

Research Article

Smokeless Chullah- An environment friendly drudgery reducing technology for rural woman

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SUMMARY : In Assam, fire wood collected from the forest and homestead is the common fuel in rural household for which the rural woman possesses the traditional Chullah which causes health hazards to them. This is equally true for the rural women of Nagaon district too. It was, therefore, felt essential to introduce smokeless Chullah in the villages of Nagaon district. The study was conducted by Krishi Vigyan Kendra, Nagaon in the year 2010. It was an action oriented research in which training was given to the farm women through lecture cum demonstration methods and the intervention was done at their home. Data were collected on gain in knowledge, skill up gradation and perception of rural women towards smokeless Chullah after training and intervention. Knowledge before training indicates that majority of the respondents (85.0%) were in the category of poor knowledge and 15.0 per cent had average knowledge. Knowledge after training depicts clearly that there were tremendous gain in knowledge as majority of the respondents (67.5%) shifted to the category of good knowledge. Again after intervention, the respondents belonged to the category of good knowledge was 82.5 per cent. The woman beneficiary perceived smokeless Chullah as appropriate in terms of time and fuel saving, low cost, environment friendly and keeps food hot for longer time. An outcome of the two pots smokeless Chullah was that farm woman developed habit of planning menu in advance. The other rural women of the locality where smokeless Chullah was installed expressed willingness to adopt this chullah at their homes very soon.

KEY WORDS :

Smokeless Chullah,
Drudgery reduction,
Appropriateness,
Intervention

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BACKGROUND AND OBJECTIVES

Wood is the most common fuel used in rural household of Assam because women get it from homestead or from forest free of cost. The average per capita firewood consumption in the northeast is higher than the national level with rural urban gap ranging from 17 to 52 kg (Source: NSS Report No 509). Household consumption of various goods and services in India, 2004-05). The indiscriminate use of forest products for livelihood is threatening the biodiversity of the region and also triggering climate change (Bhatt and Sachin, 2004). It may not be possible to prevent rural people from using fire wood for the sake of biodiversity unless we provide them with good alternatives. Due to continuous

deforestation women have to go too far off places which cause considerable drudgery in terms of time and energy. Due to decrease in firewood source and increase in local market price, rural people are compelled to resort to indigenous energy efficient technologies. Smokeless Chullah is an improved version of traditional Chullah and has many advantages over it. Its proper use and care relieves an individual from different problem like smoke free kitchen which is safe for eyes as well as lungs of the user. Fire sparkle does not come out and hence, safe for human beings, no need to plaster it frequently and saves fuel. The model developed by Renewable Energy Department, CTAE, NPUAT, Udaipur was introduced in the study area. The Chullah has thermal efficiency of 20-35 per cent as compared

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to traditional chullah which has efficiency not more than 8-10 per cent. The present investigation was conducted with the following specific objectives:

- To assess the impact of training on gain in knowledge of rural women about smokeless Chullah.
- To find out the appropriateness of smokeless Chullah as perceived by rural women.

RESOURCES AND METHODS

The study was conducted in Nagaon district of Assam in the year 2010. Out of the 18 blocks of the district, 3 blocks namely Khagarijan, Raha and Bajiagaon blocks were selected purposively keeping in mind the ease in approach and familiarity with the area. One village from each block was selected randomly. One training cum demonstration programme was conducted in each village comprising 30 rural women in each programme. After the training and demonstration programme was over, 40 interested women participants from all the 3 villages were selected and smokeless Chullah were installed in their house as an intervention from the KVK (25 Chullahs were installed by KVK with minimal charges and other 15 were by the beneficiary from their own cost). Interview and observation methods were used to collect data from the beneficiaries.

OBSERVATIONS AND ANALYSIS

The experimental findings obtained from the present study have been discussed in following heads:

Gain in knowledge on smokeless Chullah by the women beneficiary:

To measure the gain in knowledge on smokeless Chullah by the women beneficiary, a knowledge test was developed on the following main components:

- Specification of smokeless Chullah
- Purpose of using smokeless Chullah
- Advantages of smokeless Chullah
- Precaution in using
- Care and maintenance
- Construction materials.

The respondents were asked to reply on each item of knowledge questionnaire. There were 23 scores for it. The respondents were categorized into three levels *i.e.* poor, average and good. This test was conducted thrice *i.e.* one before training, one after training and one after intervention.

Data pertaining to knowledge before training (Table 1) indicates that majority of the respondents (85.0 %) were in the category of poor knowledge about smokeless Chullah and 15.0 per cent had average knowledge. As the model Chullah (*i.e.* smokeless Chullah) was shown to them, all the respondents could tell correctly about the construction

material. None of the respondents had the knowledge about precaution in use and care of smokeless Chullah and its various advantages. The women beneficiaries were also not aware about the need of frequent cleaning of chimney pipe of smokeless Chullah.

Table 1 : Distribution of respondents according to their knowledge on smokeless Chullah

Category	Before training (n=40)		After training (n=40)		After intervention (n=40)	
	Frequency	%	Frequency	%	Frequency	%
Good	0	0.0	27	67.5	33	82.5
Average	6	15	11	27.5	7	17.5
Poor	34	85	2	5.0	0	0.0
Total	40	100	40	100	40	100

Data pertaining to knowledge after training (Table 1) depicts clearly that there were tremendous gain in knowledge as majority (67.5%) of the respondents shifted to the category of good knowledge and only 27.5 per cent had the average knowledge about smokeless Chullah. Only few respondents (5.0%) could not recall some of the aspects like agency who assist in Chullah installation, frequency to clean chimney pipe, height of chimney and precautions to be taken.

Data pertaining to knowledge after intervention (Table 1) indicated that knowledge improved as a result of intervention. Majority of the respondents (82.5%) gained correct knowledge about different aspects of smokeless Chullah. The respondents belong to the category of average knowledge was 17.5 per cent.

Appropriateness of smokeless Chullah as perceived by rural women:

Appropriateness of the Chullah was judged after 3 months of intervention because it is after that period only the respondents can judge the appropriateness easily and correctly as they used the technology in their own situation. The respondents were asked to give score (out of 10) against each benefits of smokeless Chullah.

It is observed from the Table 2 that after intervention,

Table 2 : Appropriateness of smokeless Chullah in terms of benefits perceived by the rural women

Sr. No.	Benefits perceived	Mean weighted score (out of 10)
1.	Easy in use	9.6
2.	Fuel saving	8.4
3.	Time saving	9.1
4.	Smoke free kitchen	9.3
5.	Hygienic	8.2
6.	No irritation in eyes	8.1
7.	Keeps food hot for longer time	7.6
8.	Low cost	9.2

almost all the respondents perceived the benefits of smokeless Chullah and reported it highly appropriate in terms of easy in use, time saving, fuel saving, low in cost and healthy environment of the kitchen (smoke free kitchen and no irritation in eyes).

Conclusion:

The findings of the study revealed that rural women gained good knowledge and skill after training and again it increased more after intervention. This clearly shows that for introduction of any new technology first training and then intervention is must. The extension personnel providing training should keep in mind that the clientele will go for adoption of a new technology only if they perceive its appropriateness and gets convinced with it. As commercial fuel is beyond the reach of the rural communities due to poor socio-economic conditions and inaccessibility, this new and energy efficient Chullah can be popularized in the rural parts of the state (Rawat *et al.*, 2010). The beneficiaries observed that the outlet pipe made of tin get very hot while cooking in summer season and hence, they feel that the smokeless Chullah with tin pipe

for winter and outlet pipe of asbestos in summer are comfortable for cooking.

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