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Skill development in preparation of cleaning reagents: Fostering women entrepreneurs

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Abstract

The role of adequate cleanliness and hygiene has become inevitable in controlling the spread of infection in public places and private places. Cleaning reagents are substances usually liquids, powders, sprays or granules used to remove dirt including dust, stains, foul orders and clutter on surfaces. Purposes of cleaning reagents include health, hygiene, removing offensive odor and avoiding the spread of dirt and contaminants to oneself and others. A skill development training programme was designed and conducted to create awareness on the importance of household cleaning reagents in daily life and the production of these household cleaning products to start as a small-scale enterprise by rural adolescents and women. The training programme was conducted at Nidumukkala and Venigandla Village of Guntur district, Andhra Pradesh. A total of 120 rural adolescent girls and women aged 18-35 years were purposively selected as trainees for the training programme. Most of the trainees (70.83%) participated in the programme had minimum educational qualification of Intermediate education where as 16.66% studied class X and 12.55% had degree qualification. Pre-training and post training assessment tests were collected from trainees to know the existing knowledge and effectiveness of the training programme. Demonstrations on preparation of various cleaning reagents for five days such as Detergent powder (Surf), Liquid Dish washer, Liquid Hand wash, Floor Cleaner and Liquid detergent were imparted to the participants. The Participants are given demonstration and hands on experience on preparation of household cleaning reagents and were trained in identifying the list of raw materials needed to prepare the cleaning reagents. All participants in batches have prepared the cleaning reagents. Further demonstration on weighing the product, packing, sealing and labelling the product was explained so that the women can start it as small-scale enterprise for income generation. Participants were given information on the preparation of various household cleaning reagents to be used for various purposes along with proportioned chemicals, method of mixing and proper procedures. Trainees were briefed about precautions to be followed in using chemicals to prepare the household cleaning reagents. The training programme ended with valedictory session exhibiting various cleaning reagents prepared by the trainees. The trainees expressed that they were satisfied with the training programme. Few of them expressed about provision of financial assistance to them by the various financial institutes and provision for marketing avenues for establishment and marketing their products.

Keywords: Rural women, skill development, cleaning reagents, entrepreneurs

Introduction

In the present day the role of adequate cleanliness and hygiene has become inevitable in controlling the spread of infection in public places and private places. Cleaning reagents are substances (usually liquids, powders, sprays or granules) used to remove dirt including dust, stains, foul orders and clutter on surfaces. Purposes of cleaning reagents include health, beauty, removing offensive odor and avoiding the spread of dirt and contaminants to oneself and others.

Women's empowerment is a fundamental human right enables them to take control of their life and positively influence society. Discrimination against women and gender inequality are widespread and some women experience several forms of exclusion and discrimination because of their background or caste. The link between a job and the workforce is skill. Women often have distinct training

demands than men since they are more likely to work as low-paid seasonal laborers, home-based microentrepreneurs, subsistence farmers or contributing family workers in addition to taking care of their families and household responsibilities. Enhancing women's employability, income-earning opportunities and household production are all dependent on skill development which can improve sustainable rural development and livelihoods (Girija and Shruti, 2024) ^[2].

The largest obstacles women entrepreneurs are facing include illiteracy, inadequate training and a lack of skill development. The right Women Entrepreneurship Programmes (WEP) can help remove these obstacles. Women should be treated as equal participants in the economy, free from economic, social, political, and gender-based discrimination as they contribute to the nation's economic growth (Chitra *et al.* 2017) ^[1].

It is widely recognized that women's work and economic capabilities can help them achieve their own control over resources and grow in self-worth and confidence. The process of skill development for rural women involves organizing themselves to increase their own self-reliance, support their independent right to make choices, and control resources that will help them challenge and eliminate their own assistant. Due to a shortage of job opportunities, people from rural areas are moving to urban areas. The rural women lack productive skills and drop out of school. With the help of vocational skill training, the issues of unemployment and poverty will be resolved, and they will succeed as entrepreneurs (Madhu Kumari, 2015) [4].

Vijaya and Lokhandha (2013) [6] opined that training and skill development programs will increase women's income and empowerment with high efficiency. Ability and expertise will help women get the confidence they need to lead their businesses. In order to encourage women entrepreneurs generally, a specific path of mentoring for aspiring female entrepreneurs must be devised in order to improve their performance in their intended business (Kittur Praveen, 2014) [3]. According to Mamta (2014) [5], women must develop their own strength and ability to begin their projects in this male-dominated society. Women entrepreneurs should be supported and encouraged by self-help groups, non-governmental organizations, government agencies and microfinance organizations.

