

Electrical Conservation in Kitchen

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Abstract

Electric Kitchen appliances have become an inevitable part of modern kitchen to make our domestic life more homely and comfortable. But to use Kitchen appliances electricity is required. So there arises tremendous scope to conserve energy by adopting simple measures as 30% of total energy consumption in India belongs to Domestic sector, more prominently in kitchen. With this focus we have carried out survey covering Shirke Colony and Khanda Colony located at Panvel with the help of a questionnaire designed for the purpose. It is appreciated that in spite of having less information regarding usage of electricity rating of electrical kitchen appliances, 93% of respondents do take precautionary measures to decrease monthly electricity bill.

Key Words: Domestic sector, Electricity rating, Energy consumption, Electrical kitchen appliances

Introduction

Technical advances in heating food in the 18th and 19th centuries changed the architecture of the kitchen. In 19th century, kitchen was a room or a part of a room for cooking and food preparation. In those days, utensils like hand grinder, mortar and pestle, curd churner, hand mill were used. There was no concept of using electrical items. But as days passed, with the growth in technology, the entire structure of the kitchen revolutionized which is linked to the invention of the cooking range or stove. In old days Food was cooked over an open fire. Open fire got replaced iron stoves, which enclosed the fire completely and were more efficient, appeared¹ Then later got replace by gas stoves, gas cylinder. Now days, we find Electric oven and induction cooking in most of the kitchens in rural areas. In old days there were no provision of storing food but now kitchen cannot exist without refrigerator. Washing utensils, clothes were done by hands only but now we cannot

move ahead without washing utensil machine, washing machine. Its Technological advances during industrialization brought major changes to the kitchen. Just rightly said coin has two sides i.e. due to more usage of electrical kitchen items there is enormous electrical consumption.

Focusing to this point we attempted

- To find out whether people are aware of large use of Power, Electricity in kitchen
- Whether they know how to decrease its usage by going through small tips to be used in kitchen.
- To assess the perception of women with regards to kitchen appliances they consume.
- To give suggestions & recommendations based on findings of study to lessen electricity bill which will do play significant role to Indian economy from kitchen side

Method

All participants in this study were residents of Prabodhan & Utkarsh society, Shirke colony, Panvel. We have adopted random sampling method in which houses were selected as per the convenience of the students. 41 questions were asked to respondents to find out how much awareness about the Electrical Consumption is among the society. They were requested to reply to put tick in form of yes or no. Specific questions regarding usage of electrical appliance in kitchen, precautions measures to reduce electricity monthly bill. Question was also asked to find whether they are aware of ISI mark & Electricity rating, units for electrical appliances. Additional materials in form of pamphlet containing information about Electrical Consumption and Electrical Safety were also given to the society in details. This survey was done 60 F.Y. BSc& 6 S.Y. BSc students of C.K. Thakur A.C.S College, Panvel. They had covered 193 houses in Prabodhan & Utkarsh society, Shirke colony, Khanda colony, Panvel.

Result & Discussion

Electrical gadgets have been essential items for working or nonworking women now days. In kitchen mixer, refrigerator plays same important role as that of Mobile, Electric fan, T.V, Washing machine, iron in every one house in rural as well as in urban area. Women prefer to use mixer rather than going with hand grinding stone though it consume more power but mixer saves not only energy but also time. In today multitasking world, Energy as well as time has more relevance so more electrical

appliances are used. It is reflected from fig1 & 2, Electrical appliances like electric fan, computer, mobile, T.V, Washing machine, Mixer, iron, refrigerator are more use in also in middle class society.

