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'Jago Grahak Jago': A cross-sectional study to assess awareness about food adulteration in an urban slum

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ABSTRACT

Background: Food adulteration includes various forms of practices, including mixing, substituting, concealing the quality of food, etc. One of the main causes for rampant adulteration is ignorance of consumer regarding their right and responsibilities resulting in faulty buying practices. Hence, the present study was done to assess the knowledge about adulteration among consumers in an urban slum.

Methods: A community-based cross-sectional study was done among residents of an urban slum over a period of 2 months. Adults responsible for purchasing groceries for the household were included. A sample size of 100 was taken and pilot-tested questionnaire was administered. All of them were made aware about adulteration.

Results: The mean age of the study subjects was 40.2 ± 11.7 years. Only 7% of the study subjects were illiterate. Good practices like checking of Food Safety and Standards Authority of India (FSSAI) logo (90%), Agmark logo (76%) and nutrition label (65%) are lacking among the majority. The most prominent source of knowledge about adulteration is mass media especially television (65%). Almost 40% of the study subjects are unaware about the consumer empowering initiative 'Jago Grahak Jago'. Factors which had a strong positive relationship with good practices like checking of nutrition label, FSSAI logo, Agmark logo, seal and expiry date are age, education status and socio-economic status (p value ≤ 0.05). **Conclusion:** Majority of study subjects are unaware about adulteration. 'Jago Grahak Jago' initiative which empowers the consumers has to be instilled in the minds of consumers. Awareness and motivation will lead to empowerment and end the menace of food adulteration.

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Introduction

Food safety takes account of all those hazards which make the food unsafe to health. The unsafe food creates a vicious cycle of disease and malnutrition.¹ Although microbiological contamination and chemical hazards have received most attention, it is recognized that food adulteration can affect health and could deprive essential nutrients for proper growth and development.²

Food adulteration is the addition or removal of any substance to or from food such that the natural composition and quality of food substance are affected. According to Food Safety and Standards Act (FSSA) 2006, food is adulterated if there is evidence of substandard quality, substitution by cheaper substance, abstraction of any constituent of article, preparation or storage in unsanitary conditions, presence of poisonous ingredients, use of colouring agents and/or preservatives in excess of prescribed limits or quantity or purity is below the prescribed standards. Some adulterants may even lead to death. The use of adulterants in food not only cheats the consumer, but also can pose serious health risks.^{3,4}

In India, adulteration in food is done either for financial gain or due to carelessness and lack of hygiene during processing, storing, transportation and marketing. The ultimate result is that the consumer is either cheated or often becomes a victim of diseases. The new FSSA 2006 has provision of strict punishments for food adulteration based on the seriousness of injury. As a result, the ultimate victim is the consumer, who innocently takes adulterated food and suffers.^{5,6}

The government has also taken measures for educating the masses on the ill effects from consuming adulterated food items through electronic and print media regularly. Under the famous brand of “Jago Grahak Jago”, the public has also been made aware of their rights and duties.

One of the main causes for adulteration is ignorance of consumer regarding their right and responsibilities towards safe food practices resulting in faulty buying practices. Consumers are important stake holders in prevention of

adulteration and their awareness will help to fight this menace and improve the health. Hence, the present study was done to assess the knowledge about adulteration among consumers residing in an urban slum.

Materials and methods

This community-based cross-sectional study was done over a period of 3 months in an urban slum. Approval of Institutional Ethics Committee was obtained prior to the conduct of the study. Study subject was an adult (age > 18 years) responsible for purchasing groceries for the household. The sample size was 100 which was calculated to estimate 90% confidence interval for assuming prevalence of awareness in consumers to be 25%⁷ with α error of 0.05 and finite correction (absolute error of margin). A total of 100 households were randomly selected using random number table from the slum area. Pilot-tested questionnaire was administered to each study participant. The subjects were explained about the need of the study and informed consent was taken. All participants were also educated about common adulterants and their method of detection at household level after assessing their level of awareness. Frequency and percentage distribution were used to analyze demographic data of study subjects. Mean and percentage were used to assess the level of knowledge.

Results

The mean age of the study subjects was 40.2 ± 11.7 years and majority (84%) of the respondents were married. Very few (7%) were illiterate. According to Kuppuswamy scale, 58% of the study subjects belong to low socio-economic status (SES), 34% belong to medium SES and 8% to high SES. Majority (96%) knew milk can be adulterated. Awareness about adulteration of common food items is given in Fig. 1. Less than half (48%) checked seal, and 29% checked expiry date before purchasing groceries. None of them looked for 'FSSAI logo' (Table 1). The common sources of information on food adulteration were

Fig. 1 – Awareness about adulteration of common food items.

Table 1 – Checks done by consumers before purchasing groceries.

Checks done by consumer	Always	Occasionally	Never
Seal	48	42	10
Expiry date	29	42	29
FSSAI logo	0	10	90
Agmark logo	0	24	76
Nutrition label	6	29	65

television (65%), newspaper (30%), radio (30%), friends (35%) and family members (46%).

Common adulterants such as dalda in *desi ghee*, suji extraction in wheat, chalk and colour in *haldi*, saw dust, brick powder and colour in chilli, iron powder and colour in tea leaves, papaya seeds in black pepper, agremone oil in mustard oil, asbestos powder, khesari dal in pulses, chips powder in salt, sugar in honey, colour in jaggery and green peas were not known to the respondents (Fig. 1).

