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## Assessment of Data on Awareness of Food Safety and Labelling

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### Abstract

**Purpose:** The study's goal was to ascertain the effect of food safety and labeling awareness levels.

**Rationale:** The goal of the study was to increase the empirical support for the relationship between brand loyalty and aspects of the product, such as packaging, pricing, and brand awareness.

**Methodology:** The study used a quantitative survey methodology and was carried out in malls, colleges, and schools. Data were obtained from a conveniently chosen sample of 1088 customers who bought food products under different brand names. Data was analyzed to look into the relationship between packaging and brand recognition.

**Findings:** Brand awareness and packaging and labeling had strong positive associations, indicating a strong predictive influence on labeling. The findings imply that brand awareness should be implemented in order to improve consumers.

**Value of research:** The study offers useful information to raise consumer understanding of food labeling and safety.

### Key Words:

Food labelling, Consumer's knowledge/awareness, Nutrition, Health, Pre-packaged foods

### Introduction

A panel that can be found on food packaging and offers various details on the food item's nutritional worth. The serving size, number of calories, grammes of fat, contained nutrients, and a list of ingredients are just a few of the details that are commonly seen on food labels.

The relevance of food product labelling as a tool for ensuring that consumers receive nutrition and health information as well as a strategy for food firms to differentiate their products has increased recently all over the world <sup>[1]</sup>. The Indian population's eating habits have undergone a significant amount of change in the last few years. Foods that promote health and fitness are likewise in greater demand. From a public policy standpoint, food safety regulations are becoming more significant due to

changes in lifestyle and consumption patterns <sup>[2]</sup>.

Numerous studies found that, generally, consumers were perplexed by the information on nutrition labels, particularly when some technical and numerical information was used <sup>[3][4][5]</sup>. Health Claims are one of the important details that are now included on food packaging. Combining both shorter health claims on the front of the container with more comprehensive valid information on the back encourages consumers to think more specifically about the product's attributes <sup>[6]</sup>. Longer claims could result in broadly analysed ideas. Shorter claims may promote more favourable product beliefs and, as a result, a more favourable perception of the product <sup>[7]</sup>.

Particularly with regard to food products, Indian consumers are changing their consumption and purchasing habits. In recent years, there has been a dramatic increase in the consumption of packaged foods. The demand for wholesome foods is also increasing. With the change in lifestyle and consumption pattern, food safety standards, transparency in dissemination of information related to food product and legal regulations are becoming important on food labels.

The cost of labelling will only be worthwhile if consumers are aware of, are able to grasp, and base some of their purchasing decisions on the information provided on the food labels. Novel types of food labelling, in particular "front-of-pack" nutrient signposting, are seen as potential instruments for enhancing population nutrition<sup>[8]</sup>. Many front-of-pack nutrition signposting variations have been created<sup>[9]</sup>, and the best structure has been hotly contested.<sup>[10]</sup>

It is essential to evaluate Indian customers' understanding of such information on food labels and the extent to which it affects their purchasing decisions in markets or shopping centres in order to optimise the benefits of food product labelling. Since this issue has not received enough attention from researchers, the current study aims to find out how well-informed Indian customers are about the content and nutritional information on food product labels. Little consumer expectations and responses to food label information were studied in the context of emerging economies<sup>[11,12]</sup>. The study's findings will be useful in establishing strategies for food

firms to optimise the advantages from resources spent on food labelling and in understanding the complexity of challenges consumers face during the purchasing process linked to food product labelling.

### Methods and Materials:

This descriptive cross-sectional study has assessed with several age groups, knowledge; attitudes and practices towards food labelling. The study was conducted in various schools, colleges and malls in vijayawada during September - December, 2022.

### Sample size and selection:

Calculation of the sample size (SS) was based on the total population of Vijayawada, Andhra Pradesh (1,034,358). A sample of 1088 subjects, who represent 1% of total Vijayawada, Andhra Pradesh. The 1088 subjects who have signed consent forms to participate in this study interviewed by 2 trained student investigators. The 15 items questionnaire was piloted; demographic; and food label behaviour data were collected. In addition; information on what consumers were like to see on the food label was also collected.

### Data collection

#### Demographics:

The gender; Knowledge; attitude and practice of the consumers regarding the food labels were assessed.

