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## Rupal Hooda

Department of Family Resource  
Management, COHS, CCS  
Haryana Agricultural  
University, Hisar, Haryana,  
India

## Manju Mehta

Department of Family Resource  
Management, COHS, CCS  
Haryana Agricultural  
University, Hisar, Haryana,  
India

## A study on the general profile of people and their knowledge about carbon footprint during cooking

Rupal Hooda and Manju Mehta

### Abstract

A study was conducted in two districts of Haryana state to assess the general profile, socio-economic status of the residents and their knowledge about the carbon footprint during heating and cooking. The study was carried in two districts viz. Hisar and Sonipat of Haryana state. Two localities from each district were selected randomly for accessing the general profile and socio-economic status of the people. Under Hisar district, Professor Colony and Azad Nagar and; under Sonipat district, Mayur vihar and Shashtri Nagar was selected randomly for sampling. It was observed that, people were almost equally distributed among the age group of 30-40, 41-50 and 51-60 years. Majority of the people belonged to general caste, were married, living as nuclear family and having a medium status of family education. All the respondents were using mobile phone as their favorite media of information. Majority of the study population was graduate and professional and belonged to upper class of family having above Rs. one lakh salary per month. Regarding carbon footprint while heating and cooking, the mostly known fact was that water should be heating in a covered pot.

**Keywords:** Carbon footprint, general profile, Haryana, Hisar, Sonipat

### Introduction

General profiles are a great tool for exploring, planning, and analyzing geographic areas across a variety of social, economic, and demographic characteristics. It provides complete statistical images of the area and provides data on individuals, families, and housing. The socio-economic status is the social status or class of an individual or group. It is often measured as a combination of various variables like education, income and profession of family or individual. Studies of socio-economic status often reveal issues related to disparity in access to resources and privileges, authority and control. The general profile and socio-economic status of the people a country affect a lot of matters related to development, environment and overall progress of the nation in every field. Carbon footprint is a measure of the total carbon dioxide released in to the environment due to our daily activities.

The amount of CO<sub>2</sub> a single person creates directly affects environmental change and can be reflected at global level. Dangerous atmospheric changes due to alarmingly increasing emission of carbon are the major issues liable for quick environmental change. Ramchandra *et al.* (2012) [1] stated that the Planning Commission, Government of India, in the 12th five-year plan of the country advocated low carbon growth to reduce India's emission intensity. Thinking about the significance of the environmental changes, there is a need to provide data related to the knowledge with respect to carbon and water footprint among the Indian population. The current study was conducted with the objective to assess the general profile and socio-economic status of the people of two districts of Haryana state and awareness about the carbon footprint generation during the process of cooking and heating.

### Methodology

**Locale of the study:** as per the objectives, the study was conducted in two districts viz. Hisar and Sonipat of Haryana state, selected randomly. Two localities from each district were selected to access general profile and socio-economic status of the respondents. Under Hisar district, two localities i.e., Professor Colony and Azad Nagar and under Sonipat district, two localities i.e., Mayur vihar and Shashtri Nagar localities were selected randomly.

**Sampling procedure:** the personal information and socio-economic status was assessed through a well-structured questionnaire proforma. Random sampling technique was adopted to draw a total sample size of 200 households. A sample of 50 households was randomly selected from each locality, thus making a sample of 200 households from two districts.

## Corresponding Author

### Rupal Hooda

Department of Family Resource  
Management, COHS, CCS  
Haryana Agricultural  
University, Hisar, Haryana,  
India

**Personal variable:** The various personal variables considered in this study were age, gender, caste, marital status, domicile, type of family i.e., nuclear or joint, size of family, number of children, ownership of house i.e., rented or own, type of house i.e., single, double or multistory etc.

**Mass media exposure:** The exposure of respondents to mass media was categorized in to three different levels viz. low (1-3), medium (4-6) and high (7-9).

**Socio-economic status:** the socio-economic status of the people was assessed as per the Modified Kuppaswamy socioeconomic scale updated for the year 2021 (Kuppaswamy, 1981 and; Saleem and Jan, 2021) [2, 3]. The various variables that were included under socio-economic status were education of the head of family, occupation of the head of family, total average monthly disposable income of the household, total monthly income, socio-economic class of the respondents.

