

KAVITA KUMARI & PUNAM KUMARI

Research Scholar, Department Of Home Science, Patna University, Patna, Bihar, India

Prof. Department Of Home Science, Patna University, Patna, Bihar, India

E.MAIL: kumarikavita104@gmail.com

Abstract

Mushroom cultivation has emerged as an important income-generating enterprise for rural women due to its low investment requirement, short production cycle, and potential for entrepreneurship development. The present study was conducted to assess the level of training exposure and its impact on the knowledge and entrepreneurial potential of women mushroom producers in Bihar. The study was carried out in Gaya and Nalanda districts of Bihar using an ex-post facto research design. A total of 80 women mushroom producers who had previously participated in mushroom cultivation training programmes were selected through purposive random sampling. Data were collected using a structured questionnaire and analyzed using frequency, percentage, mean.

The findings revealed that the most respondents (87.5%) had attended three or more training programs, while 70.0% had received training of 4–6 days duration. Self-Help Groups (100.0%), Krishi Vigyan Kendras (87.5%), and Agricultural Universities (81.25%) were the major sources of training. Knowledge regarding suitable temperature for mushroom cultivation (93.75%), disease and pest management (90.0%), and storage methods (95.0%) was found to be high among the respondents. However, awareness regarding value-added mushroom products was comparatively lower (50.0%). The study also revealed strong entrepreneurial potential among women mushroom producers, with 92.5% expressing interest in expanding mushroom cultivation as a business, 75.0% reporting independent decision-making ability, and 87.5% acknowledging improvements in social status and self-confidence.

The study concludes that training exposure plays a significant role in enhancing technical knowledge, entrepreneurial aspirations, self-confidence, and income-generating capacity among women mushroom producers. Strengthening training programmes with greater emphasis on value addition, marketing, and enterprise management may further promote women-led mushroom entrepreneurship and contribute to rural livelihood development in Bihar.

Keywords: Mushroom cultivation, Women entrepreneurship, Training exposure, Knowledge level, Entrepreneurial potential, Women empowerment, Bihar.

Introduction

Agriculture continues to be the backbone of the Indian economy, and remains the principal source of livelihood for a majority of the rural population in India, and women constitute a substantial proportion of the agricultural workforce. Besides participating in crop production, women are actively engaged in several allied agricultural enterprises such as dairy farming, poultry, fisheries, beekeeping, and mushroom cultivation. Among these, mushroom cultivation has emerged as a promising micro-enterprise due to its low land requirement, short production cycle, high nutritional value, and capacity to generate income and employment opportunities for rural households (Singh et al., 2018). Mushroom cultivation is increasingly recognized as an economically viable and environmentally sustainable enterprise for small and marginal farmers. It utilizes agricultural residues such as paddy straw and wheat straw as substrates, thereby converting agricultural waste into nutritious food and income-generating products. Mushroom production requires comparatively less capital investment and limited land resources, making it particularly suitable for rural women, landless laborers, and self-help groups (Sahu et al., 2024). Bihar is primarily an agrarian state where a large section of the rural population depends on agriculture and allied activities for livelihood. However, increasing

