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Consumers' Awareness and Opinion Towards Food Adulteration in Selected Areas of West Bengal

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ABSTRACT

Food adulteration originated several decades ago and has become more prevalent day by day. The study was conducted in Kharagpur I block of West Medinipur district of West Bengal in 2017 and 2018 among 100 respondents to measure the level of awareness of adulteration through structured interview schedule. The study found that most of respondents, both in urban and rural areas of the study faced the problems of food adulteration. They lacked appropriate knowledge, tendencies and practices relating to food adulteration. Very few of them checked proper information in the packaging before buying. Based on the research this paper suggested that, to avoid the harmful consequences of adulteration, consumers must continuously develop a habit of upgrading their awareness level, develop a habit of checking the information printed in the package and try to adopt the best buying practices in order to keep themselves away from the hazardous consequences of food adulteration.

INTRODUCTION

India is known to have a rich and various forms of food, and the diverse food habits are mainly dependent on religion, social identity, and other cultural factors, as on local farming practices (Vij & Mann, 2022). Food adulteration is one amongst the foremost current social issues that is evident in our country as well as in the world. It affects the health of consumers that are not apparent within the initial stages; however, it is a large devastating health impact to the consumers that becomes apparent within the long-term. So, the risks to consume such food will be unreal (Sapkota & Phuyal, 2016). Food adulteration is a practice of admixture one thing inferior, harmful, useless, and extra to food like stones in rice to increase weight etc. This addition will increase the amount of trade. A study shows that quality is the primary criterion of any food product that are desirable. Maintaining quality is one of the most important steps in the process of product manufacturing which assures in checking health hazards, which could occur after consuming the degraded food products (Aung et al., 2014).

Food safety, a vital international public health issue to confirm sound health, refers to addressing "all those hazards, whether chronic or acute, that may make food injurious to the health of the consumer" (FAO, 2003). Food adulteration includes varied types of practices, like admixture, subbing, concealing the standard of food by mislabelling, put up rotten or expired food, and adding toxicant substances. Awareness about several standard marks of quality marks on food items are very important in terms of health of consumers because non-standardized and fake products are sold at low price but are deteriorated in quality which harm the consumers (Karki et al., 2009). Lack of knowledge about value addition at farmers level and sub optimal input use can also be one of the reasons of food poisoning (Ram et al., 2022). Pandit et al., (2016) advocated proper education of farmers and consumers on food safety, sustainable and eco-friendly technologies. As a results, buying such food affect the consumers as they face economic loss by paying a lot for lower-quality food and also health hazards. The health hazards may end up from either addition of hurtful

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substances or removal of an important element (Park, 2005). Some adulterants could even cause death (Srilakshmi, 2003).

Today's client is claimed to be king of the market. Indian client may be a victim of exploitation within the style of substandard product and services, false guarantee, usurious costs, and deceitful ways. Creation of client awareness may be a huge task in our immense country (Ramalingam, 2013). The nature of market is the mirror reflecting the buying practices of consumer. Successful buyer is the one who has all knowledge about the product good or bad. So, enriching knowledge is very important (Arefin et al., 2020). The specific objectives of the study were to describe the rural and urban consumers in respect of their buying practices and measure the awareness of the consumers about adulteration in food items.

METHODOLOGY

The research was carried out in Pashchim Medinipur district of West Bengal, where Gopali village and Kharagpur municipal town of Kharagpur-I Block were selected as a research area. The research was carried out during August of 2017 to April of 2018. Kharagpur subdivision and Kharagpur I block under this subdivision of Paschim Medinipur district were selected. Kharagpur town and Gopali village were again chosen as it falls under Kharagpur 1 block. through multistage random sampling. In Kharagpur municipal town, ward no. 34 was selected randomly, under this ward again Biren Sashmal road was selected randomly. On this road 50 families were selected randomly out of 194 families. Out of 988 houses of Gopali village, 50 were selected randomly and survey was conducted. Out of all the families selected the homemakers were chosen as respondent based on the study conducted by Pandey (2000) while working on consumers buying practice on Indian subcontinent. Simple statistical analysis such as descriptive statistical analysis, frequency distribution, percentage, cross tabulation was used. For buying practices, different variables like shop type, food choosing criteria etc were used and for awareness of adulteration, different major adulterants in selected food items were listed to collect the responses as similar methods found in studies of Ali (2010).