## Results and Discussion

### General profile of respondents

Out of the total urban population, all the age categories had almost similar number of respondents in urban. But, in Hisar city, majority (39.0%) of the respondents belonged to 51-60 years of age while in Sonipat district, majority (38.0%) was in the 30-40 years of age. 46.5% of the total respondents were male and 53.5% were female. And, the percentage of female was more in both the districts. Out of total study population, half of the respondents (50.0%) belonged to general category followed by 23.5% from BC (A) and 22.5% from BC (B)

category and only 4.0% of them were from SC. The number of respondents belonging to general category was more in Sonipat (53.0%) as compared to Hisar (47.0%). Majority (89.8%) of the respondents were married and similar in percentage in both the districts. Number of divorcee and widow were more in Sonipat as compared to Hisar. Concerning the type of family, nuclear family was observed to be preferred (55.5%) as compared to joint family (44.5%). Size of the family was constituted mainly by 4-6 individuals (38.5%) followed by 1-3 members (33.0%) and above 6 members (28.5%). In Hisar as well as Sonipat, maximum of the family had 4-6 members. 53.0% of total households had 1-2 children. Majority of the total respondents were dwelling in their own house. Double storey was the major type of house in Hisar (47.0%) as well as Sonipat (44.0%). 30.5% of the all respondents had 1-2 acres of land. Mobile phone was reported to be mainstream media player (100% respondents) followed by use of T.V. (99.5%) as a general source of information. 89.0% respondents had internet connectivity. 70.0% of the respondents belonged to medium (6-7) family education status followed by low (4-5) and high (8-9) education status in 17.5% and 12.5% of the respondents, respectively. Grover *et al.* (2015) [4] also reported from a study in Haryana that about 40.00% of the farmers were in the age group of 49-58 years, followed by 30.00% who were 39-48 years of age, 15.00% were 29-38 years old and 5.00% were of 18-28 years age and rest 10.00% were above 60 years. Dhall *et al.* (2018) [5] also supported these findings and found that the internet was the most used medium for farmers to explore agriculture-related information.

**Table 1:** General profile of respondents

Sr. no.	Variables	Category	Hisar (n=100)	Sonipat (n=100)	Total (n=200)
1	Age (years)	30-40	37	38	75 (37.5)
		41-50	24	36	60(30.0)
		51-60	39	26	65(32.5)
2	Gender	Male	47	46	93(46.5)
		Female	53	54	107(53.5)
3	Caste	General	47	53	100(50.0)
		BC (A)	25	22	47(23.5)
		BC (B)	23	22	45(22.5)
		SC	5	3	8(4.0)
4	Marital status	Married	88	85	173(86.5)
		Unmarried	7	3	10(5.0)
		Divorced	2	4	6(3.0)
		Widow	3	8	11(5.5)
5	Family type	Nuclear	53	58	111(55.5)
		Joint	47	42	89(44.5)
6	Family size (number of members)	1-3	35	31	66(33.0)
		4-6	39	38	74(38.5)
		Above 6	26	31	57(28.5)
7	No. of children	1-2	55	51	106 (53.0)
		3-4	45	49	94(47.0)
8	Ownership of house	Rented	28	27	55(27.5)
		Own	72	73	145(72.5)
9	No. of rooms in the home	Less than 2	13	8	21(10.5)
		3-4	25	35	60(30.0)
		5 and above	62	57	119(59.5)
10	Type of house	Single storey	19	35	54(27.0)
		Double storey	47	44	91(45.5)
		Multistorey	27	19	46(23.0)
		House with basement	7	2	9(4.5)
11	Number of animals	Cow	5	20	25(12.5)
		Buffalo	3	12	15(7.5)
		Calves	3	9	12(6.0)

		Ox	0	0	0(0.0)
12	Land holding	Landless	21	24	45(22.5)
		1-2.5 acres	32	29	61(30.5)
		2.5-5 acres	19	24	43(21.5)
		5-7.5 acres	23	20	43(21.5)
		More than 7.5 acres	5	3	8(4.0)
13	Mass media exposure	T.V.	99	100	199(99.5)
		Radio	23	36	59(29.5)
		Internet	92	86	178(89.0)
		Mobile	100	100	200(100.0)
		Leaflets	46	11	57(28.5)
		Pamphlet	42	7	49(24.5)
		Newspaper	96	82	178(89.0)
Magazines	32	10	42(21.0)		
14	Family education status	Low (4-5)	13	22	35(17.5)
		Medium (6-7)	72	68	140(70.0)
		High (8-9)	15	10	25(12.5)

\*The figures in parenthesis indicate percentage

**Level of mass media exposure of respondents**

It was reported that most of respondents (48.0%) had medium level (4-6) of exposure to the mass media followed by high (7-9) and low (1-3) level in 41.5 and 10.5% respondents, respectively.