population pressure on land, fragmented landholdings, and limited employment opportunities have created the need for alternative income-generating activities. Mushroom cultivation has emerged as one of the important livelihood options for rural women in Bihar. In Bihar, mushroom cultivation has gained considerable popularity because of favorable agro-climatic conditions and increasing awareness regarding nutritional and medicinal benefits of mushrooms. Various institutions such as Krishi Vigyan Kendras (KVKs), agricultural universities, self-help groups, Government department and non-governmental organizations (NGOs) are promoting mushroom cultivation through training programs, demonstrations, and entrepreneurial support services. These trainings provide information regarding mushroom cultivation techniques, disease management, value addition, packaging, marketing, and enterprise management. Studies conducted in Bihar have shown that mushroom cultivation significantly contributes to rural and economic development by increasing household income and employment opportunities (Kumar et al., 2016). Women play a critical role in mushroom cultivation activities such as substrate preparation, spawning, harvesting, processing, packaging, and marketing. The enterprise can easily be integrated with household responsibilities, enabling women to contribute economically while managing domestic duties. Mushroom cultivation has therefore been considered an effective tool for women empowerment, poverty alleviation, and nutritional security. Mushroom production substantially improved the economic condition and self-confidence of rural farm women in Bihar (Singh et al., 2018). Training exposure is one of the most important factors influencing the success of agricultural enterprises. Agricultural training programs help farmers acquire technical knowledge, improve managerial skills, enhance scientific temperament, and increase adoption of improved practices. In the context of mushroom cultivation, training programs generally include topics such as compost preparation, spawn production, disease and pest management, environmental control, harvesting techniques, value addition, storage, packaging, and marketing strategies. Such trainings are expected to enhance both technical competency and entrepreneurial abilities among trainees. Several studies have reported positive impacts of training on knowledge enhancement and adoption behavior among mushroom growers. Kumar et al. (2020) observed that training on mushroom production technology significantly improved knowledge and adoption levels among rural youth and farm women in Samastipur district of Bihar. Similarly, Shirur et al. (2015) reported that entrepreneurial training programs on mushroom cultivation improved entrepreneurial orientation, risk-bearing ability, and management capability among trainees. Entrepreneurial potential refers to the capacity of an individual to identify opportunities, take risks, mobilize resources, innovate, and manage enterprises successfully. For rural women, entrepreneurial development through agricultural enterprises can enhance self-reliance, decision-making power, economic independence, and social participation. Mushroom cultivation provides opportunities not only for primary production but also for value addition, processing, branding, and marketing, thereby increasing the scope of rural entrepreneurship. Recent initiatives in Bihar have also emphasized mushroom-based entrepreneurship and startup promotion among women and rural youth. Despite the increasing popularity of mushroom cultivation and the expansion of training programs, several challenges such as lack of quality spawn, inadequate marketing channels, middlemen exploitation, storage difficulties, insufficient technical guidance, and financial constraints continue to affect women mushroom producers (Prabhakar et al., 2021). In many cases, women receive training but fail to transform acquired knowledge into sustainable entrepreneurial ventures due to inadequate institutional and market support.

The findings of the study may provide useful insights for policymakers, extension agencies, agricultural universities, and rural development organizations in formulating effective training and entrepreneurship development programs for women farmers.

Objectives

- To assess the level of training exposure among women mushroom producers.
- To analyze the impact of training exposure on knowledge and entrepreneurial potential of women mushroom producers.

Hypotheses

- Training exposure significantly increases the knowledge level of women mushroom producers.
- Training exposure significantly enhances the entrepreneurial potential of women mushroom producers.

Research Methodology

Research area: The research study was conducted in Bihar, two districts (Gaya and Nalanda) with a relatively high concentration of women mushroom producers were selected purposively for the study. Out of these two block, Manpur and Barachati from Gaya district and Bind and Chandi block from Nalanda district and randomly two villages were selected from each block.

Sampling: 20 participants were selected from each village i.e. total 80 women selected by using purposive random sampling technique who were participated in any training program earlier. Participants were selected from different religion, caste, socio-economic group.

Data collection: For this study, a self-designed structured questionnaire was prepared and an interview were scheduled for those woman who were not able to fill out themselves.

Data analysis:

Variables: The variables included in this study were socio-demographic profile, training exposure, level of knowledge, entrepreneurial potential.

Statistical Analysis: The collected data were coded, tabulated, and analyzed using appropriate statistical techniques. Frequency, Percentage, Mean were used for continuous variables.