Therefore, in this skill training programme the participants will be given awareness on the importance of Household Cleaning Reagents in daily life and the production of these household cleaning products to start as a small-scale enterprise by women. The demonstrations on preparation of various cleaning reagents such as Detergent powder (Surf), Liquid Dish washer, Liquid Hand wash, Phenol, Liquid detergent, Floor cleaner will be imparted to the participants. Further demonstration on weighing the product, packing, sealing and labelling the product will be given so that the women can start it as small-scale enterprise for income generation.

Objectives

1. To develop entrepreneurial skills among rural women
2. To give awareness on sanitation and hygiene to scheduled caste people in the rural areas

Methodology

Research Design: Quasi experimental design was used.

Sampling technique: Market survey was done to identify the existing cleaning reagents used by the rural women under SC category. Purposive random sampling technique was adopted for selecting rural SC women to impart skill development training programme on preparation of household cleaning reagents for income generation.

Locale of the sample: Two villages near Guntur city viz. Nidumukkala in Tadikonda Mandal, Venigandla in Pedakakani mandal were selected.

Sample size: Research was carried out with a sample of 120 rural SC women from two selected villages 60 from each village.

Selection of the sample: A list of women from SC category

was collected from village panchayat in the two consecutive financial years from 2023-25. From the procured list 60 women were selected from Nidumukkala village

S. No.	Village	2023-24	2024-25	Total number
1	Nidumukkala	30	30	60
2	Venigandla	30	30	60

Selection of Cleaning Reagents

After exploring different household cleaning reagents used by the rural women, five household cleaning reagents viz. Detergent powder (Surf), Liquid Dish washer, Liquid Hand wash, Floor Cleaner and Liquid detergent were selected based on the usability by the women at household level.

Duration: Two years (2023-25)

Data Collection method

Four five-days skill development training programme were designed out of which two skill trainings at Nidumukkala and two at Venigandla village. A total of 120 rural adolescent girls and women aged 18-35 years from SC component were purposively selected as trainees for the training programme that is 60 from each village and 30 for one training programme.

Demonstrations on preparation of various cleaning reagents such as Detergent powder (Surf), Liquid Dish washer, Liquid Hand wash, Floor Cleaner and Liquid detergent were imparted to the participants with hands on experience. Pre-training and post training assessment tests were collected from trainees to know the existing knowledge and effectiveness of the training programme.

The responses for pre and post training assessment test were collected using 3-point likert scale fully aware, partially aware and not aware with scores 3, 2 and 1 respectively. Data were analyzed using frequency and percentage scores.

Results and Discussion

The results and findings of the present study as obtained from the analysis of the data under the following heads

1. General profile of trainees
2. Pre-training Assessment
3. Skill training Programme
4. Post-training Assessment

I. General profile of trainees

1. Age of trainees

The age of the trainees selected for the training programme ranged between 18 to 35 years. Trainees between 18 to 25 years and 25 to 30 years were found to be 37.5 percent and 33.33 percent respectively. Nearly one fourth of the trainees belong to the age group of 30 to 35 years.

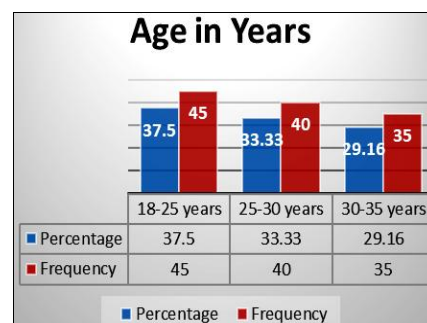


Fig 1: Distribution of trainees by Age

2. Education

The data pertaining to education revealed that nearly three fourth of the trainees (70.83%) were educated up to intermediate education whereas remaining trainees have to SSC (16.66%) and degree qualification (12.50%).