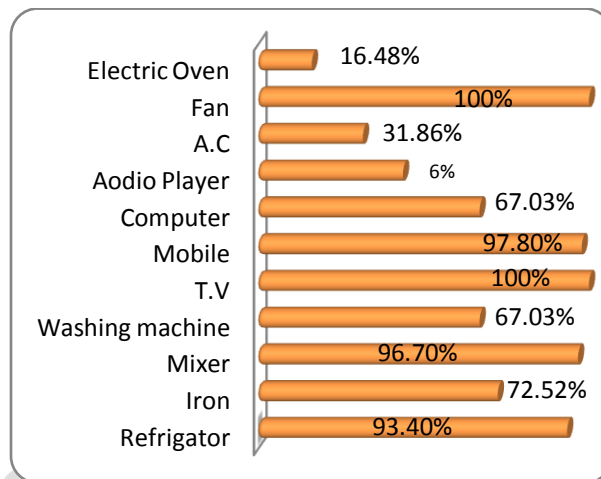


Fig: 1 Electrical appliances in Pradhodhan Society

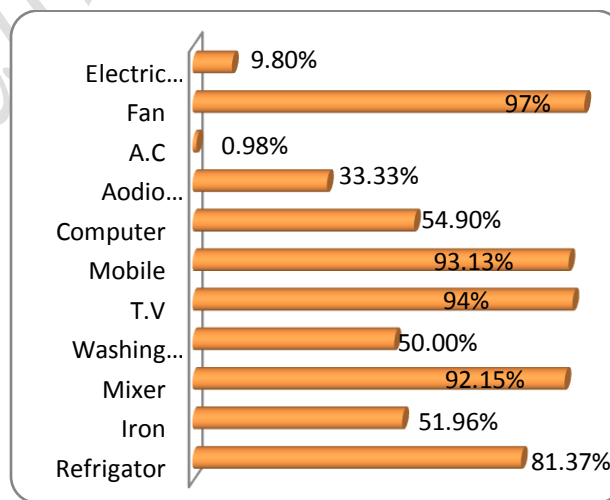


Fig: 2 Electrical appliances in Utkarsh society

We have also attempted to catch out that are people aware of oven electrical appliances in kitchen do increase electrical bill .From our survey project we were glad to find that 43% of people use Electric oven because they are aware of more electricity is used by

Electric oven as seen in from fig 3. And as result it is has been told from fig 4,that only 11 % of people use electric oven and 89 % of them prefer to cook & heat food on gas rather than using Electric oven, Electric Gas & induction gas.

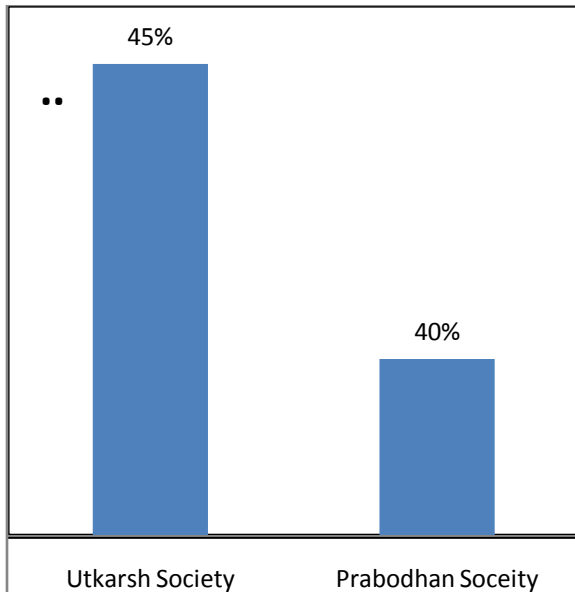


Fig 3: Awareness of Usage of Electric Oven consumes 50% less electricity than Electric Stove and Electric Gas