RESULTS AND DISCUSSION

Buying practices of consumers

From Table 1, it is clear that in urban area most of the respondents (80%) preferred to purchase goods of daily use from the daily informal shops or the local markets, 12 per cent purchased them from the nearby *Haats* or roadside vendors and only 8 per cent bought goods of daily use from the malls or other departmental stores. Whereas in rural areas, majority of the homemakers i.e., 78 per cent visited the roadside vendors and only 22 per cent visited informal daily shops. But none of them went to the malls. Both in urban and rural area of Kharagpur, 100 per cent respondents tried to properly select food items before purchase. In urban area 100 per cent respondents liked to check the colour, shape and size of the food stuff before purchase. 96 per cent of them watched the appearance, 64 per cent tried to check the expiry date, 8 per cent considered the smell and label colour and only 4 per cent checked the nutrition status as Table 1 shows. In rural area, 100 per cent of the respondents preferred to check the colour of foodstuff, followed by 92 per cent who considered both shape and size. 84 per cent considered appearance of foodstuffs. 30 per cent considered expiry date. All of them always ignored the label colour, nutrition status and smell to check. In urban area, number of respondents who experienced and identified adulterated food items are 64 per cent, whereas in rural area it was 68 per cent. Rest could not identify any adulterated food so far-similar results were found by Vijayeta (2015).

Table 1. Buying practices of respondents related to selected food products

	Urban (%) (n=50)	Rural) (%) (n=50)
Preferable market type		
Informal Shops	80	22
Road Side Vendor	8	78
Malls	12	0
Criteria before purchase of food		
Colour	100	100
Appearance	96	84
Size	100	92
Shape	100	92
Smell	8	0
Expiry Date	64	30
Label Colour	8	0
Nutrition	4	0
Experience and Identification of adulterated food by respondents		
Yes	64	68
No	36	32

Rural and urban people's understanding of Adulteration

Both in urban and rural areas all of the respondents were aware about the term 'Adulteration.' Table 2 reveals that in urban area majority of the homemakers i.e., 54 per cent replied that adulteration as practice of adding harmful chemicals and colour to the food item. According to 34 per cent of them, adulteration was practice of adding harmful chemicals to food items and for 12 per cent of them, it was the practice of mixing any substance harmful to human health. In rural area of Kharagpur, majority of the respondents i.e., 60 per cent of the respondents considered adulteration as the practice of adding harmful chemicals to food items as Table 2 depicts. Similar results were found by-Nasreen et al., (2014).

It was also revealed that in urban area 100 per cent of the respondents knew about vegetable adulteration, 96 per cent of them were aware about fruit, 54 per cent of them knew about both meat and milk products. 50 per cent were conscious about fish adulteration. 48 per cent of them knew about cereals and its products. 40 per cent of them knew about spices, 34 per cent were aware about pulses and its products and least of them i.e., 14 per cent knew about edible oils. In case of rural areas though awareness level of most food items was more or less similar to urban, but there was no awareness about spice adulteration amongst them (Table 2).

Awareness about Adulterants used in food products

As above Table 2 depicts, respondents, aware about cereal and pulse adulteration were (24+17) i.e., 41 in urban area and (12+5)

Table 2. General idea about Adulteration

	Urban (%) (n=50)	Rural (%) (n=50)
Adulteration conception		
Mixing substance harmful to health	12	16
Adding chemical to food	34	60
Adding chemical and colour	54	24
Awareness about adulteration about some important food item		
Edible oil	14	8
Fish	50	56
Meat	54	10
Vegetable	100	100
Fruit	96	94
Spices	40	0
Cereals and products	48	24
Pulses and products	34	10
Milk and product	54	38