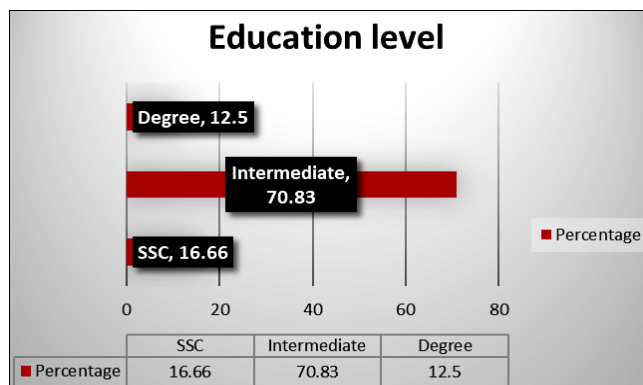


Fig 2: Distribution of trainees by education level

3. Family type

More than of the trainees belong to Nuclear family (58.33%) where as 41.66 percent belong to joint family.

Table 1: Distribution of trainees by family type N=120

Family type	Frequency (n)	Percentage (%)
Nuclear	70	58.33
Joint	50	41.66

Table 2: Distribution of trainees by Monthly Income N=120

Monthly Income	Frequency (n)	Percentage (%)
>5000	70	58.33
5000-7000	50	41.66

II. Pre-training Assessment

The pre-training assessment test results (Table 3) shows a considerable lack of awareness and practical experience among trainees regarding cleaning reagents, although there is notable interest in learning and entrepreneurship. There is a knowledge gap as indicated by the majority (41.66%) who reported that they are unaware of the importance of preparing cleaning reagents at home. When inquired if they had ever tried making cleaning products, a significant 91.66% of trainees indicated they had not, highlighting a lack of practical experience. Similarly, 41.66% of trainees stated they were unaware of various kitchen cleaning products, and 50% said they were unaware of bathroom cleaning reagents, indicating a lack of familiarity with basic household chemicals. Remarkably, 41.66% of people are completely aware of floor cleaning products, which may be because they are used frequently in daily cleaning practices. Due to the extensive use of soaps, sanitizers and handwashes, the category of personal hygiene cleaning reagents had the highest level of awareness with 66.66% of trainees being fully aware. 50% of trainees reported

4. Occupation

Nearly half (58.33%) of the trainees were employed as daily wage labour whereas only 16.66% were self-employed and remaining one fourth of the trainees are home makers.

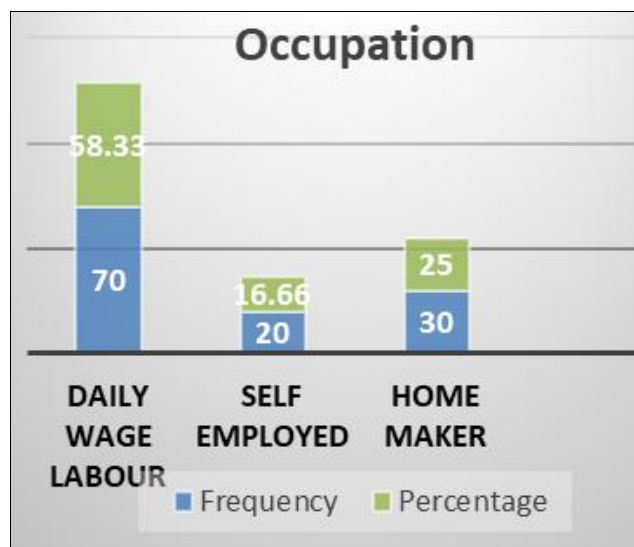


Fig 3: Distribution of trainees by Occupation

5. Monthly Income

Almost half of the trainees earn monthly income of below Rs.5000/- where as 41.66% earn an income between Rs.5000/-Rs.7000/-.

complete awareness of laundry cleaning reagents indicating regular exposure in the home. The study shows a very positive response as 83.33% of participants want to learn how to create cleaning products and a similar number are interested to start a small business. This enthusiasm presents a strong opportunity for training and community-based entrepreneurship programs.

Nearly three fourth (75%) trainees do not know how to read cleaning product labels which is an essential skill for compliance and safety of product. Nearly half i.e.58.33% of trainees are also unaware of the proper containers for keeping these chemicals concerning possible health risks. It was found that all trainees (100%) are ignorant of how to determine the cost of producing cleaning reagents which is a major obstacle to both household use and starting an enterprise. The results of the pretraining data demonstrate the necessity for organized educational initiatives that include safe handling, cost analysis, packaging and marketing tactics in addition to cleaning products preparation.

