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Research Paper

Assessment of physical features of rural kitchen in Kanpur Nagar

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■ **ABSTRACT :** Present study on assessment of physical features of rural kitchen was conducted in Kalyanpur and Chaubepur block of Kanpur Nagar. Two hundred forty respondents having compact kitchen were purposively selected from randomly selected Hindupur and Dharampur village of Kalyanpur block and Hridaypur and Kishunpur village of Chaubepur block. Tool used to gather information was an interview schedule and personal interview method was used for data collection. Analysis of data reveals that majority of respondents were using enclosed veranda as a kitchen with east or west orientation. Sitting type Kachcha kitchen with mud floor, wall and thatched roof was common feature. Majority were having one wooden door and only 25.83 per cent were having window and 23.75 per cent ventilator. Majority were having open built in shelf, kuchcha uncovered drain and throw garbage in backyard. Traditional chulha was a source of cooking for 95.83 per cent and 99.25 per cent had no smoke outlet. Cow dung cake, field waste and firewood was major fuel used by them and kitchen was also used as dining area by majority.

■ **KEY WORDS:** Rural kitchen, Physical feature, Orientation, Construction material, Drainage, Fuel

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Estimated population in India in 2011 was 121 million, a growth of 17.64 per cent from 2001. The density of population is 382 person/sq km. Of the 121 crore Indians, 83.3 crore live in rural areas while 37.7 crore stay in urban areas, said the Census of India's 2011. This depicts nearly 68.84 per cent of the Indian population lives in rural areas. The total number of households in rural area is 143 million (Census of India, 2001). The nature and magnitude of rural housing problem is much more complex. In the rural areas, poor people usually live in kachcha sheds which can hardly be called houses in the true sense. It is surprising but true that when living standard of people has been rising day by day, there is not much improvement in the organization and qualities of kitchen especially in rural areas and lower income brackets of urban areas. Food is imperative for survival, productivity and existence of human beings and home maker spends major part of her working hours in food related tasks and the kitchen is the main arena where these tasks are performed. Hence, kitchen is a very significant part of house. The ease with which the work in the kitchen is accomplished depends upon its work space design, care and maintenance. The condition of rural kitchens are more critical as there is Not enough

space for performing various kitchen activities, Inadequate light even during day time and Inadequate space for grains and provisions. Dwarf wall with no ceiling or such a wall partitioning veranda into a kitchen is a common feature in almost all the kitchens in rural areas. The long distance between kitchen, farm land and water sources, less use of time and labour saving devices, poor work arrangement, poor lighting and ventilation in the kitchen account for longer duration and drudgery in cooking related task of women apart from adversely affecting their life style. It is ironic that when living standards of Indians are rising steadily, there is hardly any improvement in the organization and quality of kitchen, especially in rural areas and lower income brackets of urban areas. The kitchen area is characterized by considerable saturation with various kinds of devices and equipments designed to realize its basic functions. Therefore, shaping it should take into account the characteristics and parameters referring to the functional arrangement as well as furniture's and equipments. It is important that kitchen of household meet at least minimal standards, so that the health and safety of a homemaker, who spend most of her time in the kitchen can be safe guarded. Keeping this fact in view the present study was conceptualized to gain insight into the physical feature of rural kitchen.

■ RESEARCH METHODS

Descriptive-cum-experimental research design was adopted to study the physical features of Rural kitchen in Kanpur Nagar. The multi-stage purposive random sampling design was used to select the locale, village and respondents. Two hundred forty respondents having compact kitchen were purposively selected from randomly selected Hindupur and Dharampur village of Kalyanpur block and Hridaypur and Kishunpur village of Chaubepur block. Principal tool used to gather information was an interview schedule. Personal interview method was used for data collection. Pilot study was conducted to pre-test the interview schedule. Tools were appropriately modified and used in final data collection.

■ RESEARCH FINDINGS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

Location and orientation of kitchen:

Kitchen where the hub of cooking activity occurred was considered a separate entity in the house only if it was a covered and sheltered area with walls and roof. An open varandah or an area with roof but not separated from remaining part of varandah with a wall of some height was not identified as a kitchen for the purposes of this study.