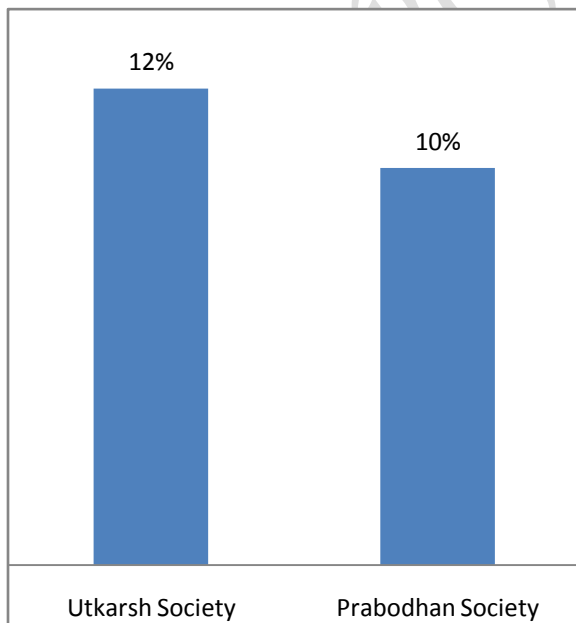


Fig 4: Usage of Electric Oven frequently

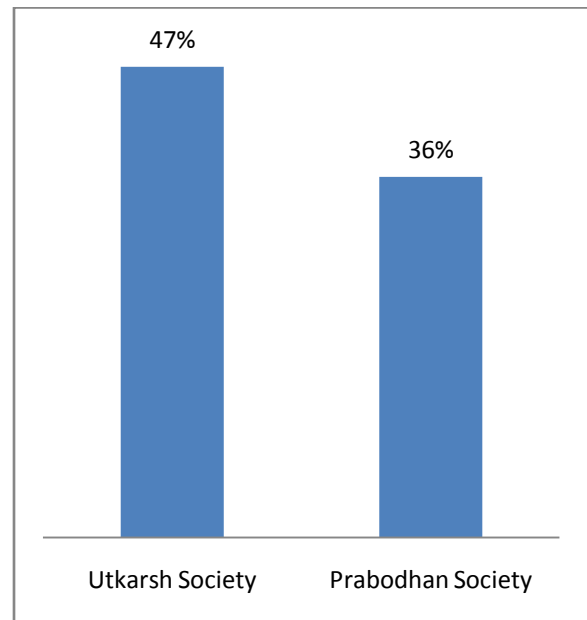


Fig 5: have monthly energy consumption and cost data available for comparative study

From fig 5, it is intimated that only 41.5 % of respondents are aware and have data of energy consumption & its cost of electrical kitchen appliances.

But only awareness about which electrical kitchen gadgets consume more electricity is merely not enough, we also want to explore that do the respondents know and also adopt some precautionary methods to reduce electricity bill. And from Fig6, it is good to know that 76.5% of people do use water while grinding mixer which is basic step to use mixer as water helps do grind things uniformly and quickly.

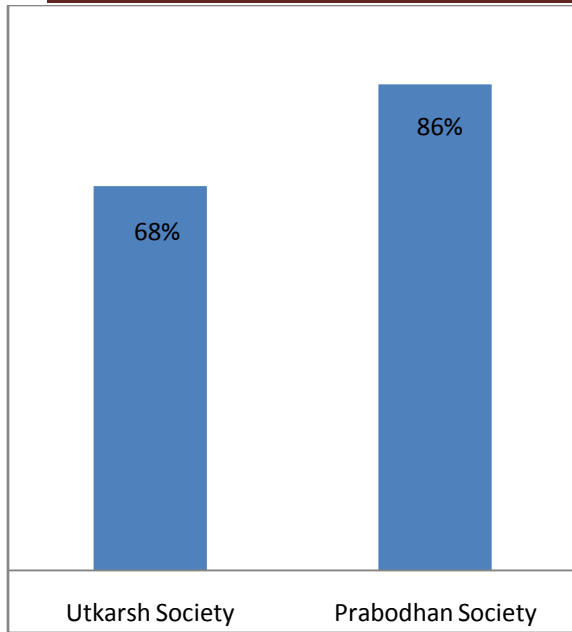


Fig: 6 Use of water while grinding mixer

It is also seen 95.5% women choose to use Pressure cooker rather than going with Electric rice cooker from fig 7

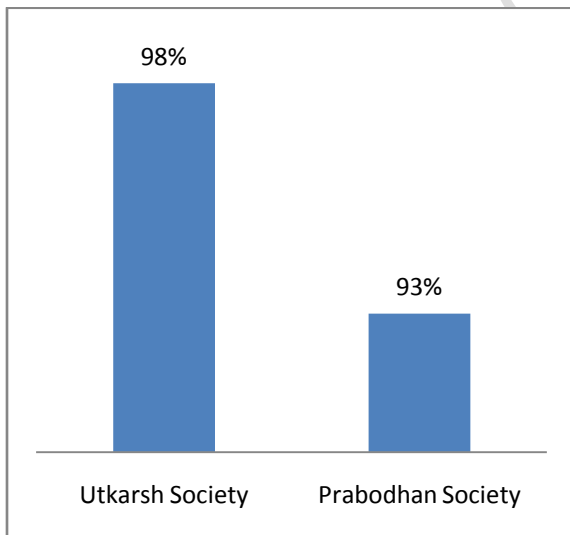


Fig 7: use pressure cooker

Like mixer Refrigerator also play vital role in kitchen for storing purpose. Though fridge consume more power, there are common measures like defrost fridge regularly monthly, not to keep its door open for longer

