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Faulty cooking practices followed by home makers and effects on Nutrients and Human Health: Survey based on Patna town

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Abstract

Food is the integral part of the human life and there is close relationship between food and health. To maintain good health, ingesting a diet containing all the required nutrients in correct amount is essential. Some foods eaten as raw or some needs cooking and processing before eating. Cooking is both the art and science of preparing food. We cook food to make it healthier and beneficial for the eaters. But sometimes unhealthy practices or some mistakes done prior to/during cooking may affect nutritional values of foods adversely. Sometimes homemakers do mistakes consciously or unconsciously. Home makers do mistakes at various stages like cleaning, cutting, processing or cooking. There are many faulty cooking practices which are being followed by the home makers like washing vegetables after cutting, excessive use of water during cooking, cooking food uncovered, overcooking of food, frequent use of micro oven, use of Teflon coating pans on high flame, repeated use of used oil or fats, kneading extra dough for storage, etc.. Use of faulty methods in cooking may cause numerous undesirable effects on human health.

Therefore, it is important to identify the common mistakes done by home makers during/prior to cooking and make them aware on loss of nutrients and bad effects on human health due to unhealthy or wrong practices of cooking. The Present study was conducted in Patna town, Bihar. Sample size was selected randomly which comprised of 100 respondents.

Keywords: Food, home maker, faulty cooking methods, integral, unhealthy

Introduction

There a close relationship between food and health. To maintain good health, ingesting a diet containing all the required nutrients in correct amount is essential. Some foods may be eaten in raw form or natural form but most of the foods need cooking or processing before eating. Cooking is the art and science of preparing food. Cooking has been around for long time and continues today to play a fundamental role in daily life across the globe. Purpose of cooking is to make the food healthier and beneficial to the eaters but sometimes unhealthy practices or some mistakes done prior to/during cooking may affect nutritional values of foods adversely. Sometimes homemakers do mistakes consciously or unconsciously. But, they are mostly ignorant of adverse effects of wrong methods of cooking on nutrients and human health. Foods should be delicious and appealing but more than that it should be healthy.

Home makers do mistakes at various stages like cleaning, cutting, processing or cooking. There are many faulty cooking practices which are being followed by Indian home makers like washing vegetables after cutting, excessive use of water during cooking, cooking food uncovered overcooking of food, frequent use of micro oven, use of Teflon coating pans on high flame, repeated use of same oil or fats, kneading extra dough for storage, etc. These are some common unhealthy practices which are frequently used by Indian home makers.

Use of faulty methods in cooking may cause numerous undesirable effects on human health like overheating of fats/oils change their chemical properties and make cooked food toxic, adding uncooked salt over the food link to heart and kidney diseases, overcooking of vegetables adversely affect their nutrients, deep frying at high temperature damages the nutritive value of foods, excessive use of alumina foil in packaging of foods is dangerous to the human health may cause cancer, pan frying at high temperature is toxic to foods due to formation of acryl amide, excess use of seasoning and dressing increases the risk of blood pressure as they contain sodium bicarbonate.

There is a big list of unhealthy or wrong cooking practices which are being followed not only by Indian home makers but other home makers all over the world.

Objective of the study

1. To study the socio-economic profile of the home makers under study.
2. To identify faulty practices followed prior to/during cooking by home makers.
3. To identify harmful effects of faulty cooking practices on nutrients and human health.

Need of the study

Faulty cooking practices followed by homemakers cause many nutrients loss or sometimes undesirable changes in foods which may affect human health adversely.

So, it is important to identify those common faulty practices followed by the home makers and make them aware about ill effects of these practices on nutrients and human health.

Review of literature

Sharma, Niharika (2020) ^[26] in her article on lifestyle which was published in Hindustan Times. The article deliberately explained how to prepare whey water at home and can be used to improve one's fitness. The study revealed that whey water consisted of vitamins, minerals and proteins and this whey water can be used for kneading flour (Eat chapattis made of this flour.), baking purposes or can be used as a broth for soups, noodles or vegetables. Thus, the article well explained the various uses of whey water to make our diet more nutritious and healthy.

McCullough *et al.* (2019) ^[21] investigated on importance of parboiled rice in human life. The study explained that parboiled rice contained more water soluble nutrients. Further, the study also revealed that parboiled rice contain more amount of Thiamin and Niacin than white rice. In addition to this parboiled rice is rich source of fiber and protein content.

