

## Original Research Article

# Impact of Smokeless Chulha for Farm Women to Improve Quality of Life: On Farm Trial

Rekha Singh<sup>1\*</sup>, R. P. Chaudhary<sup>1</sup>, G. K. Choudhary<sup>2</sup> and U. S. Gautam<sup>3</sup>

<sup>1</sup>SMS (H. Sc.), SMS (Agril. Ext.), ICAR-KrishiVigyan Kendra, IIVR, Bejwa, Bhadohi, U.P. (221301), India

<sup>2</sup>SMS (Veterinary Sciences), ICAR-KrishiVigyan Kendra, IIVR, Bejwa, Bhadohi, U.P. (221301), India

*\*Corresponding author*

## ABSTRACT

In rural households of Bhadohi district, the farm women are using traditional chulha for cooking food. The tradition chulha produces high carbon emission which causes indoor air pollution and health problem in farm women of 45 plus age. The environmental, health and economic benefits of using a smokeless and fuel efficient chulhas are enormous. Keeping all these points in view, the present study was done to assess the impact of smokeless chulha for farm women. The study was conducted through OFT by Krishi Vigyan Kendra, Bhadohi during 2016-2017. The awareness training programs were organized for farm women through lecture cum demonstration method, interventions was done at their place and data were collected on gain in knowledge, skill and perception of farm women towards smokeless chulha. Before the training programme the participants have poor and average knowledge about smokeless chulha. The gain in knowledge was increased by 66.67% after conducted training programme and improved after interventions (from 66.67 to 83.33). In post evaluation study it was observed that 100% of the beneficiaries accepted that the smokeless chulha was very fuel efficient. By using smokeless chulha the drudgery was reduced 90% and fuel consumption was also reduced (93.33%). The findings of the study revealed that energy efficient smoke free chulhas was better substitute against the conventional method. Conventional practices provide unsafe and unhealthy environment to the farm women. Cooking energy has a major share of total energy consumption of the family. There is need of imparting more knowledge to farm women about smokeless chulha and its usefulness. If farm women are healthy then their children will progress and other family members will leave a positive life.

### Keywords

Safe and healthy environment, drudgery reduction, smokeless chulha

## Introduction

In rural household of Bhadohi district, the farm women are using traditional chulha for cooking food and they still rely on firewood, cow dung cakes, crop residues and charcoal as energy resource, despite the no. of problems associated with traditional use like – safety issues, time consuming in fuel collection, health hazards and reduced

working efficiency. During cooking, smoke from the tradition chulha is one of the major causes for ill health of farm women and their children. Indoor air pollution and air quality in rural households is another major issues in multiplication of health related problems as the level of particulate matter is more damaging factor for women of 45 plus age.

Other outcomes include asthma, low birth weight, tuberculosis, cataract, nasopharyngeal cancer and laryngeal cancer. Furthermore, in addition to these health issues, there are some indirect negative impacts associated with the use of biomass fuels. Some studies have shown that women generally spend one and a half to two hours daily for collecting fire woods which increases drudgery. To avoid smoke filled room, most of the families have their kitchen in outside area of the house. The general pattern followed by urban households, women are using liquefied petroleum gas (LPG) or electrical cook tops as energy resource for cooking food (Tata Energy Research Institute, 1987). It makes cooking easier but it is costly for farm women. Many rural families have limited earning resources so that they cannot afford LPG or electronic cook tops for cooking food.

It was, therefore, felt essential to introduce smokeless chulha to the farm women. The smokeless chulha is simple in design and operates similarly as the traditional chulhas used by many families except that it has two burners and a chimney (Rawat *et al.*, 2010). Its fuel efficiency is also high thus reducing the quantity of fuels (Tata Energy Research Institute, 1987). Keeping all these points in view, the present study had been undertaken to assess the impact of smokeless chulha for farm women. The study was conducted through OFT by Krishi Vigyan Kendra, Bhadohi during 2016-2017.

In this study, some awareness training programs were organized for farm women through lecture cum demonstration method, interventions was done at their place and data were collected on gain in knowledge, skill and perception of farm women towards smokeless chulha. The beneficiaries were highly appreciated fuel efficient smokeless chulha as in terms of time saving, low cost,

healthy environment in the kitchen & keeps food hot for longer time. The main objectives of establishing smokeless chulha were: i) to provide safe and healthy environment in the kitchen, ii) time saving in fetching fire woods iii) reducing drudgery of farm women.