time, maintain appropriate distance between the wall and fridge, not to keep hot food in fridge directly and many more to be followed for its long life & for lessen electricity bill. ²Defrost means ice builds up on back wall which subsequently melts and runs down the back wall into a container from which it is evaporated by heat of compressor.³, By frost buildup increase large amount energy needed to keep motor running. But by defrost it, less amount energy is required ⁴Referring fig 8, it is found that 50% of people defrost refrigerator regularly. It means that more awareness has to be created.

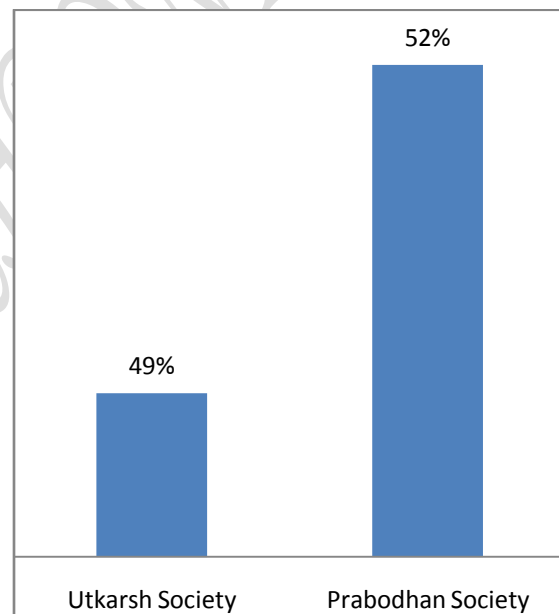


Fig 8: Defrost Refrigerator

12% of society people keep refrigerator door open for long time is mentioned in fig 9. 74.5% of people keep proper distance between refrigerator and wall which is required for long life of compressor which is heart of fridge⁵. Minimum 2-4 inches distance should be kept between refrigerator and wall to allow for more efficient heat rejection. There should be sufficient air flow

near the condenser coils which can be done by leaving much of a gap.