**Table 2:** Level of Mass media exposure of respondents

Level of Mass media exposure	Hisar (n=100)	Sonipat (n=100)	Total (n=200)
Low (1-3)	11	10	21 (10.5)
Medium (4-6)	49	47	96(48.0)
High (7-9)	40	43	83(41.5)

\*The figures in parenthesis indicate percentage

**Socio-economic status of respondents**

Socio-economic status of the respondents has been presented

**Table 3:** Socio-economic status of respondents

Sr. no.	Variables	Category	Hisar 100	Sonipat 100	Total 200
1	Education of the head of family	Illiterate	9	11	20(10.0)
		Primary	5	8	13(6.5)
		Middle	10	9	19(9.5)
		High	13	12	25(12.5)
		Intermediate/diploma	21	23	44(22.0)
2	Occupation of the head of family	Graduation	42	37	79(39.5)
		Unemployed	12	15	27(13.5)
		Skilled worker and shop	26	29	55(27.5)
		Professionals	53	38	91(45.5)
3	Total income, Rs. (monthly)	Clerks	9	18	27(13.5)
		Rs. ≤ 6174	6	3	9(4.5)
		Rs. 6,175-18,496	11	6	17(8.5)
		Rs. 18,497-30,830	5	5	10(5.0)
		Rs. 30,831-46,128	6	13	19(9.5)
		Rs. 46129-61,662	10	10	20(10.0)
		Rs. 61,663-123,321	18	19	37(18.5)
Rs. ≥1,23,322	44	44	88(44.0)		
4	Socio-economic status	Lower	6	3	9(4.5)
		Upper lower	11	6	17(8.5)
		Lower Middle	11	18	29(14.5)
		Upper Middle	10	10	20(10.0)
		Upper class	62	63	125(62.5)

\*The figures in parenthesis indicate percentage

**Knowledge regarding generation of carbon footprint during cooking and heating**

Maximum knowledge (table 4) was about the statement ‘Always heat the water in covered pot’ (WMS: 2.10) followed

in the table 3. Majority of the respondents (39.5%) were graduate followed by 22.0% respondents who had educational achievement up to intermediate/diploma level. But, number of graduate respondents was higher in Hisar in comparison to Sonipat. Only 10% of the total respondents were illiterate. Regarding occupation, majority of the respondents (45.5%) were involved in one or the other profession. 27.5% respondents were skilled worker and 13.5% were clerks. And the unemployment in these urban areas was 13.5%. Number of professionals was higher in Hisar (53.0%) compared to Sonipat (38.0%). Total monthly income of Rs. 123,322 and above was reported in 44.0% of the household. 10.0% families had a total monthly income of Rs. 46129-61,662. 62.5% of respondents were from upper class followed by 14.5% respondents from lower middle class.

by statements ‘All raw materials should be prepared and collected before cooking’ and ‘Cereals, pulses, rice should be soaked before cooking’ (WMS: 2.05). Least knowledge was found about the statement ‘Optimum quantity of water should

be used for cooking' (1.74). In a similar study, Haron *et al.* (2005) [6] conducted research on "sustainable consumption: an examination of environmental knowledge among Malaysians"

and observed that respondents' basic and general environmental knowledge was high.

**Table 4:** Knowledge of respondents regarding generation of carbon footprint in households during cooking and heating

Sr. no.	Statements	Carbon footprint		
		Hisar (n=100)	Sonipat (n=100)	WMS
1.	All raw materials should be prepared and collected before cooking	54	51	2.05
2.	Optimum quantity of water should be used for cooking	44	30	1.74
3.	Food should be cooked with a lid/cover on pots	46	45	1.91
4.	Pressure cooker should be used for cooking food	54	48	2.02
5.	Correct size of pots should be used as per burner	56	46	2.02
6.	Cereals, pulses, rice should be soaked before cooking	53	52	2.05
7.	Food should be cooked on low flame	47	49	1.96
8.	Turning the LPG off and on during break in cooking	52	51	2.03
9.	Clean utensils should be used for cooking	43	51	1.94
10.	Solar cooker should be used for cooking	48	42	1.90
11.	Always heat the water in covered pot	50	60	2.10
12.	Reduce the flame once as the water starts boiling	46	57	2.03
13.	Avoid overcooking of vegetables	44	55	1.99
14.	Stainless pans should be used instead of clay pans for cooking	58	46	2.04
15.	Always use colorless or blue flame	47	51	1.98
16.	Avoid reheating of food as it destroys nutrients and consumes more fuel	53	50	2.03
17.	Food should be cut into smaller pieces to save fuel and reduce cooking time	48	52	2.00

## Conclusion

From the findings of the study, it was concluded that the main portion of the Hisar and Sonipat districts is constituted by people of age group of 30-40 years, majority of which are married, prefer to live in joint family and belong to general caste. A major portion of these urban people are professional and belong to upper class of society with a total income of more than one lakh. Maximum of the respondents were aware of the fact that water should always be heated in covered pot to reduce carbon footprint.

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