### **Material and Methods**

The three village's viz. Uchitpur, Aurai and Garauliin Aurablock of the Bhadohidistrict of Uttar Pradesh were selected for the study on basis of ease in approach and familiarity with the area. Selections of farm families were done purposively. To create awareness, training cum demonstration programme was conducted in selected villages. From three villages, total 45 participants were attended the demonstration programme.

After attended awareness programmes in the selected villages, 30 farm women showed keen interest to establish the fuel efficient smokeless chulha at their places. This fuel efficient smokeless chulha were installed at five beneficiary's places as an intervention of KVK with minimal charges and other 25 were installed at the farm women's places on their own expenses. The data were collected through interview and observation method from the respondents.

### **Results and Discussion**

In the Fig. 1, data represents participant's knowledge about smokeless chulha. The chart shows that before training program, the 86.67% of participants had poor knowledge whereas 13.33 per cent participants had average knowledge about smokeless chulha. Findings of the study also indicate that the gain in knowledge was increased by 66.67% after conducted training programme and was improved after intervention (from 66.67 to 83.33).



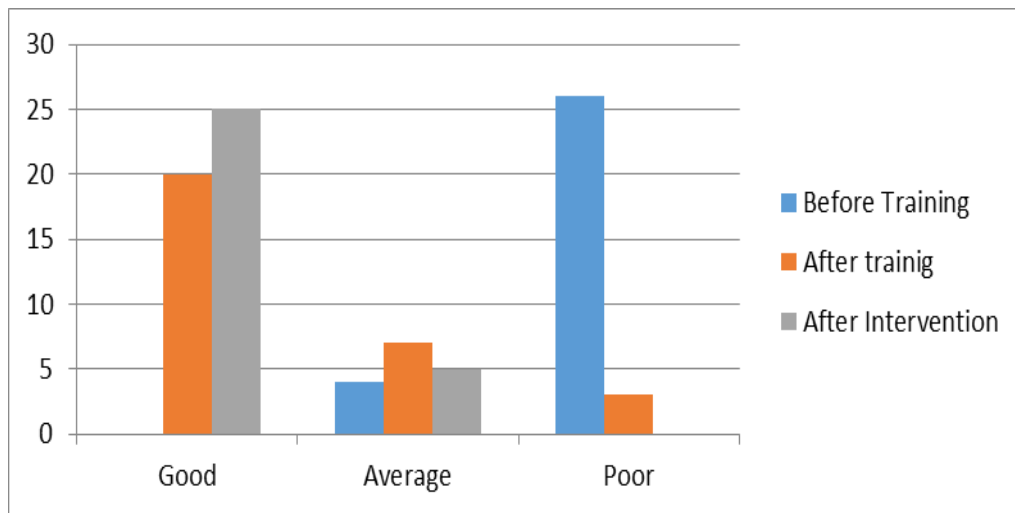
**Traditional Chulha**



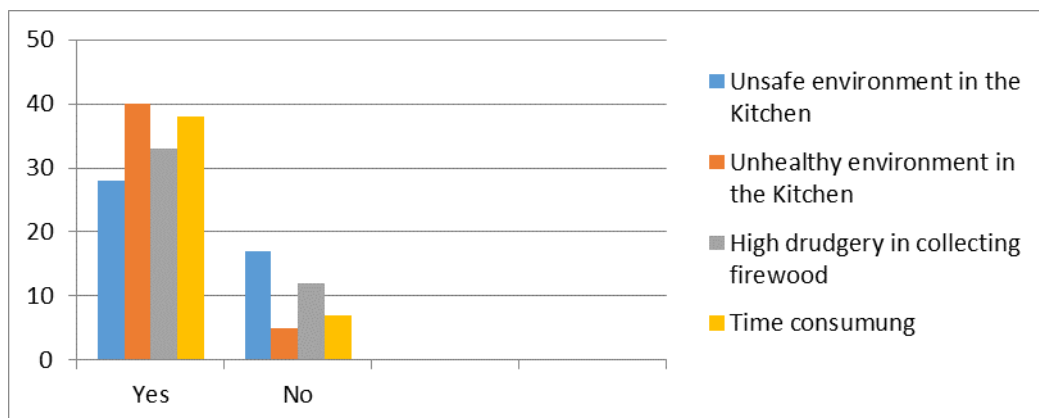
**Farm Woman fetching fire wood**



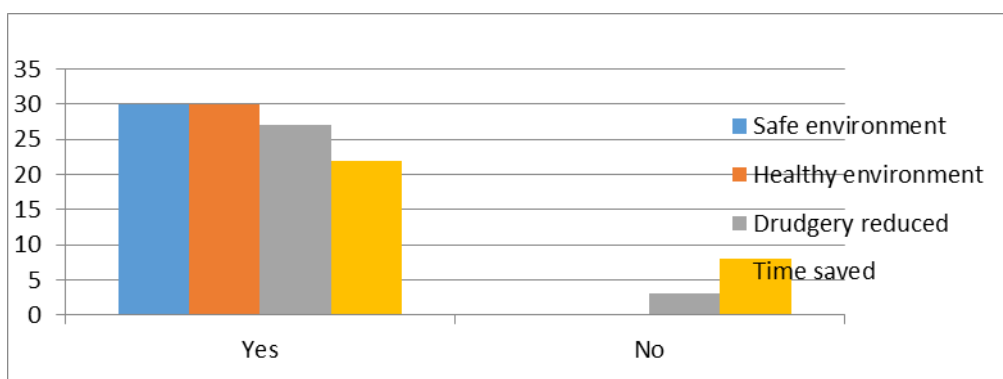
**Fig.1 Improvement in knowledge through training programme**



**Fig.2** Pre intervention, Unsafe and unhealthy environment in the kitchen



**Fig.3** Post intervention, safe and healthy environment in the kitchen (N=30)



**Table.1** Benefits of smokeless chulha as perceived by farm women (N=30)

S. No.	Benefits as perceived	Frequency (Per cent)
1.	Smoke free environment	29 96.67
2.	Fuel saving	28 93.33
3.	Hygienic environment	27 90.00
4.	Ease in use	25 83.33
5.	No irritation in eyes	25 83.33

In Fig. 2, pre evaluation was done to collect information regarding unsafe, unhealthy environment in the kitchen, time consuming and high drudgery in collecting fuel. 62.22% of In the total participants 62.22% were reported their kitchen environment is unsafe for cooking food. The 88.88% of farm women agreed on unhealthy environment at the cooking place. The 73.33% of total participants accepted high drudgery in

collecting and transporting fuel. The 84.44% respondents agreed that collecting of fire wood is time consuming.