Nearly half (43%) of the subjects had experienced purchase of adulterated food at least once in past six months. One-third (40%) of them were unaware about the consumer empowering initiative 'Jago Grahak Jago'. There was a statistically significant association between education status of respondent, age, economic status and good purchasing practices by the subjects (p value ≤ 0.05) (Table 2).

Discussion

In India, food safety is a growing problem with instances of adulteration and contamination of essential foods being reported in the media every other day. The concept of food adulteration has been part of Indian society since time immemorial. 96% of the respondents in our study were aware of milk being the food item commonly adulterated, a practice common to both rural and urban India as early as the 19th century and evidenced by the popular Hindi idiom "Doodh ka doodh, paani ka paani". However, awareness about adulteration of other common household items was dismal. Similar to our findings, Baruah, in a study on women in Jorhat noted that those consumers knew food stuffs can be adulterated but they had a very little knowledge about common adulterants that can be used to adulterate food stuffs.⁸

A study conducted by Abidfaheem et al. in 2013 reported an average level of knowledge regarding food adulteration amongst Taluka dwellers in Karnataka state.⁹ Another study conducted by Gautam et al. in 2016 concluded that majority of consumers had low awareness score about adulteration in food items and its harmful effects in the body.¹⁰ Both these findings echoed in our study results too.

Less than half of the study respondents had the habit of checking the seal of packaged food items and less than 30% bothered checking the expiry date. Most people do make it a

Table 2 – Correlates of purchasing practices of respondents.

	Good purchasing practices ^a		Total	p value
	Absent	Present		
Education status				
Up till primary (5th std)	18	9	27	0.006
Up till senior secondary (12th std)	24	29	53	
Graduate and above	04	16	20	
Age (years)				
18–35	16	21	37	0.045
36–50	25	18	43	
51–65	5	15	20	
Economic status				
Low	37	2	59	0.000
Medium	8	26	34	
High	01	6	07	
Marital status of respondent				
Married	41	43	84	0.135
Never married	3	8	11	
Divorced/widow/widower	2	3	05	
Type of family of respondent				
Nuclear	25	21	46	0.291
Joint	16	24	40	
Three generation	5	9	14	
Status of respondent				
House wife	13	13	26	0.388
Head of the household	17	12	29	
Other member	16	29	45	

^a Presence of any 3 out of 5 practices given in Table 1 was considered as good practice.

point to check the expiry date of any medicine before purchase; however, there appears to be lackadaisical attitude when it comes to food and food products. Khapre et al. in a study in Wardha documented that 86%, 70.7% and 43.8% never see the nutritional label, manufacturing and expiry date and weight respectively but 77.5% always see the maximum retail price of product.⁶ In other study done in south India, 68% read label for date before expiry while only half of the respondents check the ingredient of food label.¹¹

In order for the FSSAI regulations to work out on ground, it is critical that the onus of food safety be not purely reliant on producers, retailers, handlers and regulators alone. Food safety has to be a demand-driven attribute and consumers have to be made aware of “what to look for on a food label” and be able to make informed choices. Ignorance of consumers about their rights as well as duties towards food adulteration leads to faulty purchasing and feeding practices. Appropriate food labelling might be the responsibility of the manufacturer, but the onus of reading it correctly rests on the consumer. According to our study, none of the respondents looked for either the Agmark logo or the FSSAI logo on the food products they purchased.

We found a significant association between education status, social economic status age and good purchasing practices. According to our findings, food purchasing practices were better in people with better education and higher SES. Gupta et al. have also documented that attributes like education, income and occupation are key features effecting awareness about adulteration.⁷ In contrast to our findings Bhatt found that regardless of the age, income and religion, all of the groups are well aware of the food adulteration and educated people are less prone to the effect.¹² For SES, Turrell has acknowledged that there exists 10% socio-economic variability in food purchasing behaviour.¹³ In a community, there also exists a significant role of culturally specific beliefs, values and meanings along with cost in food purchasing behaviour of individuals.¹⁴

Two-thirds of our subjects had not heard about 'Jago Grahak Jago', a consumer empowering initiative under Ministry of Consumer Affairs in creating awareness among mass regarding purchase of safe food items. This is a web-based system for addressal of grievances by the common man. However, portals like these remain inaccessible to those from lower socio-economic strata, represented by majority of the Indian population. Contrary to this, Bhatt et al. reported 83% of their study population watched TV program “Jago Grahak Jaago”.¹² Mass media can be effectively used to promote information and awareness for masses belonging to different socio-economic categories. Although a regulatory framework by the Food Safety and Standards Authority of India (FSSAI) exists, there is very little awareness amongst the masses regarding these rules.¹⁵ The Government can make their campaigning strategies more effective by making the consumer complaint process equally accessible across all strata of society. However, the way forward in ensuring food safety is by creating awareness amongst masses which will empower them and translate to practice of good purchasing practices.

Conclusion

In the present study, knowledge and practices of consumers regarding food adulteration were dismal. Consumers have to be made aware and empowered to ultimately end the menace of food adulteration.

Conflicts of interest

The authors have none to declare.

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