Sex wise comparison of knowledge regarding food adulteration in urban Jaipur: A cross-sectional study

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Abstract— *Adulteration of food is a major problem in developing world like India. There are many acts for preventing adulteration of food and consumers are assumed to know their responsibilities regarding food adulteration. So this analytic observational study was conducted to know the awareness status of male and females regarding food adulteration. For this 150 males and 159 females were interrogated and significance of difference in proportion of male and females were inferred by Chi-square test. It was found that only 10% subjects have good knowledge regarding adulteration. On sex wise comparison of this knowledge, 6% men's scored good marks, 64% men's scored average marks and 30%, men's scored poor marks whereas women's showed 14% women's scored good marks, 74% women's scored average marks and 12% women's scored poor marks. So females were having better knowledge than males regarding food adulteration.*

Keywords: Food Adulteration, Contamination, Knowledge, Sex wise Comparison.

I. INTRODUCTION

There are three basic needs of life food, cloth and roof. But it's possible to live without cloth and roof but without food life is not possible. Food is an important and basic biological need for living; food is foundation for good health. Adulteration means when the quality of the food is lowered or affected by the addition of substances which are injurious to health or by the removal of substances which are nutritious. It is defined as the act of intentionally debasing the quality of food offered for sale either by the admixture or substitution of inferior substances or by the removal of some valuable ingredient.

Adulteration of food is an old age problem. It consist of a large number of practices, e.g., mixing, substitution, concealing the quality, putting up decomposed food for sale, misbranding or giving false labels and addition of toxicants. Health hazards related to foods and food products are considered to be a major problem particularly in developing and less-developed countries.[1,2] Food should be without or only with acceptable and safe levels of adulterants, contaminants or any other substances that may make food hazardous to health. These adultered food may deprive nutrients essential for proper body growth and development.[3] There are many standard for food like ISI, Agmark etc. The Hazard analysis critical control point (HACCP) system has now been introduced to identify, evaluate and control hazards arising from crop harvest until the point of consumption.[4]

In India, food safety is a growing problem with adulteration and contamination of essential foods that can be a potential source of disease infection or toxic poisoning. Food spoilage occurs mostly during handling from the primary producers to the consumers (e.g. food production, processing, packaging, distribution, storage, cooking or serving). Adulterants (non-nutritious substances) are intentionally/deliberately added or unintentionally enter into food. Similarly, presence of harmful chemicals or microorganisms including those unaffected by thermal processing is common.

A study reported that about 70% of deaths are supposed to be of food-borne origin.[5] Recently, the Safe Food International gathered limited data on food poisoning reported during 2007-11.[6] This report showed that major sources of contamination are the daily meals (57%), sweets (13%) and mid-day meals in schools (11%). Besides, feeds used in animal husbandry and fish farming when contaminated with mycotoxins resulted in the carry-over of toxins to consumers through milk and meat. Eventually, the effects of food adulterants and contaminants had to be determined in the context of their effects on human health and detection in daily foods.[1,7,8]

On an average, 13% of both packaged and loose food items sold across the country have been found contaminated; and the range varied considerably from one state to another, i.e., Chandigarh (40%), Uttarakhand (34%), Uttar Pradesh (29%), Rajasthan (23%), West Bengal & Himachal Pradesh (20%), Bihar (17%), Nagaland (16%), Madhya Pradesh, Odisha & Punjab (15%), Tamil Nadu (14%), Maharashtra (10%), Karnataka (5%) and Delhi (4%) [12]. In another survey, 70% of milk samples did not confirm to prescribed standards; i.e., 46% were with low solid not fat due to dilution with water, and 8% were with detergents.[9]

However, consumers do not have knowledge/information probably because impact of the contamination on human health is apparent only after prolonged exposure. Present study was conduction with the aim to find out the status of knowledge regarding food adulteration and to compare the this knowledge sex wise.

II. METHODOLOGY

A comparative observational study was conducted on 300 subjects at MVGU, Jaipur (Rajasthan) India. in year 2017. For this purpose

For this purpose 18-35 years 150 males and 150 females were selected by non probability convenient sampling from a urban area i.e. Nangal Jaisa Bohra of Jaipur city. After the self introduction by the investigator, the objectives of the study was briefly explained to the participants and confidently was assured. The subject was made comfortable and a predesigned semi structured performa was administrator to gather information.

This performa contains socio-demographic variables as well as questions regarding food adulteration. There were 30 questions regarding food adulteration, each question was assigned one score on right response. Thus total 30 scores were there on correct answers of each question. Knowledge status was graded into three as per scores obtained by subject i.e. poor status if scores are between 0 to 10, average if scores are between 11 to 20 and good if scores are between 21 to 30.

Data thus collected were compiled and analyzed. Difference in proportion of male and female was inferred with Chi square test. For significance, "p" value <0.05 was accepted as significant.

III. RESULTS

Out of total 300 subjects included in this study, 63 (21%) were having poor knowledge about food adulteration, 207 (69%) were having average whereas only 30 (10%) were having good knowledge about adulteration.(Figure 1).

