

## Human Energy Consumption for Meal Preparation in Rural Aras of Himachal Pradesh

Neena Vyas and Avinash Sharma

### INTRODUCTION

Energy has been termed as the fuel of economic progress. It is the prime mover of economic growth and development. Food, fibre, shelter are three basic needs of mankind. As one civilization changed to another, the basic needs also changed. Man has to spent energy in one form or the other to meet these needs. Household activities are one of the most important activities of rural Indian from the point of view of energy expenditure for human life support. It is a well known fact that women are the primary users of human energy required for carrying out various household activities. In a household amongst manifold activities energy is required mainly for meal preparation activity. (Chatha, 1989). Therefore it was imperative to study the human energy costs during meal preparation.

### METHODOLOGY

The study was conducted in two villages of Tehsil Palampur, District Kangra of Himachal Pradesh. Stratified sampling technique was used for the selection of sample. Sample of 120 household was selected and the total sample was stratified into four strata, viz. farming nuclear, farming joint, non farming nuclear and non farming joint families. The data were collected through direct personal interview method. Homemakers were also asked about the time spent by different family members i.e. children, servant and other female members. After knowing the daily energy consumption estimates in original units for each energy source were converted into mega joules (MJ) for the purpose of total energy estimation. The conversion factors (Binning et al., 1983) adopted are given below:

<i>Energy Source</i>	<i>Unit</i>	<i>Energy MJ (Mega Joules)</i>
a. Adult man	1 hr	1.96
b. Woman	1 hr	1.57
c. Child	1 hr	0.98

The data collected were tabulated and simple

percentage, means standard deviation and standard error were worked out. The students t-test was applied to find out the statistical significance of the difference between means.

### RESULTS AND DISCUSSION

Meal preparation and service included all tasks related with preparation of breakfast, lunch, dinner and tea etc., including, cutting and making vegetables, making dough chapaties, churning milk, etc. From the persual of the table 1 it can be seen that 45 percent of families in farming and 38 percent in non-farming category, had 2-5 member family. The average family size was 6.25 and 6.60 percent in farming and non-farming categories. It was 4.7 in nuclear families and 7.8 and 8.6 incase of farming joint and non farming joint families, respectively.

It can also be revealed from the table 1 that the majority of farming families (48.33 percent) had 3-4 animals while large number of non farming families (63.33 percent) has 1-2 animals. The minimum families 23.3 percent farming and 6.7 percent non farming in the herd size of 5 and above, though the average herd size in both farming and non farming families was 2.0 and 1.9, respectively. It showed that in both the categories all the families had animals. The total estimated average dung yield of the livestock population was little more in farming families because of the higher herd size. From this dung cakes were made for the purpose of fuel.

It was found that the time spent per day for meal preparation including all meals like breakfast, lunch, dinner in farming and non farming families was 277 and 296 minutes (Table 2). In both the categories the children helped the homemakers. The children spent 77 and 64.4 minutes in nuclear families where as 63 and 47.5 minutes in joint families of both the categories. The less contribution of the children in joint families may be due to presence of other female helping hands.

Table 3 indicated the energy sent by homemaker in both the categories was 7.24 and 7.74 MJ respectively, this difference was statistically

**Table 1: Family size and livestock population**

Family size	Farming families			Non farming families		
	Nuclear n=30	Joint n=30	Total n <sub>i</sub> =60	Nuclear n=30	Joint n=30	Total n <sub>i</sub> =60
2-5	26 (86.6)	1 (13.3)	27 (80.00)	23 (76.6)	-	23 (38.33)
6-9	4 (13.3)	24 (80.00)	28 (46.66)	7 (23.33)	20 (66.6)	27 (45.00)
10-13	-	5 (16.66)	5 (8.33)	-	10 (33.3)	10 (16.67)
Average size	4.7	7.8	6.25	4.73	8.6	6.6
<i>Herd size</i>						
0	4 (6.67)	-	4 (10.00)	1 (3.33)	4 (6.67)	5 (8.33)
1-2	8 (26.66)	12 (40.00)	20 (33.33)	20 (66.67)	18 (60.00)	38 (63.33)
3-4	13 (43.33)	16 (53.33)	29 (48.33)	7 (23.33)	6 (20.00)	13 (21.66)
5 & above	5 (16.67)	2 (6.66)	7 (23.33)	2 (6.66)	2 (6.66)	13 (21.66)
Average herd size	1.87	2.19	2.04	1.57	2.23	1.94

