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Research Article

IMPACT OF TRAINING ON KNOWLEDGE AND ADOPTION OF WOMEN ENTREPRENEURS INVOLVED IN FOOD BUSINESS

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Abstract- Entrepreneurship plays a very important role in the development of economy of a country. Women can be successful entrepreneurs in food businesses as they have qualities and traditional knowledge, which are desirable and relevant for entrepreneurship development in this sector. Chamarajanagar is considered as a backward district, with about a 5.08 lakh women population; most of them live in rural areas, lacking in basic infrastructure and far away from structured market facilities. Here many rural women are actively engaged in various small scale food businesses. Hence, this study was conducted to analyse the impact of training and transfer of available technologies on knowledge and adoption among study group. Initial survey has been conducted by using pretested schedule by selecting one hundred women entrepreneurs involved in home scale food business. To fill the gaps through training, educational interventions were planned for a sub group of 30 women entrepreneurs involved in food enterprise. After attending the technology transfer programme through training and method demonstration, their knowledge index regarding new food products had increased from 56.7 per cent to 90.32 per cent. Among all the products, ragi (66.66%) and maize (60%) papads were adopted by more number of women entrepreneurs. Technology transfer programme had greater impact on empowerment of women. Around 90 per cent of the participants agreed that training helped in increasing income, self confidence and over all personality development. From the present study, it could be concluded that, rural women entrepreneurs having medium innovation capabilities can be motivated to achieve better success in their enterprise and can explore the opportunities to improve their incomes. The technology transfer intervention of the research played a strategic role in improving the knowledge, self confidence and the economic status of the entrepreneur through adopting good manufacturing practices and region specific traditional food product technologies. Hence, technology transfer of food based technologies to existing rural women entrepreneurs is effective.

Keywords- Technology transfer, Training, Women entrepreneurs, Adoption, Value addition

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Introduction

Women entrepreneurs may be defined as a woman or a group of women who initiate, organize and run a business enterprise. A strong desire to do something positive is an inbuilt quality of entrepreneurial women [1].

Despite several social, financial, personal constraints, many women are involved in income generating activities, particularly small-scale home-based businesses compatible with their household and care-taking responsibilities [2]. Women can be successful entrepreneurs in food business as they have qualities and traditional knowledge, which are desirable and relevant for entrepreneurship development in this sector. In India, the value addition to food through processing is only 7% compared to as much as 23% in China, 45% in Philippines and 188% in the UK. Further, there are few large or medium sized companies in the organized sector against many small ones. The small-scale and unorganized sectors account for 75% of the total industry in the country [3].

Training is an important aspect of the entrepreneurship development. It is intended to help individuals to learn and to bring desired standard of efficiency, condition and behavior.

Adoption is said to be the continued use of innovation after individuals have passed through certain mental processes. The adoption of improved technology is influenced by various factors such as; personal characteristics, traditional believes, institutional and socio economic factors.

The demand for nutrient rich, tasty, healthy foods and increasing number of people suffering from different disorders has created a new market consisting of cereal products made from grains (ragi and maize) alternative to wheat and rice. Processing them, using traditional as well as contemporary methods for preparation of value added and convenience products would certainly diversify their food uses. Hence, it has been planned to train the women entrepreneurs to produce value added products of region specific crops ragi and maize with the objective to assess the impact of training on knowledge and adoption of women entrepreneurs.

Materials and methods

The present study was designed to understand and analyze the socio-economic status of women entrepreneurs involved in small food enterprise and to know the impact of transfer of food based technologies on knowledge and adoption.

The study was conducted in Chamarajanagar district of southern Karnataka, by selecting 100 women entrepreneurs involved in food business.

The study was carried out in two phases, phase I- collection of background information of women entrepreneurs involved in home scale food enterprise regarding family background, income, and knowledge about enterprises through

structured pretested interview schedule and phase-II educational intervention through training modules.

Based on the data collected through survey certain gaps regarding, value addition to locally grown food grains were identified. To fill the gaps through training, educational interventions were planned for women entrepreneurs involved in food enterprise. Educational intervention was implemented through training modules on transfer of food based technologies.