Rana, Sarika (2018) ^[24] in her article in NDTV FOOD titled "Reason why you should never cook honey" reveals that heating of honey makes it just like glue and produces toxins. According to the National Centre for Biotechnology, heating honey is contraindicated as it causes adverse effects. Cooking deteriorates the quality and destroys essential enzymes and nutrients.

Jain, Mansi (2017) ^[12] in her publication, why should one avoid using aluminum foil to food wrap and their impact on human health. The story reveals that wrapping foods in aluminum foil makes foods poisonous to some extent and causes detrimental impacts on physical as well as mental health. Since packaging materials contain chemicals like Dibutyl, Butyl benzyl, Ethylhexyl phthalate etc. which are some of the most hazardous chemicals and adversely affect the human body. These chemicals lay a very harmful effects on reproductive system, kidney, liver and even on human mind.

Maharishi, Ayurveda (2015) ^[18] in a blog on Honey under Heat: why you should never overheat honey reveals that when honey is heated it becomes very hard to digest and brings about undesirable changes in its quality. Further the study explored that when honey was heated it produced a chemical named (HMF) hydroxyl methyl furfural aldehyde, a substance linked in certain forms to toxicity and possible link to carcinogenic effects.

Research materials and method

Research methodology gives detail description about method and various steps followed in carrying out the study.

Selection of locale of research

The study was conducted in Patna town, Bihar.

Research design and sampling procedure

The present investigation has followed "Descriptive research design. The sample size comprised of 100 respondents who have been selected randomly from the study area.

Selection and measurement of variables

Age, caste, religion, educational level, working status and monthly income, practices used prior to/during cooking have been selected as variables.

Method of data collection

Required data was collected through a pre tested schedule. All information was collected through telephone and personal interaction.

Statistical analysis of the data

Percentage and frequency methods were used to analyze the data.

Results and Discussion

Table 1: Distribution of respondents according to their socioeconomic profile. N=100

| Age Group | Frequency | Percentage |
|--------------------------|-----------|------------|
| 20-40 | 47 | 47 |
| 40-60 | 51 | 51 |
| 60 and above | 2 | 2 |
| Caste | | |
| General | 62 | 62 |
| Backward caste | 36 | 36 |
| Schedule caste | 2 | 2 |
| Religion | | |
| Hindu | 85 | 85 |
| Muslim | 15 | 15 |
| Educational level | | |
| Illiterate | 6 | 6 |
| primary education | 18 | 18 |
| secondary education | 24 | 24 |
| graduate and above | 52 | 52 |
| Occupation | | |
| Home maker | 68 | 68 |
| Working | 32 | 32 |
| Income level | | |
| Low income group | 34 | 34 |
| Middle income group | 32 | 32 |
| High income group | 34 | 34 |

Perusal of table shows that 47.0 percent home makers were up to 40 years old and 51.0 percent respondents were in the age group of 40 to 60 years while respondents more than 60 years constituted only 2.0 percent.

Thus, majority of the respondents fell into the category of 40 to 60 years.

Data pertaining to caste structure shows that 62.0 percent respondents belonged to general category followed by 36.0 percent and 2.0 percent from backward caste and Schedule caste respectively.

Again, religion wise data shows that about 85.0 percent of the

respondents were hindus while 15.0 percent belonged to muslim community.

Educational profile of the study sample depicts that 52.0 percent were either graduates or above followed by 24.0 percent and 18.0 percent with secondary, primary level education respectively. But, out of the total sample 6.0 percent respondents were reported illiterate.

Thus, it may be concluded that more than fifty percent respondents were either graduate or above education.

Occupation based data reveals that 32.0 percent respondents

were working and rest 68.0 percent were housewives.

Thus, it may be inferred from the above data that majority of respondents were housewives.

Further, income level of the home makers' family depicts that 34.0 percent, 32.0 percent and 33.0 percent respondents belonged to high income group, middle income group and low income group respectively.

Thus, the selected sample were nearly equal from all the three income groups.