In Fig. 3, represents post evaluation impact in which 100% of the beneficiaries accepted that after installation of fuel efficient smokeless chulha creating the safe and all the respondents agreed with healthy environment in the kitchen. The 90% of the

beneficiaries agreed that using of two burners simultaneously reduced drudgery and over exertion. They feel comfortable in using smokeless chulha. 73.33% of the participants said that time consumption is reduced in collecting fuel as in smokeless chulha, energy is dispersed in the two burners and daily consumption of fire wood is reduced.

In table 4 given below, after post evaluation, the data was collected as the beneficiaries perceived by provided technology. The 96.67% of beneficiaries perceived smokeless environment in the kitchen and 93.33% beneficiaries accepted that fuel consumption is reduced due to simultaneously use of two burners. Hence, fuel is saved. The 90% of the respondents agreed that less carbon emission for the environment increases hygiene in the kitchen. The 83.33% of the beneficiaries agreed with that handling of the smokeless chulha are very easy and 83.33% of beneficiaries accepted that due to smoke free environment there is no burning sensation and irritation in their eyes.

The findings of the study revealed that energy efficient smoke free chulhas are better substitute for conventional method (Rawat *et al.*, 2010). Conventional practice provides unsafe and unhealthy environment to the farm women. Cooking energy has a major share of total energy consumption of

the family (Centre for Monitoring Indian Economy, 2006). It has been observed that more efforts has to be done to make people aware about smokeless chulha. There is need of imparting more knowledge to women about smokeless chulha and its usefulness like its non-hazardous effect on health of all family members.

If farm women are healthy then their children will be healthy. If people become aware then there will be more adoption of smokeless chulha. Thus, there is need of organising more and more programmes for people to adopt this technology. The other farm women of the nearby locality where Smokeless Chulha was installed expressed willingness to adopt this chulha at their home very soon.

### References

- Centre for Monitoring Indian Economy. 2006. India's Energy Sector, New Delhi.
- Rawat, J. S., Sharma, D., Nimachow, G. and Dai, O. 2010. Energy efficient chulha in rural Arunachal Pradesh. *Current Science*, 98(12):1554-1555.
- Tata Energy Research Institute. 1987. "Evaluation of the Performance of Cookstoves with Regard to Thermal Efficiency and Emissions from Combustion." Tata Energy Research Institute, New Delhi.