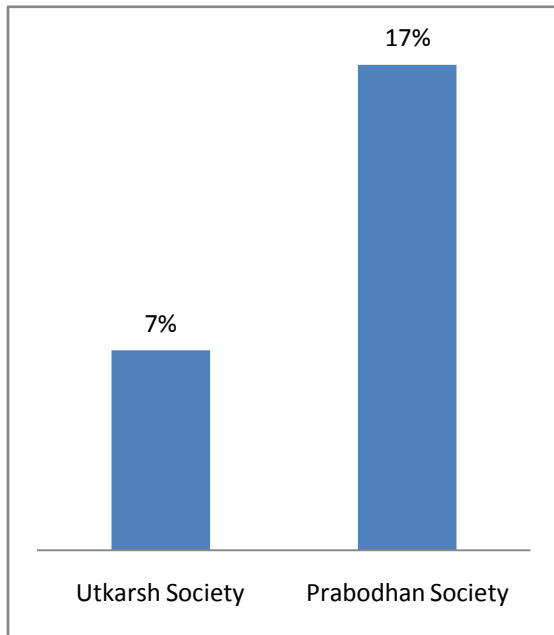


Fig 9: Keep Refrigerator open door open for long time

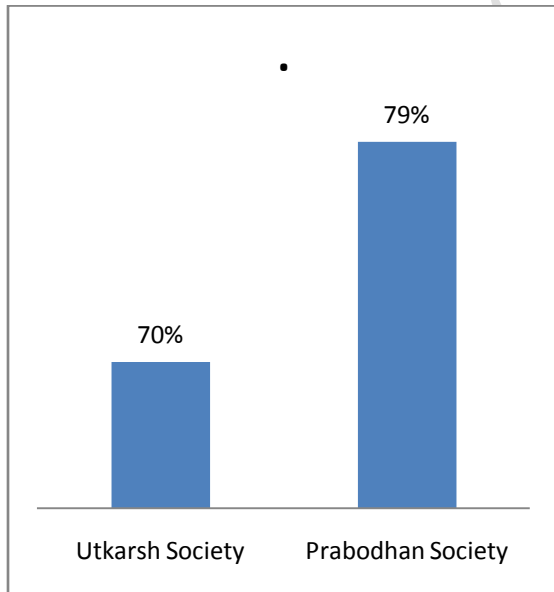


Fig 10 :keep proper distance between refrigerator and wall

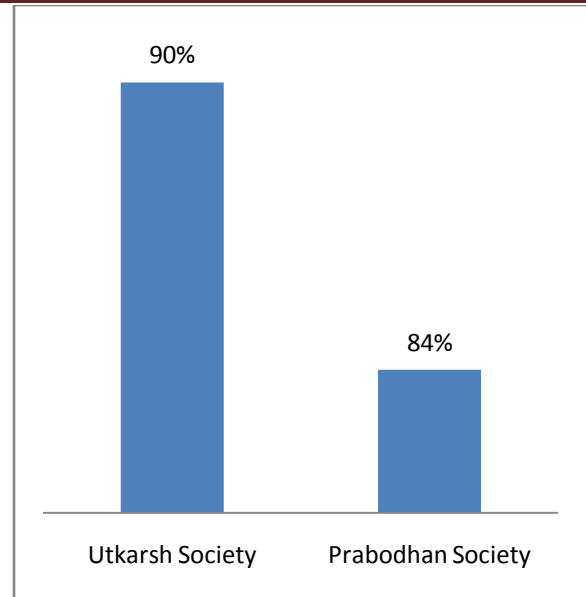


Fig 11: Know that things that vegetable, milk should be kept out of refrigerator for sometime before you make it hot on electric stove

It is mentioned from fig 11, 87 % are aware that hot food has not to be placed in refrigerator which is decent sign to lessen electricity bill. It is revealed from fig 12 ,93% cover liquid and wrap food stored in refrigerator. As uncovered foods release moisture and make the compressor work harder⁶

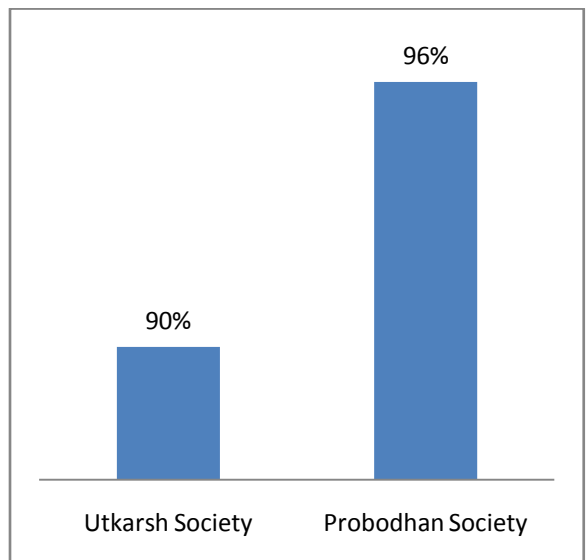


Fig 12: cover liquid and wrap foods stored in refrigerator

From fig 13, it is understood that 48% of people have information about electricity rating and units. It is appreciated for 74 % of people are in favor of choosing only ISI mark electrical appliances which is safety mark which is indicated in fig 14