When knowledge of male and female were compared it was found that 30% of men have poor knowledge regarding food adulteration and consumer protection compared to 12% of women. Among

males, 64% men have average knowledge regarding food adulteration and consumer protection compared to 74% women. And only 6% men having good knowledge regarding food adulteration and consumer protection whereas 14% women had good knowledge. Females were having significantly more ($p<0.001$) knowledge regarding food adulteration and consumer protection than males. (Table 1).

Figure 1

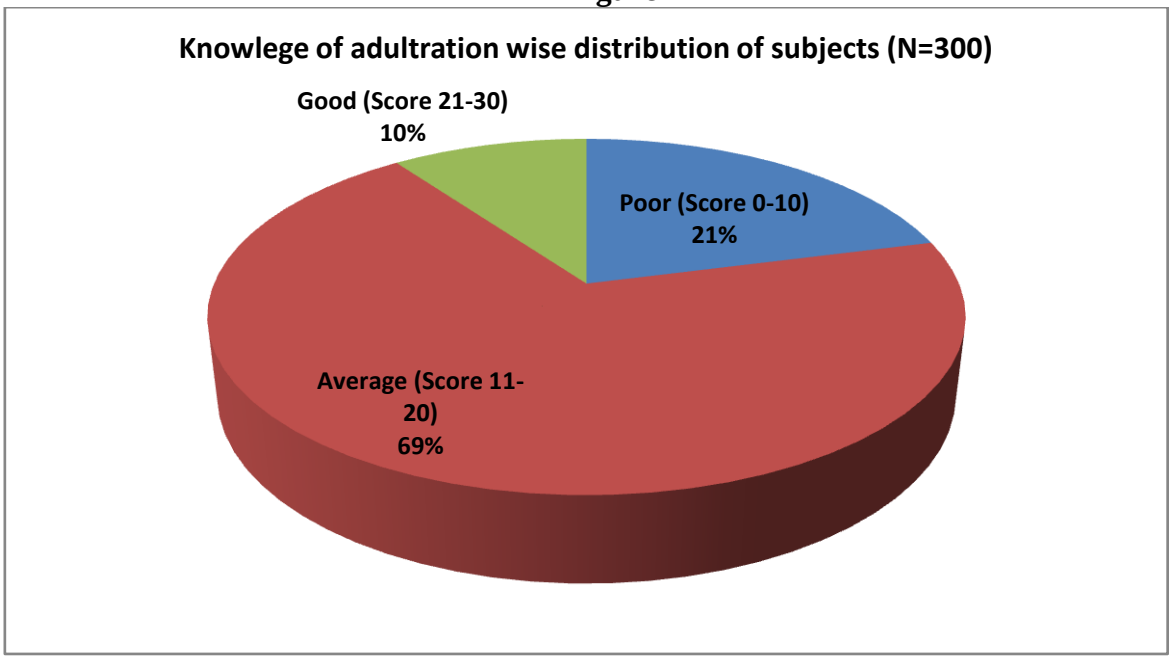

Table 1
Sex wise Comparison of Food Adulteration

Age group	Male (N=150)		Female (N=150)	
	Number	%	Number	%
Poor (Score 0-10)	45	30	18	12
Average (Score 11-20)	96	64	111	74
Good (Score 21-30)	9	6	21	14

Chi-square = 17.458 with 2 degrees of freedom; P <0.001 Level of Significant-Significant

IV. DISCUSSION

In this present study only 10% of subjects were found to have good knowledge about food adulteration otherwise 69% had average and 21% had poor knowledge about food adulteration. Almost similar observations were made by Nidhi G etall[10] who conducted this awareness survey in Mahadev village of Gujarat state and reported 15% of the sample had low awareness, 60% had moderate awareness and 25% had high awareness on food adulteration. A study conducted in Hisar city of India by Beniwal etall[11], showed that majority, 61.6% of respondents had medium knowledge on food adulteration, 40.0% and 10.0% had high knowledge.

This finding is again supported by a similar descriptive study conducted by a cross sectional survey conducted by Abidfaheem T.K[12] who reported that majority (60%)of the subjects had moderate knowledge on food adulteration.

It was also revealed in present study that females were having significantly more knowledge about food adultration than males. Although heier knowledge of females was observed by Abidfaheem T.K[12] also who reported but it was not found significant.

So looking towards the situation awareness should be created in consumers regarding food adultration and its health hezards. Awareness regarding various agencies working for prevention of food adultration. Authors like Dr. A. J. Excelce[13] should be encouraged who are conducting research on consumer awareness of food adulteration and the complaint giving attitude & it's effect.

And in future, international co-operation, information-sharing mechanism, dialogue between stakeholders, involvement of private sector, labeling and tracking systems for traceability, all can strengthen the existing rules and regulations.

V. CONCLUSION

It can be concluded from this study that only 10% subjects have good knowledge regarding adulteration. It was concluded from this study that females were having better knowledge than males regarding food adulteration i.e. 14% females were having good knowledge regarding food adulteration in comparison to only 6% of males. So there is strong need to create awareness regarding food adulteration to prevent health hazards from food adulteration.

CONFLICT OF INTEREST

None declared till now.

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