Table 2: Common cooking mistakes practiced by home makers

| S. No. | Faulty cooking practices | Respondents N=100 | Percentage |
|--------|--|-------------------|------------|
| 01 | Washed fruits and vegetables after cutting | 83 | 83.0 |
| 02 | Used excess water while cooking vegetables | 40 | 40.0 |
| 03 | Cooked food uncovered | 15 | 15.0 |
| 04 | Used salt over cooked food item. | 27 | 27.0 |
| 05 | Reused cooking oil many times | 80 | 80.0 |
| 06 | Used to make extra dough for storage | 85 | 85.0 |
| 07 | Used aluminum utensils for cooking | 16 | 16.0 |
| 08 | Used non-stick pan on high flame | 50 | 50.0 |
| 9 | Heated honey for cooking | 3 | 3.0 |
| 10 | Used to refrigerate honey | 20 | 20.0 |
| 11 | Used refrigerated leftover food | 56 | 56.0 |
| 12 | Didn't soak pulses or rice before cooking | 62 | 62.0 |
| 13 | Used to fry vegetables at high temperatures | 57 | 57.0 |
| 14 | Used to fry vegetables for long time | 32 | 32.0 |
| 15 | Used raw rice in diet | 25 | 25.0 |
| 16 | Didn't use paneer water after curdled milk | 95 | 95 |
| 17 | Reused tea leaf | 15 | 15.0 |
| 18 | Used over boiling of tea after putting sugar into it | 80 | 80.0 |

Perusal of table clearly shows that there are about eighteen faulty cooking practices which are being used by the homemakers. Out of all eighteen practices wastage of paneer water was reported by 95.0 percent of the home makers if they made paneer at homes. Other important faulty cooking methods found were extra dough for storage, washing fruits and vegetable after cutting, over boiling of tea with sugar, reuse of used oil frequently which were being practiced by 85.0 percent, 83.0 percent, 80.0 percent of home makers respectively.

Further, data again revealed that about 62.0 percent home makers didn't soak rice and pulses before cooking which increases cooking time more nutrient loss while 57.0 percent respondents used to fry vegetable at high flame and 56.0 percent used refrigerated food for several days. The study also

documented that 50.0 percent home makers used heating non-stick pan on high flame.

Again, there were some other faulty practices reported which includes use of raw rice (25%) in place of parboiled, over cooking of vegetables (32%), use of aluminum utensils (16%), heating of honey (3%) and cooking foods uncovered (15%) and use of salt over cooked foods (27%).

Thus, it may be concluded that Indian home makers used many cooking mistakes prior to/during cooking process in which wasting paneer water, washing fruits and vegetables after cutting, using excess water during cooking, extra dough for storage, over boiling of tea with sugar, use of non-stick pans at high flame were very common which cause lot of nutrients loss and health hazards.

Table 3: Effects of faulty cooking practices on different nutrients

| Faulty practices followed prior to/during Cooking | Effects on nutrients |
|---|---|
| Wasting paneer water | Loss of whey protein, vitamins and minerals |
| Cutting vegetables into very small pieces | Loss of vitamin C |
| Washing fruits and vegetables after cutting | Loss of vitamin B and Vitamin C |
| Over cooking of vegetables | Loss of Vitamin B and vitamin C |
| Boiling of potato after removal of skin | Loss of Thiamine |
| Heating honey | Loss of nutrients and essential enzyme |
| Excess washing of rice | Loss of Thiamine |
| Use of Baking powder | Loss of Vitamin B |
| Deep fat frying | Loss of fat soluble vitamins |
| Removing skin of fruits and vegetables | Minerals and vitamins |
| Cooking vegetables for long time | Loss of heat sensitive vitamins |
| Deep fat frying | Loss of fat soluble vitamins |

Perusal of table shows that wrong practices followed prior to/during cooking cause major loss of vitamins and minerals

and also bring enzymatic changes to some extent. It is also evident from the above table that cutting of fruits and

vegetables into small pieces and then washing causes loss of water soluble vitamins and cooking for long time increase loss of heat sensitive vitamins like vitamin B and C. Similarly, heating of honey causes detrimental effects on nutrients as well as on essential enzymes too and use of baking powder may cause loss of vitamin B. Again, deep frying also cause loss of fat soluble vitamins too.

Thus, it may be concluded from above table that faulty cooking practices mostly lead to loss of different nutrients specially water soluble and heat sensitive vitamins and minerals.

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