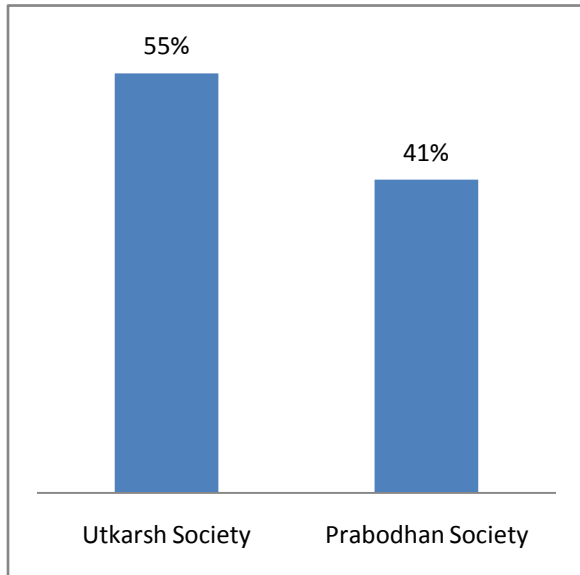


Fig 13: Have information about electricity rating and unit

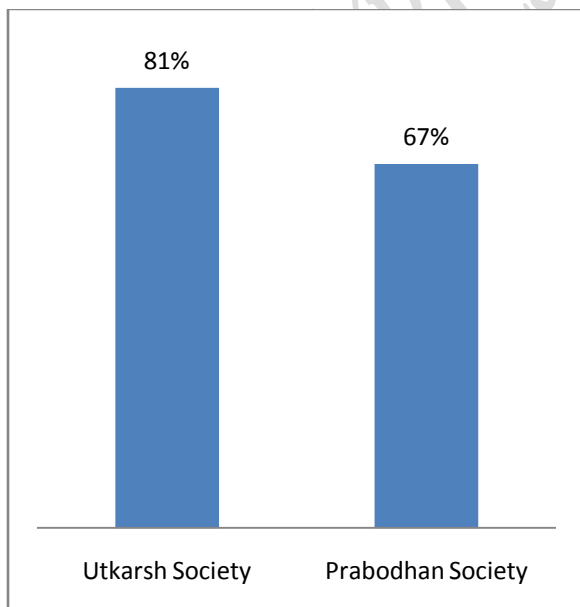


Fig 14: use electrical device which one labeled by ISI mark

Suggestion

The modern man makes use of number of appliances to furnish and equip kitchen to make kitchen activities efficient and comfortable. To save electricity some simple measures has to be taken while handling basic kitchen electrical appliances which is recommended below

- Mixers: ⁷ Avoid dry grinding in mixers as it takes long time than liquid grinding.
- Oven ⁸: Do not open the oven door often to check your food. Each time you open door the oven temperature drops by 25 degree.
- Refrigerator :
Defrost manually
Leave enough space between refrigerator and walls
- Minimum energy efficiency standards, linked to energy labels should be used.

Conclusions:

Women as well as man make untiring attempts to make life worth living and comfortable. One of essential needs is food which is prepared in kitchen with help of sophisticated electrical appliances like mixer, rice cooker, refrigerator, Pressure cooker, oven, blender and many more to save energy and time. But other aspect of it is enormous usage of power which can be definitely controlled by taking few preventive measures at each time while handling it. It has been also noticed that more awareness has to be made to convince people to defrost refrigerator regularly. From our findings in survey surprising part

of survey was though 41.5% of people have information of consumption of electricity by kitchen electrical appliances yet 93% of people do take those fundamental, precaution steps while handling electrical kitchen appliances which is more vital

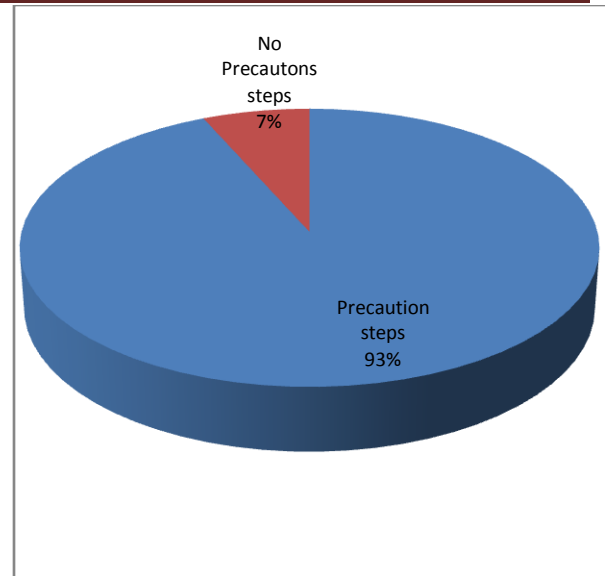


Fig 11: Precaution measures to reduce electricity bill.

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