All the surveyed women entrepreneurs were asked for their willingness to participate in training programme on "value added products of ragi and maize". Thirty compliant women entrepreneurs were recruited for this study. These women were a subset of the study group who were surveyed in the first phase of the study.

Selection of products

Agriculture is considered to be one of the primary occupations of Chamarajanagar district. Finger millet, maize, paddy are the major cereal crops grown in the district. Cultivable lands are mainly rain fed and dry farming is a characteristic feature of the district. From the survey conducted, it was observed that women were mainly engaged in production of rice based items. Since ragi and maize were underutilized they were selected. The products, which were appropriate considering the existing enterprise of the subjects, were short listed. These were then taken to the subject and prioritized through focused group discussions. Based on the prioritized selection of women, five ragi products and five maize products were selected for the technology transfer programme. Women entrepreneurs were trained to prepare ragi and maize value added products and scientific packing and labeling through method demonstration and hands on training. Totally ten training sessions has been conducted. Pre and post test were done to know the knowledge and adoption about value added products of ragi and maize and suitable statistical methods were applied.

Results and Discussions

Demographic profile of women entrepreneurs

[Table-1] shows the demographic profile of the women entrepreneurs recruited for the educational intervention. This analysis was felt necessary as the process of recruitment was voluntary and this analysis helped in understanding the influence of background characteristics in motivation to participate. Higher per cent of women from young to middle age group having moderate education level volunteered to participate in the technology transfer programme. Participants had high to medium social and extension participation and fewer years of enterprise experience; most of them were from higher income groups. Being younger, educated and having high social participation and fewer years of experience might have influenced and created interest in them to participate in the educational intervention programme. The findings are in line to findings of [4] they reported that the participants of value addition training programme conducted at farmers training institute, UAS Bangalore, were younger age group, had middle school education and came from higher income families.

Impact of training on knowledge levels and attitude of women entrepreneurs

Knowledge is an important component of behavior and it plays a major role in the covert and overt behavior of an individual. Once knowledge is acquired, it helps to develop favorable attitude towards improved practices and thereby motivate the individual to take action in accepting the technology [5]. The results of impact of training programme on knowledge of ragi and maize products and scientific labeling is depicted in [Table-2]. It shows that initially the women had lesser knowledge regarding different value added products of ragi and maize and also about of scientific packaging; hence the mean knowledge index obtained was only 56.12 per cent. After attending the technology transfer programme through training and method demonstration, their knowledge index has been increased to 90.32 per cent which shows a positive and significant impact of training. High post training scores may be due to they are already entrepreneurs and understanding of products and process become easier for them. The results of the survey conducted at Dharwad [6] revealed that 50% of the women had the knowledge of use of millet as roti, mudde, ambali, and rice. Only a few women (5-25%) had the knowledge of diversified uses of millets. None of the consumers had the knowledge of availability of secondary processed products in local markets. Fifty per cent consumers knew about the significance of millets for medicinal purposes and their high nutritional value. In a study conducted at Madhya Pradesh by [7] it was reported that the overall gain in knowledge regarding preparation of bari-papad and achar making trade was 61.67 per cent. Training helped the women entrepreneurs from rural Mandya to gain more knowledge regarding value added products of soya, their knowledge score has been increased from 4.9 to 12.16 after training [8]. The attitude of the trained women had changed positively (33.41 scores to 65.95) when compared to before attending the training. [9] reported that, training had an important impact on entrepreneurial attitudes and behavior of the women entrepreneurs. A study conducted in Karnal district with the objective to find out the effectiveness of training programme of Krishi Vigyan Kendra, Karnal on knowledge and adoption of fruit and vegetables preservation (FVP) technologies among trainee farmwomen, reported that majority (72.50 %) had medium level of knowledge regarding FVP technology [10]. The impact of value addition training in installing positive orientation in terms of the magnitude of perceived knowledge, acquisition of skills and adoption levels [4]. Hence, training may be considered as an important tool for imparting knowledge among women entrepreneurs.