Table 1 : Distribution of respondents on the basis of location and orientation of kitchen

Sr. No.	Location	Frequency	Per cent
1.	Enclosed verandah	133	55.42
2.	Separate kitchen	107	44.58
	Orientation		
1.	North	39	16.25
2.	East	63	26.25
3.	North-east	19	7.92
4.	South	30	12.50
5.	West	64	26.66
6.	South-west	12	5.00
7.	South-east	13	5.42
8.	North-west	0	0.00

Data pertinent to location of cooking area reveals that about 55.41 per cent of the total households, under study, undertook cooking in veranda, enclosed with a dwarf wall. Only 44.58 per cent of the respondents had a separate room ear-marked as kitchen. The findings substantiate the neglect of rural housing designing with respect to kitchen. Study on orientation of kitchen shows that out of total households under study 12.50 per cent were oriented to south, 16.25 per cent to north, 26.25 per cent to east and 26.66 per cent to west. In indicates least preference of households for south ward orientation again highest, all most equal, preference for west and east ward orientation. North-east (7.92 %), south-east (5.42 %) south-west (5.00 %) orientations in that order, had further reduced preferences. Incidentally, none of the houses studied had north-west orientation. Based on appropriateness of orientation it was observed that out of 240 kitchens 50.42 per cent were appropriately oriented, *i.e.*, these had north-east, east or north facing entrance doors. North-east is a much preferred kitchen orientation though north or east orientation is also supposed to be appropriate.

The investigator probed to find out the design of selected rural kitchens with respect to type of their

Table 2 : Distribution of respondents on the basis of enclosures and style of their kitchen

Sr. No.	Kitchen enclosures	Frequency	Per cent
1.	With roof and dwarf wall	93	38.75
2.	Without roof having dwarf wall	9	3.75
3.	Wall upto ceiling	138	57.50
	Style of kitchen		
1.	Sitting	213	88.75
2.	Standing	20	8.33
3.	Sitting and standing both	7	2.92

enclosures, *i.e.*, presence of roof over and wall enclosing the cooking area. It was found that most of the kitchens 57.50 per cent had typical roof type design with four walls and a roof over them, whereas 38.75 per cent kitchens had a roof with one or two dwarf walls. Some of the kitchens (3.75 %), however, had only one or two dwarf walls without a roof and 8.33 per cent households had standing-type of kitchen with a platform and 2.92 per cent kitchens fit for both, standing and sitting type of operations. However, majority of kitchens, *i.e.*, 88.75 per cent, were of sitting-type. In other words, the rural kitchens by and large, remained traditional in this aspect.

Construction material of kitchen:

Data pertinent to material used in kitchens when analyzed reveals that the majority of households, *i.e.*, 61.25 per cent used temporary materials that required repair and maintenance often (Table 3). A little less than one fifth of them (17.92 %) had pucca kitchens giving them durability. On the other hand, about one-fifth, *i.e.*, 20.83 per cent of the rural households had mixed type of kitchen with either one or more of their components like floor, wall or roof made of temporary materials and rest using durable materials. However, separate kitchens based on constructions had more of pucca (35.51 %) and mixed (34.58 %) construction than enclosed veranda turned into kitchen (3.76 and 9.77%), respectively.Latter had kachcha constructions in 86.47 per cent cases.

Table 3 : Distribution of respondents on the basis of material of construction of their kitchen

Sr. No.	Construction material of kitchen	Separate kitchen		Enclosed veranda		Total	
		F	%	F	%	F	%
1.	Kachcha	32	29.91	115	86.47	147	61.25
2.	Pucca	38	35.51	5	3.76	43	17.92
3.	Kachcha-pucca mixed	37	34.58	13	9.77	50	20.83
	Materials of floor						
1.	Mud	73	68.22	126	94.74	199	82.92
2.	Brick	1	0.93	2	1.50	3	1.25
3.	Cement plastered	33	30.84	5	3.76	38	15.83
	Materials of roofs						
1.	Thatch	29	27.10	109	87.90	138	59.74
2.	Fired mud tiles	11	10.28	6	4.84	17	7.36
3.	Tin shade	6	5.61	4	3.23	10	4.33
4.	Brick	16	14.95	5	4.03	21	9.09
5.	Cement plaster	43	40.19	0	0.00	43	18.61
6.	Tiles	2	1.87	0	0.00	2	0.87
	Materials of wall						
1.	Mud	36	33.64	101	75.94	137	57.08
2.	Brick	35	32.71	28	21.05	63	26.25
3.	Cement plaster	36	33.64	0	0.00	36	15.00
4.	Tiles	0	0.00	0	0.00	0	0.00
5.	Other finishes	0	0.00	04	3.01	04	1.67

Material of floor:

Further analysis was done on materials used for flooring the kitchens (Table 3). Data on these materials revealed that 82.92 per cent of the total households studied had mud flooring, while 15.83 per cent had cement plastered and 1.25 per cent brick floored kitchens. Mud flooring adds to the burden of rural women of caring and maintaining the house. Separate kitchens had less of mud (68.22 %) flooring as compared to verandas enclosed as kitchens (82.92 %). Conversely was true for plastering. There exists a need to orient the respondents and their families about the benefits of durable and permanent floor finishes and their favourable impact on sanitation in the house and reducing demands on the time and work load of women.