Result and Discussion:

Socio-demographical Profile:

S. No.	Variables	Category	Frequency	Percentage
1.	Age (in years)	Below 25	4	5
		26-45	56	70
		Above 45	20	25
2.	Socio-economic Status (by kuppuswami scale)(Mandal & Hossain, 2025)	Upper	0	0
		Upper middle	16	20
		Lower middle	44	55
		Upper lower	20	25
		Lower	0	0
3.	Marital Status	Single	8	10
		Married	66	82.5
		Widow/separated/divorcee	6	7.5
4.	Experience in mushroom cultivation (in years)	Less than 1	24	30
		1-5	40	50
		Above 5	16	20

Table 1 presents the socio-demographic profile of the women mushroom producers. The majority of the respondents (70.0%) belonged to the age group of 26–45 years, followed by those above 45 years (25.0%), while only 5.0% were below 25 years of age. Regarding socio-economic status, more than half of the respondents (55.0%) belonged to the lower-middle class, followed by 25.0% in the upper-lower class and 20.0% in the upper-middle class according to the Kuppuswamy scale.

With respect to marital status, the majority of respondents were married (82.5%), whereas 10.0% were single and 7.5% were widowed, separated, or divorced. In terms of mushroom cultivation experience, half of the respondents (50.0%) had 1–5 years of experience, while 30% had less than one year and 20.0% had more than five years of experience. The findings indicate that mushroom cultivation was predominantly practiced by married, middle-aged women belonging to lower-middle socio-economic households with moderate experience in mushroom production.

Training Exposure

S. No.	Variables	Category	Frequency	percentage
1.	Number of training attendant	One	0	0
		Two	10	12.5
		Three or more	70	87.5
2.	Duration of training(in days)	1-3	16	20
		4-6	56	70
		7 or more	8	10
3.	Source of training	KVK	70	87.5
		SHG	80	100
		NGO	35	43.75
		Agriculture University	65	81.25

		Government Department	26	32.5
4.	Topic of training	Spawn preparation	80	100
		Compost preparation	72	90
		Disease management	80	100
		Marketing	60	75
		Value added	44	55

Table 2 presents the training exposure of women mushroom producers. The findings revealed that the majority of respondents (87.5%) had attended three or more training programs, while 12.5% had attended two training programs. None of the respondents had attended only one training program. Regarding the duration of training, most respondents (70.0%) participated in training programs lasting 4–6 days, followed by 20.0% who attended training of 1–3 days duration and 10.0% who attended training programs lasting seven or more days. The major sources of training were Self-Help Groups (100.0%), followed by Krishi Vigyan Kendras (87.5%) and Agricultural Universities (81.25%). In addition, 43.75% and 32.5% of the respondents received training through NGOs and Government Departments, respectively. Since respondents could receive training from multiple agencies, the percentages exceed 100 percent. With respect to training content, all respondents (100.0%) received training on spawn preparation and disease management. A large proportion were trained in compost preparation (90.0%), followed by marketing (75.0%) and value addition (55.0%). These findings indicate that the respondents had substantial exposure to mushroom cultivation training, particularly in technical aspects such as spawn production, compost preparation, and disease management.

Knowledge Level

S No.	Variables	Category	Frequency	percentage
1.	Do you know the suitable temperature for mushroom cultivation	Yes	75	93.75
		No	5	6.25
2.	Are you aware of disease and pest management practices	Yes	72	90
		No	8	10
3.	Do you know the proper storage methods for mushrooms	Yes	76	95
		No	4	5
4.	Are you aware of value-added mushroom products	Yes	40	50
		No	40	50
5.	Do you follow scientific cultivation practices	Always	60	75
		Sometimes	20	25
		Never	0	0

Table 3 depicts the knowledge level of women mushroom producers regarding various aspects of mushroom cultivation. The results indicate that a large majority of respondents possessed adequate technical knowledge. Most respondents (95.0%) were aware of proper storage methods for mushrooms, followed by knowledge of suitable temperature requirements for mushroom cultivation (93.75%) and disease and pest management practices (90.0%). However, awareness regarding value-added mushroom products was comparatively lower, with only 50.0% of respondents reporting knowledge of value addition, while the remaining 50.0% were unaware of such products. Regarding the adoption of scientific cultivation practices, 75.0% of respondents reported that they always followed scientific methods, whereas 25.0% followed them only sometimes. None of the respondents reported never following scientific cultivation practices. Overall, the findings suggest that the respondents possessed a high level of technical knowledge related to mushroom cultivation, particularly in production, storage, and disease management practices. However, there remains scope for improvement in knowledge related to value addition and product diversification.