Table-1 *Demographic profile of participant women entrepreneurs (n=30)*

Particulars	Category	Number of participant	Percentage
1.Age	Young (<30 years)	12	40
	Middle (30-50 years)	17	56.6
	Old (>50 years)	01	3.33
2. Education	Illiterate	0	0
	Primary	05	16.66
	Middle school	10	33.33
	High school	12	40
	College	08	26.66
3.Marital status	Married	27	90.00
	Widow	01	3.33
	Separated	02	6.66
4.Type of Family	Nuclear	15	0.50
	Joint	02	6.66
	Extended	13	43.33
5. Size of family	Small	12	40.00
	Big	18	60.00
6. Annual family income	Low income	05	16.66
	Medium income	23	76.66
	High Income	02	6.66
7. Social participation	Low	02	6.66
	Medium	12	40.0
	High	16	53.33
8.Extension participation	Low	01	3.33
	Medium	21	70.00
	High	08	26.66
9. Enterprise experience	1-2 Years	14	46.66
	2-4 Years	12	40.00
	>4 years	04	13.33

Table-2 *Impact of training on attitude and knowledge of new food products and scientific packaging among women entrepreneurs (n=30)*

Particulars	Mean	SD	SEM	't' value
Knowledge index				
Before training	56.12	13.05	2.38	-17.06 P<0.0001**
After training	90.32	5.42	0.99	
Attitude				
Before training	48.54	4.03	1.36	-28.44 P<0.0001**
After training	76.98	3.48	1.23	

Relationship between socio-economic variables and knowledge gained after exposure to training modules

[Table -3] depicts the relationship between different socio-economic variables and knowledge of women entrepreneurs. Positive and significant relationships were observed between education, social and extension participation, media usage, risk

orientation and innovation proneness of women with knowledge in both food safety practices and new food products; this suggests that, for every unit of improvement on the above characteristics of the participants there was a corresponding improvement in perceived knowledge. Education helps in gaining knowledge and help to explore, learn and make desirable changes [4]. The results of food safety training programme conducted by [11] also reported significant differences in the food safety knowledge gained by participants with different levels of education. Psychological variables such as risk bearing ability, innovation proneness and aspirations might have created a sort of strong desire to know more about the good manufacturing practices and new food technologies, hoping they may improve the status of their enterprise, which influenced positively in attaining more knowledge. [4] also reported similar influence of psychological variables on knowledge gain. According to [10] the gain in knowledge is positively related to education, innovation proneness and risk bearing ability of the participants at Karnal district.

Table-3 *Relationship between socio-economic variables of women entrepreneurs and knowledge gained after exposure to training module (n=30)*

SL. No	Variables	Knowledge gained (r)
1	Age	0.073^{NS}
2	Education	0.239*
4	Marital status	0.080^{NS}
5	Size of the family	0.052^{NS}
6	Family type	0.108^{NS}
7	Family occupation	0.089^{NS}
8	Family income	0.084^{NS}
9	Land holding	0.125^{NS}
10	Social participation	0.256*
11	Media usage	0.226*
12	Extension participation	0.357**
13	Risk orientation	0.234*
14	Innovation proneness	0.368**
16	Aspiration	0.232*
17	Economic motivation	0.140^{NS}