Table 3: Pre-training questionnaire of the skill development training programme N=120

S. No.	Question	Fully aware		Partially aware		Not aware	
		n	%	N	%	N	%
1	Are you aware of preparation of cleaning reagents that are useful in home?	40	33.33	30	25	50	41.66
2	Have you ever tried making any cleaning product at home?	-	-	10	8.33	110	91.66
3	Are you aware of any washroom cleaning reagents?	30	25	30	25	60	50
4	Are you aware of any different kitchen cleaning reagents?	40	33.33	30	25	50	41.66
5	Are you aware of any different floor cleaning reagents?	50	41.66	30	25	40	33.33
6	Are you aware of any personal hygiene cleaning reagents?	80	66.66	40	33.33	-	-
7	Are you aware of any different laundry cleaning reagents?	60	50	30	25	30	25
8	Are you interested to learn preparation of cleaning reagents at home?	100	83.33	20	16.66	-	-
9	Are you interested in starting a small business with cleaning reagents?	100	83.33	20	16.66	-	-
10	Are you aware of labels on the products?	-	-	30	25	90	75
11	Are you aware of the right type of containers to use for storing cleaning agents?	20	16.66	30	25	70	58.33
12	Are you aware of calculating the cost of making cleaning reagents?	-	-	-	-	120	100

III. Skill development training on preparation of cleaning reagents

Skill development training programme on preparation of cleaning reagents started with addressing the trainees on the need of awareness on importance of adequate cleanliness and usage of Household Cleaning Reagents in the daily life to eradicate the spread of dirt and contaminants to oneself and others and how can start a small-scale enterprise by the preparation of cleaning reagents for income generation. The production of the household cleaning products which were used by every household such as Detergent Powder (Surf), Liquid dish washer, Handwash liquid, Liquid detergent and floor cleaner to start as a small-scale enterprise by women was explained and demonstrated to the trainees of the programme.

The Participants are given demonstration and hands on experience on Preparation of Household Cleaning reagent Detergent Powder (Surf). They were trained in identifying the list of ingredients needed to prepare the detergent powder. All participants in batches have prepared the detergent powder. Demonstration on labelling and Packaging was also given to the participants.

Preparation and hands on experience on preparation of floor cleaner using various chemicals was given to the participants. Awareness on precautions needed to be taken care while preparing these household cleaning reagents was explained to the participants.

Next session has started with the introduction of preparation of liquid detergent and liquid dishwash. They were trained in identifying the list of ingredients needed to prepare the liquid detergent and liquid dishwash. Demonstration on preparation of liquid detergent and liquid dishwash was shown and explained to the participants.

The last session has started with the preparation of handwash. Demonstration on preparation of handwash was shown and explained to the participants. The training programme was closed with a valedictory session. The trainees exhibited the household cleaning reagents prepared by them. Beneficiaries were given "Certificates of participation" of training programme. Participants were given information on the preparation of various household cleaning reagents to be used for various purposes along with proportioned chemicals, method of mixing and proper procedures.

They were briefed about precautions to be used in using chemicals to prepare the household cleaning reagents. The

trainees were opined that they were satisfied with the training programme. Few of them expressed about provision of financial assistance to them by the institutes and provision for marketing avenues for establishment and marketing their products.



Dr. V. Prasuna addressing the trainees on need of awareness on importance of adequate cleanliness, usage and preparation of Household Cleaning Reagents



Trainees exhibiting various cleaning reagents prepared by them during the training programme

IV. Post training Assessment

The post-training assessment (Table 4) reveals a highly positive impact on participants knowledge, confidence and entrepreneurial readiness regarding cleaning reagent

preparation. A majority (83.33%) trainees reported that they understood how to create household cleaning reagents. A significant change from previous knowledge gaps, 100% of participants reported complete awareness of the cleaning reagents for the washroom, kitchen, floor, personal hygiene and laundry. This demonstrates the effectiveness of the successful training programme. 66.66% of trainees felt entirely confident in their ability to make cleaning products on their own and another 29.16% felt moderately confident, demonstrating the effectiveness of hands-on experience strategies. Participants appear to have understood key elements of product presentation and consumer safety as evidenced by the fact that 66.66% of them were completely capable of creating and attaching appropriate labels such as name, use and expiration of the product.