Entrepreneurial Potential

S. No.	Variables	Category	Frequency	Percentage
1.	Mushroom cultivation has improved my income	Strongly agree	10	12.5
		Agree	66	82.5
		Neutral	4	5

		Disagree	0	0
		Strongly disagree	0	0
2.	I am confident in managing mushroom cultivation independently	Strongly agree	25	31.25
		Agree	35	43.75
		Neutral	4	5
		Disagree	10	12.5
		Strongly disagree	6	7.5
3.	I am interested in expanding mushroom cultivation as a business.	Yes	74	92.5
		No	6	7.5
4.	I can take independent decisions regarding mushroom enterprise.	Yes	60	75
		No	20	25
5.	Mushroom cultivation has improved my social status and confidence.	Strongly agree	45	56.25
		Agree	25	31.25
		Neutral	4	5
		Disagree	3	3.75
		Strongly disagree	2	2.5

Table 4 presents the entrepreneurial potential of women mushroom producers. The findings revealed that mushroom cultivation had a positive impact on the economic and social empowerment of the respondents. A majority of respondents agreed (82.5%) or strongly agreed (12.5%) that mushroom cultivation had improved their income, while only 5.0% remained neutral. Regarding self-confidence in managing mushroom cultivation independently, 43.75% of respondents agreed and 31.25% strongly agreed, indicating a high level of confidence among the majority of women producers. However, 20.0% expressed disagreement or strong disagreement, suggesting the need for additional technical and managerial support. The results further showed that an overwhelming majority (92.5%) were interested in expanding mushroom cultivation as a business enterprise, reflecting strong entrepreneurial aspirations among the respondents. Similarly, 75.0% reported that they were capable of making independent decisions related to mushroom cultivation, whereas 25.0% still depended on others for decision-making. In terms of social empowerment, 56.25% of respondents strongly agreed and 31.25% agreed that mushroom cultivation had improved their social status and self-confidence. Only a small proportion expressed neutral or negative opinions. Overall, the findings indicate that mushroom cultivation has contributed significantly to enhancing income, self-confidence, decision-making ability, entrepreneurial interest, and social status among women mushroom producers.

Value Addition Findings

The study revealed that while respondents demonstrated strong technical knowledge in areas such as storage, temperature regulation, and disease management, awareness of value-added mushroom products remained comparatively low (50%). This gap indicates that women producers are largely confined to selling raw mushrooms, which restricts profit margins and market competitiveness. Value addition through products such as mushroom pickles, papad, soup powders, dried mushrooms, and nutraceuticals can significantly enhance income opportunities and diversify market channels. Training modules that emphasize processing, packaging, branding, and marketing of mushroom-based products are therefore essential. Strengthening institutional support for value addition, particularly through Self-Help Groups and Krishi Vigyan Kendras, can empower women to capture higher value in the supply chain and establish sustainable micro-enterprises.

Entrepreneurship Findings

The findings further highlight strong entrepreneurial potential among women mushroom producers. A majority (92.5%) expressed interest in expanding mushroom cultivation into business enterprises, while 75% reported independent decision-making ability. Mushroom cultivation was perceived to have improved both income and social status, with 87.5% acknowledging enhanced confidence and community recognition. These results underscore the transformative role of mushroom entrepreneurship in promoting women's economic independence and empowerment. However, approximately 20% of respondents expressed limited confidence in managing enterprises independently, suggesting the need for additional technical guidance, managerial training, and financial support. Future interventions should focus on cooperative enterprise models, access to credit and microfinance, and integration with digital marketing platforms to strengthen women-led mushroom entrepreneurship.

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