Material of roof:

Since only 231 households had roof above their cooking areas, whether it was separated kitchen or an enclosed veranda. Data related to the material of the roof of kitchens of only these households were scrutinized (Table 3). Out of these kitchens, about 60 per cent were thatched, while 18.61 per cent had cement plastered roof and 9.09 per cent brick roof. Fired mud tile roof and tin shades were found only in 7.36 per cent and 4.33 per cent households, respectively. Separate kitchens had highest proportion of cement plastered (40.19 %) roofing whereas enclosed veranda kitchens had highest proportion of thatched (87.90 %) roofing.

Material of walls:

An analysis of data on the material used in kitchen walls reveals that mud or brick walls were more commonly found with percentile values of 57.08 and 26.25, respectively, than any other (Table 3). Walls of 15 per cent kitchens were plastered ones and only 1.67 per cent had any other type of finish. Here also mud finishing was more in case of veranda enclosed as kitchens (75.94 %) than in separate kitchens (33.64 %). Cement plastered walls were part of separate kitchens only. Bricks too were more often used in separate kitchens (32.71 %) than veranda enclosed ones (21.05 %).

Number of door, window and ventilators:

Results (Table 4) reveals that majority of the households (89.17 %) had only one door followed by 8.75 per cent with two and 2.08 per cent with more than two doors. With regard to windows 74.14 per cent of the kitchens had no window. Out of those having windows 88.71 per cent had only one and 11.29 per cent two windows. In case of ventilators even a higher percentage of the kitchens (76.25 %) lacked these. Out of the kitchens possessing ventilators 89.47 per cent had only one and 10.53 per cent two ventilators.

Material of doors, windows and ventilators:

Scrutiny of data (Table 4) reveals that about half of the kitchens surveyed had doors. All of these doors were wooden. It was also observed that only 25.83 per cent households had windows in their kitchens. Out of these 48.39 per cent had wooden, 32.26 per cent metal grill, 16.13 per cent cement grill and only 3.22 per cent had glass windows. As far as ventilation is concerned, only 23.75 per cent respondents had one or the other type of ventilator in their kitchens. A maximum of 61.40 per cent had peep in wall as a ventilator, 12.28 per cent used wood and same percentage used cement grill in their ventilators. Only 10.53 per cent had metal grill and 3.51 per cent glass in their ventilators.

Table 4 : Distribution of respondents on the basis of door, window and ventilators in their kitchen

Sr. No.	Numbers	Doors n=240		Windows =62		Ventilators=57	
		F	%	F	%	F	%
1.	One	214	89.17	55	88.71	51	89.47
2.	Two	21	8.75	7	11.29	6	10.53
3.	More than two	5	2.08	0	0.00	0	0.00
	Construction materials						
1.	Wood	121	50.41	30	48.39	7	12.28
2.	Metal grill	0	0.00	20	32.26	6	10.53
3.	Cement grill	0	0.00	10	16.13	7	12.28
4.	Glass	0	0.00	2	3.22	2	3.51
5.	Peep in wall	119	49.58	0	0.00	35	61.40

Type of storage space:

It was observed (Table 5) that only 80.42 per cent of the households had storage space in their kitchens. Out of these 49.74 per cent had built-in open shelves, 8.29 per cent built-in cupboards, 0.51 per cent portable open shelves and 5.69 per cent portable cupboards. Over one-third of them had tin or mud bukharies for storage of grains in the kitchen. A few households (1.55 %) stored their material in gunny bags kept in the kitchen.

Drainage system:

The investigator probed (Table 6) the manner in which liquid waste was disposed off from the kitchen and found that a vast majority of the households, *i.e.*, 67.08 per cent had no drains. Out of 32.92 per cent kitchens having drains, majority (59.49 %) had uncovered ones, leaving only 40.5 per cent covered. Water stagnation was a natural consequence leaving these households damp and unhygienic.

Type of garbage disposal system:

It was found (Table 6) that 40.84 per cent households had no proper provision for garbage disposal and threw their garbage in the back yard of the house. Nearly thirty six per cent of the households disposed their garbage in their family compost pits. Incineration method of garbage disposal was used by 5.83 per cent households. Less than one fifth (17.66 %) of the households used tin or wooden boxes without lids for disposal of their garbage and only 1.25 per cent families used wooden boxes with lids.

Type of cook stove used:

Data pertinent to cook stoves used (Table 7) reveals that majority (95.83 %) of the households used traditional chulha, whereas 28.75 per cent used LPG along with traditional chulha. Kerosene stoves and LPG each were used by 4.17 per cent of the respondents only. However, none of the respondents had smokeless chulha installed in their kitchens.