**Table 2: Time spent (minutes/day) on meal preparation by different family members**

Members responding the activity	Farming families			Non farming families		
	Nuclear n=30	Joint n=30	Total n <sub>i</sub> =60	Nuclear n <sub>i</sub> =60	Joint n=30	Total n <sub>i</sub> =60
Homemaker	29.5 ± 13.82 (30)	258.00 ± 15.30 (30)	277.00 ± 10.35 (60)	302.00 ± 12.38 (30)	290.00 ± 15.53 (30)	296.00 ± 10.14 (60)
Children	77.00 ± 10.71 (20)	63.00 ± 6.06 (19)	71.78 ± 6.71 (39)	64.44 ± 11.12 (22)	47.5 ± 21.18 (6)	55.00 ± 9.64 (28)
Other female members	-	171.78 ± 15.13 (27)	171.78 ± 15.13 (27)	-	160.00 ± 10.28 (28)	160.00 ± 10.28 (28)

Figures in parentheses indicates number of families.

non-significant. The reason being that majority of families from both the categories has similar type of food habits, herd size, living style, method of preparation and cooking units used. The energy

**Table 3: Energy spent (MJ/day) on meal preparation family members**

Members responding the activity	Farming families			Non farming families			+ value farming vs non farming
	Nuclear n=30	Joint n=30	Total n <sub>i</sub> =60	Nuclear n <sub>i</sub> =60	Joint n=30	Total n <sub>i</sub> =60	
Homemaker	7.72 ± 0.36	6.75 ± 0.38	7.24 ± 0.27	7.90 ± 0.21	7.60 ± 0.40	7.74 ± 0.26	1.323
Children	1.26 ± 0.17	102 ± 0.09	1.17 ± 0.10	1.05 ± 0.18	0.77 ± 0.34	0.89 ± 0.15	1.750*
Other female members	-	4.47 ± 0.39	4.47 ± 0.39	-	4.19 ± 0.26	4.19 ± 0.26	0.592

Significant at 10% level of significance.

spent by children was 1.77 MJ in 39 farming as against 0.89 MJ in 28 non farming families children helped homemakers in meal service as the meal was to be carried to the farms whereas in non-farming families all members sit together to eat the meal at same time. The energy spent on this activity by other female members was 4.47 and 4.19 MJ, in case of joint families of farming and non farming category, respectively. These results were in accordance with Bakshi et al. (1988).

### CONCLUSION

In general human energy is required primarily for meal preparation, women were main responsible for performing this task in both farming and non farming categories. In nuclear families of both the categories children were found to provide more assistance to homemakers whereas in joint families other female members present were providing this help. Hence leading to conclusion that women in farming families equally spend energy in meal preparation in addition to their agricultural work.

**KEYWORDS** Energy. Household Activities. Rural Families.

**ABSTRACT** The present study revealed that women were found to be mainly responsible for performing various household activities. Maximum energy was spent on meal preparation and service being 7.24 MJ in farming families and 7.74 in non forming families, respectively. The energy spent by children was 1.17 MJ and 0.89 MJ in farming and non farming families, the energy spent by other female members was 4.47 MJ, in case of joint families of farming and non farming families, respectively. This difference between the energy spent by two groups is found to be statistically significant ( $P < 10$ ). The reason being that in farming families children helped homemakers in meal service as the meal is to be carried to the farms whereas in non-farming families all members sit together to eat the meal at same time.

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**Authors' Address:** Neena Vyas and Avinash Shamra, Department of Family Resource Management, CSK HPKV, Palampur, Himachal Pradesh, India