

Domestic fuel consumption pattern among rural households

■ FARIDA AHMED AND INDIRA BISHNOI

See end of the paper for authors' affiliations

Correspondence to:

FARIDA AHMED

Department of Home Science, Mahadev Mahavidyalay, Bariyasanpur, VARANASI (U.P.) INDIA
farida.ahmed11@gmail.com.

ABSTRACT

The collection of biofuel for cooking is accompanied by two problems. First, drudgery in the collection of fuel due to coverage of long distance health hazards due to smoke. Second, poor ventilation/ no ventilation in kitchen. Keeping this in view, a study was conducted in the two villages namely, Achitpur and Chota Mirzapur Khurd of Jamalpur Block of Mirzapur district to know the various characteristics of the respondents and the domestic fuel consumption pattern of the respondents. Total one hundred and twenty five (125) female respondents from the two villages were selected randomly. Statistical analyses were done using Statistical Package for the Social Sciences (SPSS programme). Descriptive statistics including mean, standard deviation, and percentage frequency were used for describing background characteristics of the study group. Respondents and their family members reported that they were facing many problems while fuel purchasing/gathering and prevalence of disease caused by smoke because of improper kitchen facilities and cooking materials

KEY WORDS : Domestic fuel, Consumption, Rural women

How to cite this paper: Ahmed, Farida and Bishnoi, Indira (2011). Domestic fuel consumption pattern among rural households. *Asian J. Home Sci.*, 6 (2) : 273-276.

Article chronicle: Received: 27.09.2011; **Revised:** 22.10.2011; **Accepted:** 25.11.2011

After 64 years of independence 70 per cent peoples are living in rural areas and for cooking they still depend on biofuels such as fuel wood, dung and crop residues. Among these biofuels fuel wood has the highest share of energy consumption in rural areas, followed by animal dung and crop residues. The over-dependence on traditional fuels has led to several ecological and health problems (Rehman, 2002). The consumption of fuel wood on large scale is indeed associated with forest degradation (Jagdish, 2004). In view of above the present study was under taken with the following objectives: to know their various characteristics and to study the domestic fuel consumption pattern of the respondents.

RESEARCH METHODS

For the study, total 125 rural (16 per cent of the total household) were selected randomly from the two villages, Achitpur and Chota Mirzapur Khurd of Jamalpur Block of Mirzapur district of Uttar Pradesh.

RESEARCH FINDINGS AND DISCUSSION

It is evident from Table 1 that 45.6 per cent of the respondents were of younger age group. The average age and standard deviation of the respondents was 38.90 years and 11.97 year, respectively.

Maximum respondents were belonged to Hindu religion (89.6 per cent). Maximum respondents (55.0 per

cent) were OBC (other backward caste) category. It can be interred from the above findings that in our social system OBC have been dominating.

The majorities of respondents (66.4 per cent) were illiterate. It may be concluded that the female literacy rate in the study area is very low. Similar observations also reported by Prasad *et al.* (2009).

More than half (57.6 per cent) of respondent's head of the family were depend on daily wages as labour work followed by the respondents head of the family (18.4 per cent) who were engaged in tiny business like beetle shop etc.

More than half (52.8 per cent) of respondents had family annual income below Rs. 20,000 The trend showed that in study area, economic status of the people was very poor. Parikh and Laxmi (2000) have also stated poor economic condition of rural people in their study done at Tamil Naidu. Basic reason of poverty in the present study area was found the large population growth and there were majority of respondents (89.0 per cent) who had no membership of any type of organization.

Table 2 reveals that majority of the respondents (95.2 per cent) were cooking their food on fuel wood. Regarding the fuel as dung cake, it was found that 5.6 per cent of respondents were not using it at any cost while 80.0 per cent of respondents were purchasing dung cake from market. Only 14.4 per cent respondents who had their

own cattle were getting by self made. Therefore, biofuels are still the main source of cooking fuel and use of fuel wood and dung cake was very common in the present study area.

The fuel kerosene was using mostly for lighting purpose by all the respondents in the present study out of which more than three-fourth (77.6 per cent) of respondents drawing kerosene oil for lighting and cooking

Table 1: Distribution of the respondents according to their various characteristics (n=125)		
Socio-economic characteristics	Frequency	Percentage (%)
Age group (years)		
≤35	57	45.6
36-45	36	28.8
> 45	32	25.6
Average age ± SD =38.90 ±11.97		
Religion		
Hindu	112	89.6
Muslim	13	10.4
Caste		
SC/ST	46	37.0
OBC	69	55.0
Others	10	8.0
Literacy		
Illiterate	83	66.4
Literate	42	33.6
Main occupation of head of the family		
Daily wage labours	72	57.6
Caste occupation	12	9.6
Tiny business	23	18.4
Independent profession	12	9.6
Cultivation	5	4.0
Service	1	0.8
Total family annual income (Rs.)		
≤20,000	66	52.8
20,000-40,000	39	31.2
> 40,000	20	16.0
Average family annual income ± SD = 28,604.00 ± 24,414.10 (Rs. 9,600 to 1,10,000)		
Social participation		
No membership	112	89.0
Member of one organization	9	7.2
Member of more than one organization	4	3.2

Table 2: Distribution of respondents according to the sources of domestic fuel purchasing/collection									
Sr. No.	Sources	Domestic fuels							
		Fuel wood		Dung cake		Kerosene		LPG	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)
1.	Not used	6	4.8	7	5.6	-	-	116	92.8
2.	Market	116	92.8	100	80.0	2	1.6	1	0.8
3.	Ration	-	-	-	-	97	77.6	-	-
4.	Own cattle	-	-	18	14.4	-	-	-	-
5.	Govt. forest	3	2.4	-	-	-	-	-	-
6.	Ration + Market	-	-	-	-	26	20.8	-	-
7.	Agency	-	-	-	-	-	-	8	6.4
	Total	125	100	125	100	125	100	125	100

(adding 2-3 drop for lightening fuel wood) from ration shop.