*Significant at 5%, ** significant at 1%, NS-Non significant

Adoption of value added products of ragi and maize

[Table-4 (a and b)] depict the adoption of value added products of ragi and maize by trained women entrepreneurs. Results show that ragi (66.66%) and maize (60%) papads were highly adopted by women entrepreneurs; this may be due to majority of them were producing rice *papads* and it becomes easier for them to adopt these products easily and efficiently, since no extra investment is needed and also there is a big demand for them. Most entrepreneurial activities do not involve high innovative techniques to any considerable degree but rather involve coping with the method of doing new business and of combining inputs quite similar to those combinations already in existence [12]. Ragi malt was adopted by 13 per cent of the women, while only 5 percent of the women adopted ragihurihittu, laddus and chakkuli. This low adoption of these products may be due to less shelf life of the products and they were not sure about the marketability of these products. Maize chakkuli and crispies were adopted by 33 and 13 per cent of the respondents respectively; while no entrepreneur had adopted maize noodle because noodle production needs specific equipment and cost is also high. Dolli*et al*., 2008, conducted a study in Dharwad district and found that, out of 923 trainees from six villages of Dharwad, 57% of participants selected vermicelli production, 14.28 % selected papad making and 17.5 % selected rava production as an enterprise. In a study conducted by[13] on impact study to know the adoption level of mushroom cultivation among rural women, only 1/3rd of the trainees had taken up the entrepreneurial activity and rest of the women mentioned non availability of spawn for not taking the activity. A detailed study of the adoption of a specific enterprise data indicates that fruits and vegetable preservation enterprises were adopted by 40-47 percent respondents, where as food processing enterprises were adopted approximately by one fourth of the participants [14].

Table-4a *Adoption of ragi products by women entrepreneurs (n=30)*

Ragi products	Number of entrepreneurs adopted *	Percentage (%)
Papad	20	66.66
Malt	04	13.33
Laddu	03	10.00
Hurihittu	05	16.66
Chakkuli	05	16.66

*Multiple responses

Table-4b *Adoption of Maize products by women entrepreneurs (n=30)*

Maize products	Number of entrepreneurs adopted *	Percentage (%)
Papad	18	60.00
Chakkuli	10	33.33
Crispies	04	13.33
Laddu	03	10.00
Noodles	00	00

*Multiple responses

Reasons for non adoption of some products of maize and ragi as expressed by women entrepreneurs are depicted in [Table-5]. Most of the women quoted low acceptability (60%) and non availability of infrastructure for not adopting maize noodles. Ragi *laddus* and *chakkuli* were partially adopted because of high cost (30%) and shorter life (15%). Other reasons cited were unsure market and less demand. In a study conducted at Mandya by [8] it was reported that only one women entrepreneur among 123 women adopted soy vermicelli production because of high cost of vermicelli machine. A study conducted in Udaipur district to find out the reasons for adoption and non-adoption of entrepreneurial activities envisaged by the women. The sample consisted of 82 women participants. The findings of the study indicated that out of 82 respondents 26 women had adopted different enterprises. It was found that one third of the respondents had not taken up any entrepreneurial activity due to problems faced in marketing, finance, lack of time, lack of support by family members and lack of self-confidence [14].

Table-5 *Reasons for non adoption of some products# by women entrepreneurs (n=30)*

Reasons	No. of respondents	Per cent of respondents
Shorter shelf life	05	16.66
High cost of production	09	30.00
Not sure about marketability	05	16.66
Less demand	10	33.33
Lack of infrastructure facility	15	50
No acceptability of the product	18	60

Laddus, chakkuli (Ragi) and noodles

Impact of training on economic status of women entrepreneurs

Impact of training on economic status of women entrepreneurs in terms of income from enterprise has been shown in [Table-6] Based on the income earned per month from enterprise respondents were classified in to low enterprise income (50%), medium enterprise income (33.33) and high enterprise income (16.66 %) before training. After the training programme follow-up results showed that there is a shift in number of women from low income group to middle (60 %) and high income group (26.67 %). This shows that training had improved their entrepreneurial activities and helped them to produce more quality products using proper packaging and also additional income from value added products might have increased the returns from the enterprise. [15] conducted study in Dharwad district and found that, out of 923 trainees from six villages of Dharwad, 57% of participants selected vermicelli production, 14.28 % selected papad making and 17.5 % selected rava production as an enterprise. The income from the enterprise was in the range of Rs. 6000 to 20000 per year and they were selling their

products at the village level. [16] reported that SHG members who had undergone papad making training were earning Rs. 5000/month through papad production. According to the MSSRF experience in Jeypore and Kolli Hills, value addition of a ton of nutritious millet, on an average, offered income ranging from Rs. 1,050 - 19,250, depending on the product. It also generated additional employment, particularly for women, to the tune of 40-300 man-days per ton of grain [17]. A positive change in the annual income of the rural women through adoption of value added finger millet was observed by [18] Thus, training serves as a great tool to transfer the newly developed food technologies to the upcoming entrepreneurs and can have better impact in improving their economic status by improving the returns from enterprise.