Additionally, 75% of trainees knew how to exactly measure and weigh components, demonstrating how well technical skills were understood from the training programme. 75% of trainees had a thorough understanding of product shelf life including how long cleaning products can be kept after preparation. This knowledge is essential for both quality control and consumer assistance. 83.33% of participants showed full understanding when it came to

identifying the right ingredients for each type of cleaning reagent, indicating that they can now choose and mix products appropriately. The same proportion showed consideration for safe packaging procedures by knowing how to correctly seal containers.

Significant progress toward entrepreneurial readiness was confirmed by the fact that 83.33% of trainees could calculate the cost of producing a cleaning product an aspect in which there was no prior awareness. Similarly, 83.33% gained knowledge of branding, which promotes the marketability and identification of products. All participants reported desire in leveraging their abilities to establish a small business or produce revenue demonstrating great entrepreneurial motivation. Additionally, all participants learned about government financial support programmes for launching firms. Lastly 100% of participants stated that they would suggest this program to other women in their community indicating their high level of satisfaction and understanding of its transformative potential.

Overall, the data clearly shows that the training was highly effective in building technical skills, business awareness and confidence among women participants, preparing them to take the next steps towards self-reliance and enterprise.

Table 4: Post training questionnaire of the skill development training programme N=120

S. No.	Question	Fully aware		Partially Aware		Not aware	
		n	%	n	%	n	%
1	Are you able to understand how to make house cleaning reagents from this training programme?	100	83.33	20	16.66	-	-
2	Are you aware of any washroom cleaning reagents?	120	100	-	-	-	-
3	Are you aware of any different kitchen cleaning reagents?	120	100	-	-	-	-
4	Are you aware of any different floor cleaning reagents?	120	100	-	-	-	-
5	Are you aware of any personal hygiene cleaning reagents?	120	100	-	-	-	-
6	Are you aware of any different laundry cleaning reagents?	120	100	-	-	-	-
7	Do you feel confident to make cleaning products on your own after this training?	80	66.66	35	29.16	5	4.16
8	Are you able to prepare and stick proper labels on cleaning products (name, use, expiry date)?	80	66.66	30	25	10	8.33
9	Are you able to learn how to measure and weigh ingredients of cleaning reagents properly during preparation?	90	75	20	16.66	10	8.33
10	Are you able to understand handling chemicals safely while preparing cleaning reagents?	70	58.33	30	25	20	16.66
11	Are you able to know how long cleaning products can be stored after preparation?	90	75	30	25	-	-
12	Are now know able to identify the right ingredients for each type of cleaning reagent?	100	83.33	20	16.66	-	-
13	Are you able to understand how to properly seal bottles or containers after filling the cleaning reagents?	100	83.33	20	16.66	-	-
14	Are you able to learn how to calculate the cost of making a cleaning product?	100	83.33	15	12.5	5	4.16
15	Are you able to understanding about branding of the cleaning reagents?	100	83.33	20	16.66	-	-
16	Are you aware of different finance support schemes from government to start a enterprise?	120	100	-	-	-	-
17	Are you interested in using this skill to earn income or start a small business?	120	100	-	-	-	-
18	Would you recommend this training to other women in your community?	120	100	-	-	-	-

At the end of the training programme, feedback was collected from the participants and certificates were distributed to all the participants and a training kit consists of raw materials for preparation of various cleaning reagents were given to the participants.

Implications

The skill development training on preparation of cleaning reagents will enhance the technical knowledge and entrepreneurial skills of rural women. Through hands-on demonstrations, participants will gain confidence in making household cleaning products and understanding their applications.

Future Scope

This type of trainings will promote and train women to make and sell home-made cleaning reagents and support for small scale business that helps in empowering women in low-income and rural communities by creating self-employment opportunities.

Conclusion

The skill development training on preparation of cleaning reagents successfully enhanced the technical knowledge and entrepreneurial skills of rural SC women. Pre-training assessments revealed significant gaps in awareness and practice especially in cost calculation, safety and product

labeling. Through hands-on demonstrations, participants gained confidence in making household cleaning products and understanding their applications. Post-training results showed a remarkable increase in awareness with 100% of participants fully informed about various types of cleaning agents and 83.33% confident in cost estimation and branding. The program also introduced financial literacy and awareness of government support schemes. Most importantly, all trainees expressed willingness to apply these skills for income generation and recommended the training to others signaling its effectiveness and potential for scaling. This initiative demonstrates that skill development can be a transformative tool for women's empowerment and rural entrepreneurship.

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