The utilization of LPG as a clean fuel in rural area was very less till now only 8 (6.4 per cent) respondents were buying it from agency and only 1 (0.8 per cent) respondents from market place. It also emphasized the fact that the bulk of rural people cannot afford alternative fuels like kerosene, biogas and LPG for cooking purposes. The only option available to them is to use firewood. Jagdish (2004) also reported in Karnataka in his study that using clean fuel for cooking was very expensive and unaffordable for rural people.

Table 3 depicts that maximum respondents (40.8 per cent) spent = 15 minute time followed by 36.0 per cent respondents spent 16-30 minutes time at every trip for fuel purchasing/collection. The average time consumption for every trip in purchasing/collection of fuels was found to be 26.37 ± 24.53 minutes.

Table 3: Distributions of respondents according to the time spent by them per trip for fuel purchasing /collection

Sr. No.	Time (minute)	Frequency	Percentage (%)
1.	? 15	51	40.8
2.	16-30	45	36.0
3.	31-45	21	16.8
4.	> 45	8	6.4
	Total	125	100.0
Average time spent \pm SD = 26.37 ± 24.53			

The data of Table 4 show that majority of respondents and their family members (64.0 per cent) were covering = 200 meter distance for various types of fuel purchasing/collection. The average distance covered either by respondents or by their family members was found to be 220.84 ± 191.02 meter. Thus, in a month, a distance of 6 kilometer and above was traveled for purchasing/collecting the required the quantity of fuel.

Table 4: Distribution of respondents according to the distance covered per trip by them and their family for kitchen fuel purchasing/collection

Sr. No.	Distance (meters)	Frequency	Percentage (%)
1.	\leq 200	80	64.0
2.	201-400	24	19.2
3.	401-600	16	12.8
4.	601-800	5	4.0
	Total	125	100.0
Average distance \pm SD = 220.84 ± 191.02			

Table 5 depicts that majority of respondents and their family members (52.0 per cent) were taking 21-30 trips/month for fuel purchasing/collection. The average number

Table 5: Distribution of respondents according to the number of trips/month for fuel purchasing/collection

Sr. No.	Trips/Month	Frequency	Percentage (%)
1.	\leq 10	29	23.2
2.	11-20	31	24.8
3.	21-30	65	52.0
	Total	125	100.0
Average trips/month \pm SD = 20.65 ± 10.60			

of trips/month with standard deviation was 20.65 ± 10.60 , respectively. It indicated that the people of the selected area were consuming more time for collection of fuels as well as other materials for cooking food.

The data presented in Table 6 reveal that more than one-third of the respondents (39.2 per cent), male members visited to shops for purchasing fuels while 31.2 per cent and 16.8 per cent, both male and female and male, female and their children, respectively were purchasing/collection the various fuels from the suitable places. Least number of families only female, children as well as female with their children visited the shop in 4.0 per cent, 3.2 per cent and 5.6 per cent, respectively. Parikh and Laxmi (2000) also reported in their study that households mostly used to send one person for fuel collection. In some cases, however, two persons were engaged for collecting fuel wood.

Table 6: Distribution of respondents and their family members according to their involvement in domestic fuel purchasing/collection

Sr. No.	Family members	Frequency	Percentage (%)
1.	Male	49	39.2
2.	Female	5	4.0
3.	Children	4	3.2
4.	Both male and female	39	31.2
5.	Both female and children	7	5.6
6.	Male, female and children	21	16.8
	Total	125	100

Conclusion:

Availability of clean fuel was not sufficient in the area. The kerosene supplied through public distribution system (PDS) was mostly restricted to a quota of 3 litres per household. Respondents and their family members responded that they were facing many problems while fuel purchasing/gathering and the prevalence of diseases caused by smoke were very high in the study area because of improper kitchen facilities as well as cooking materials. Mostly female above 18 years were the chief cooks. Those who were chief cooks have a greater risk of respiratory

ailments. The serious gender and health implications of rural energy consumption pattern have also been brought out in the study.

Government has to have vision to adopt policies which address the problems of the common man. Governments should at the national level popularize fuel conservation and plantation programmes because with continued deforestation, firewood is becoming more expensive, scarce and the use of alternative cooking methods (such as LPG, electric, solar cookers, etc.) will reduce the high dependence on wood. It would be better if the leaders show their preference and concern for the villages through sanctioning more technology based projects.

Authors' affiliations:

INDIRA BISHNOI, Department of Home Science,
Banaras Hindu University, VARANASI (U.P.) INDIA
E-Mail: indira255@yahoo.com

REFERENCES

- Jagdish, K.S.** (2004). The development and dissemination of efficient domestic cook stove and other devices in Karnataka. *Curr. Sci.*, **87**(7):926-931.
- Parikh, J.,** and Laxmi, V. (2000). Biofuels pollution and health linkages. A survey of rural Tamil Nadu, *Economic & Political Weekly*, **35**(47):4125-4137.
- Prasad** (2009). Assessment of knowledge and attitude of respondents towards programme of Krishi Vigyan Kendras, 5th National Seminar on Extension Perspective in Changing Agricultural Environment, held at C.S. Azad University of Agriculture and Technology, Kanpur on March 5-7.
- Rehman, I.H.** (2002). Non-conventional energy and rural Reconstruction, *Yojna*, **46**:30-33.

*** ***** **