Table-6 *Impact of training on income from enterprise(n=30)*

Category	Before		After	
	Number	Percent	Number	Per cent
Low (Rs.1000-2000)	15	50.00	04	13.33
Medium (2000-4000)	10	33.33	18	60.00
High (> 4000)	05	16.66	08	26.67
Total	30	100	30	100

Impact of training on empowerment of women entrepreneurs

[Table-7] depicts the impact of training on empowerment of women as stated by the participants during the follow up period. Different empowerment statements were presented to participants to give their opinion about the particular item as they perceived. The results revealed that most of the participants agreed with respect to changes in economic, social and individual sphere after attending the training programme. Around 90 per cent of the participants agreed for the influence of training in increasing in income, self confidence and over all personality development. While nearly 70 per cent agreed for improvement in social interactions and 50 percent for ability to influence others. Hence, results indicate the positive effect in empowerment of women entrepreneurs in all spheres. [19] opined that training approach is important for helping women in non-traditional, high skill, male dominated activities and also to build-up the confidence among women to meet their requirements. Training to develop good entrepreneurial skills is useful and essential to women. [20] conducted a study at Doddaballapur taluk and reported that training on value addition in finger millet showed positive indicators such as increased self confidence (80%), leadership qualities (72%), and skills to undertake value addition activities (69%). [21] observed an increase in social recognition, family status and involvement in entrepreneurial activity. The unique qualities gained through the training programme in a successful entrepreneur are self confidence, courage, voluntary participation in developmental activities, social respect and quick decision making ability [22]. Interventions in agriculture, horticulture, poultry, animal husbandry and value addition programmes have been shown to enhance the knowledge, abilities, skills and income level of the tribal families by improving their living standards. A desirable change was brought about in economic, social, health and livelihood aspects of tribal farme [23]. In the present intervention food technology transfer helped in improving the overall personality and economic status of women entrepreneurs.

Table-7 *Impact of training on empowerment of women entrepreneurs. (n=30)*

Empowerment statements	Agree	Disagree	Neutral
Economic sphere			
Increased income	27 (90.00)	0 (00)	03 (10.00)
Access to better market	24 (80.00)	2 (6.67)	04 (13.33)
Social sphere			
Improvement in opportunities for social interactions	21 (70.00)	04 (13.33)	05 (16.66)
Improved managerial skills	18 (60.00)	02 (6.60)	10 (33.33)
Individual sphere			
Improvement in self confidence	28 (93.33)	0 (00)	02 (6.66)
Ability to take risk	20 (66.66)	08 (26.66)	02 (6.66)
Ability to influence others	15 (50.00)	05 (16.66)	10 (33.33)
Improvement in overall personality development	28 (93.33)	0 (00)	02 (6.66)

Figures in parenthesis indicate percentages

This type of intervention is considered to improve the knowledge and Skill of women entrepreneurs.

Conclusion

The technology transfer programme through training and method demonstration has increased the knowledge index of women entrepreneurs regarding new food products, which shows a positive and significant impact of training. Lower adoption of some of the products may be due to shorter shelf life, less demand and also higher cost of production of the products and they were not sure about the marketability of these products. Technology transfer programme had greater impact on empowerment of women. Socio economic factors such as age, education, family income, type and size of family and psychological characteristics of women entrepreneurs were the pull factors to motivate women to take up training. From the present study it could be concluded that, rural women entrepreneurs having medium innovation capabilities can be motivated to achieve better success in their enterprise and can explore the opportunities to improve their incomes. The technology transfer intervention of the research played a strategic role in improving the knowledge, self confidence and the economic status of the entrepreneur through adopting region specific traditional food product technologies. Hence technology transfer of food based technologies to existing rural entrepreneurs is effective.

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Author Contributions

Chandrakala Hanagi* subject matter specialist, KVK, Chamarajanagara, conducted research, Dr. Neena Joshi. Professor Department of Food science and Nutrition UAS, Bengaluru guided for carrying out research

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