Type of fuel used:

Analysis of multiple responses received on the type of fuel used (Table 7) reveals that majority (59.58 %) of the respondents used cow dung cake as a fuel, while field waste (49.58 %) and firewood (48.75 %) were also used by substantial number of the respondents. LPG was used by 28.33 per cent respondents only. Coal and

Table 5 : Distribution of respondents on the basis of availability of storage shelf in kitchen

Sr. No.	Type of storage (n=193)	Frequency	Per cent
1.	Open shelf portable	1	0.52
2.	Open shelf built-in	96	49.74
3.	Cupboard portable	11	5.70
4.	Cupboard built in	16	8.29
5.	Mud bukhari	32	16.58
6.	Tin bukhari	34	17.62
7.	Any other (Gunny bag)	3	1.55

Table 6 : Distribution of respondents on the basis of availability of sanitary facilities in their kitchen

Sr. No.	Type of Drainage	Frequency	Percentage
1.	Kachcha covered drains	4	5.06
2.	Kachcha uncovered drains	40	50.63
3.	Pucca covered drains	28	35.44
4.	Pucca uncovered drains	7	8.86
	Garbage disposal system		
1.	Incineration	14	5.83
2	Compost pit	85	35.42
3.	Wooden box without lid	11	4.58
4.	Tin box without lid	29	12.08
5.	Wooden Box with lid	3	1.25
6.	Threw in back yard	98	40.84

kerosene users were negligible, *i.e.* only 1.67 per cent for each.

Smoke outlet:

The emission from traditional chulhas and open fires are carcinogenic, suffocating and irritating to the eyes. However, only 55.83 per cent of the respondents had one or the other type of smoke outlet in their kitchens. Those outlets too were quite unplanned, but they let some of the smoke out. None of the families had a smoke pipe and only one had hole in roof (Table 7). Smoke in the remaining 99.25 per cent kitchens passed out through dwarf walls, ventilators or windows.

Alternate uses made of kitchen:

Information received from the respondents and personal visits to the kitchens reveal that about 9.58 per cent households used their kitchens for cooking purposes only, whereas 90.41 per cent households made alternate uses also. It was further observed (Table 8) that out of these 90.41 per cent households, 85.83 per cent of the homemakers used their kitchen for dinning and about half (46.67 %) for storage of fuels also. Over a quarter of the households used their kitchens for storage of grains and a mere 0.42 per cent, each for storage of agricultural implements and as calf shed.

Conclusion :

Cooking is a universal activity however it was not necessarily a task performed in a separate kitchen in all households. Enclosed verandas were ear marked for cooking related tasks in about fifty per cent families, especially in the villages surveyed. The ideal orientation of kitchen or cooking area to north, east or north east was present only in a few cases. Most of the rural kitchen were of sitting type and only in a negligible number of kitchens had windows, and ventilators still a fewer ones. Cross ventilation was a rare phenomenon in the rural kitchens. These had little provision of well organised storage system and also alternatively use for dining and

Table 7 : Distribution of respondents on the basis of type of cook stove, fuel used and smoke outlet

Sr. No.	Cook stove	Frequency	Per cent
1.	Traditional chulha	230	95.83
2	Smokeless chulha	0	0.00
3.	Kerosene stove	10	4.17
4.	Traditional chulha and LPG	10	28.75
5.	LPG	69	4.17
	Fuel used		
1.	Field waste	119	49.58
2	Coal	4	1.67
3.	Firewood	117	48.75
4.	Kerosene	4	1.67
5.	LPG	68	28.33
6.	Cow dung cake	143	59.58
	Smoke outlet		
1.	Smoke pipe	0	0.00
2.	Hole in roof	01	0.75
3.	None smoke outlet	133	99.25

Table 8 : Distribution of respondents on the basis of alternate uses made of kitchen

Sr. No.	Alternate uses	Frequency	Per cent
1.	Sleeping area	25	10.41
2	Dining area	206	85.83
3.	Storage for agric. implements	1	0.42
4.	Shed for calf	1	0.42
5.	Storage for grain	66	27.50
6.	Storage for fuel	112	46.67

storage of fuel. Majority were using traditional chulha and fire wood, field waste and cow dung cakes as fuel. Only less than a quarter households had proper provision of garbage disposal, covered drain and proper smoke outlets in their kitchens. Hence, foul smell and dirty look was common features of most of the kitchens. All these ultimately affect the efficiency and health of women working in kitchen. Proper Work environment is prerequisite for healthy family living. Kitchen in rural areas also need consideration to provide comfortable environment to women working there.

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