i.e., 17 in rural area. So, for the awareness of adulteration of cereal and pulses, the number of respondents became n=41 for urban area and n=17 for rural area. In urban area majority of the respondents i.e.,78.04 per cent were aware about stone chips followed by other adulterants as Table 3 shows. In rural area, majority i.e., 70.58 per cent were aware about both stone chips and sands followed by other adulterants, 23.58 per cent of them knew about both toxic colour and pesticide residues. The awareness about mixing of less expensive items into cereal and pulses were little bit higher in rural area, i.e., 58.82 per cent. According to Table 2, total number of respondents aware about edible oil adulteration were 12 in urban area and 4 for rural area. As Table 3 shows, in urban Kharagpur 83.33 per cent of them identified palm oil as adulterant. Whereas in rural area, majority mentioned colour and flavour. Both in urban and rural area, all of the respondents were aware about vegetable adulteration as Table 2 reveals. In urban area majority i.e., 92 per cent of the respondents were aware about toxic colours mixed in vegetables, followed by other adulterants as Table 3 depicts. Whereas in rural areas, 100 per cent of the respondents were aware about chemicals for growing vegetables bigger and faster. 92 per cent of them were aware about toxic colours. lastly none of them were aware about textile dyes. Table 2 also shows that the number of respondents aware about fruit as adulterated food item were 48 for urban and 47 for rural area. Now as per the study, in urban area majority of the respondents i.e., 75 per cent were aware about calcium carbide. Whereas in rural area 100 per cent were aware about calcium carbide and none of them were aware of wax and flavor as Table 3 shows. Table 2 also reveals that the number of respondents who identified milk as adulterated were 27 for urban and 19 for rural area. As Table 3 depicted, both in urban and rural area, 100 per cent of the respondents were aware about water as adulterant and so on as table 3 shows. None of them in rural area knew about starch. As Table 2 depicts, the number of respondents identified meat as adulterated were 27 for urban and 5 for rural area. Majority of the respondents i.e., 70.37 per cent were aware about meat of other animals as adulterant, followed by others whereas in rural Kharagpur, majority knew about rotten meat as adulterant and none of them were aware about formalin and salt and lime as Table 3 shows. According to Table 2, the number of respondents who identified Fish adulteration were 25 for urban and 24 for rural area. Table 3 clearly depicts that out of 25 respondents, 80 per cent mentioned red colour, followed by others. Whereas in rural area, out of 24 respondents 100 per cent were aware about use of toxic chemical to grow in size and followed by 50 per cent who knew about red colour. They were not aware about other adulterants. For

Table 3. Awareness about major adulterants of some common food items

Adulterant	Urban (%) (n=41)	Rural (%) (n=17)
Cereals and pulses		
Stone chips	78.04	70.58
Sand	73.17	70.58
Textile dye	29.26	0.00
Pesticide residue	39.02	23.52
Less expensive items	29.26	58.82
Toxic colour	48.78	23.52
Edible oil	(n=12)	(n=4)
Colour with flavor	66.66	75
Palm oil	83.33	25
Vegetables	(n=50)	(n=50)
Toxic colour	92.00	92.00
Textile dye	16.00	0.00
Pesticide residue	20.00	68.00
Chemical to grow bigger and faster	88.00	100.00
Fruits	(n=48)	(n=47)
Calcium carbide	75.00	100.00
Other chemicals	56.25	74.46
Flavour	25.00	0.00
Colour	62.50	57.57
Wax	18.75	0.00
Pesticide residue	25.00	19.14
Sugar syrup	37.50	12.76
Milk Product	(n=27)	(n=19)
Water	100.00	100.00
Starch	44.45	0.00
Detergent	51.85	47.36
Milk powder	66.67	63.15
Meat Product	(n=27)	(n=5)
Colour	44.45	40.00
Rotten meat	62.96	80.00
Salt and lime	18.51	0.00
Formalin	18.51	0.00
Meat of another animal	70.37	20.00
Fish	(n=25)	(n=24)
Formalin	24.00	0.00
Insulin	24.00	0.00
Red colour	80.00	50.00
Rotten fish	48.00	0.00
Other chemicals to grow in size	60.00	100.00
Spices	(n=20)	(n=0)
Textile dye	65.00	-
Metanil yellow	25.00	-
Brick powder	70.00	-
Talc powder	30.00	-
Saw dust	45.00	-

spices, in urban area out of 20 respondent's majority of them i.e., 70 per cent were aware about bricks powder, followed by other adulterants but no one were aware in rural area. Similar results were found by Pal et al., (2018).

CONCLUSION

The study concludes that the majority of the customers lack correct information, attitude, and practices regarding food adulteration. So, dietary intervention with nutrition education can be an effective tool in increasing the level of knowledge about what to eat and what not to so that different health hazards can be effectively managed. Food adulteration is a dreaded topic in West Bengal, in India and even in whole world. Each individual has to take care before they get the food product and government must appoint more food inspectors to hide each corner to forestall the food adulteration to occur once more. This study can be conducted in different areas to measure the awareness level which is important for development of targeted government interventions so that those interventions, awareness programme, proper advertisement, educational tours etc can be utilised for them to choose their healthy food and lift voices against fraud.

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