#### Statistical analysis

Data were analysed using SPSS Inc.; version 17.0 was performed to assess the statistical significant differences between the demographic characteristics with regard to label use.

1. How frequently do you read labels on the packaged food when shopping for packaged Food items?	(a) Never	(b) Always	(c) Mostly	(d) Rarely
2. Labeling in regard to packaged food as per law is:	(a) Optional	(b) Compulsory	(c) In some cases optional & in some	

<p>cases Compulsory.                      (d) Depends on the Type of food</p>																		
<p>3. Do you feel that the labels made on the packaged food are informative enough in promoting informed choice of consumers?</p> <p>(a) Yes                      (b) No                      (c) in most of the cases                      (d) no idea</p>																		
<p>1. Do you feel that the labels on the packaged food should be made in the vernacular language?</p> <p>(a) Not necessary                      (b) Always                      (c) No Idea                      (d) Only on some items</p>																		
<p>2. Why do you read labels on packaged Food?</p> <p>(a) Nutritional information    (b) Calorie Content    (c) use by / best before Date    (d) Fat Content    (e) Food Additives    (f) Storage information    (g) for selecting right kind of food.</p>																		
<p>3. What is your opinion on the information provided on the labels of the packaged food?</p> <p>(a) False                      (b) Correct                      (c) some false &amp; some correct    (d) Misleading</p>																		
<p>4. What in your opinion is a Misbranded Food?</p> <p>(a) A food with a false brand</p> <p>(b) A food sold with the brand name of another</p> <p>(c) A food with label containing false/ misleading/ untruthful/inaccurate information.</p> <p>(d) None of the above.</p>																		
<p>5. Would you be willing to buy food product with the following claims?</p> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="border: 1px solid black; padding: 5px; text-align: center;">Claim</th> <th style="border: 1px solid black; padding: 5px; text-align: center;">Yes</th> <th style="border: 1px solid black; padding: 5px; text-align: center;">No</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Low salt</td> <td style="border: 1px solid black; text-align: center;">Yes</td> <td style="border: 1px solid black; text-align: center;">No</td> </tr> <tr> <td style="padding: 5px;">Edible salt without Iodine salt</td> <td style="border: 1px solid black; text-align: center;">Yes</td> <td style="border: 1px solid black; text-align: center;">No</td> </tr> <tr> <td style="padding: 5px;">High in Anti-oxidants</td> <td style="border: 1px solid black; text-align: center;">Yes</td> <td style="border: 1px solid black; text-align: center;">No</td> </tr> <tr> <td style="padding: 5px;">Trans Fats</td> <td style="border: 1px solid black; text-align: center;">Yes</td> <td style="border: 1px solid black; text-align: center;">No</td> </tr> <tr> <td style="padding: 5px;">High Fiber</td> <td style="border: 1px solid black; text-align: center;">Yes</td> <td style="border: 1px solid black; text-align: center;">No</td> </tr> </tbody> </table>	Claim	Yes	No	Low salt	Yes	No	Edible salt without Iodine salt	Yes	No	High in Anti-oxidants	Yes	No	Trans Fats	Yes	No	High Fiber	Yes	No
Claim	Yes	No																
Low salt	Yes	No																
Edible salt without Iodine salt	Yes	No																
High in Anti-oxidants	Yes	No																
Trans Fats	Yes	No																
High Fiber	Yes	No																
<p>9. What do you understand when a packaged food contains a green dot on its labeling?</p> <p>(a) Vegetarian                      (b) Non Vegetarian                      (c) Medicinal Use only                      (d) Not</p>																		

For Children
7. Who do you understand when a packaged food contains a red dot on its labeling? (a) Food free from Sugar (b) Non vegetarian (c) Medicinal use only (d) Not For Children
11.The law prescribing food standards and preventing adulteration in India is (a) The prevention of Food Adulteration Act (b) The sale of goods Act, 1930 (c) The Food Safety and Standards Act, 2006 (d) The Drugs and Cosmetics Act
12.Sale of dietary / health supplements with a claim of medicinal use in India is: (a)Allowed (b) Prohibited (c) Regulated (d) No idea
13.Complaints against food adulteration, misbranding and mislabeling can be lodged by a victim with the: (a) Police (b) Food Inspectors (c) Court (d) Food Safety Officers
14.The most adulterated packaged food in your opinion in India is: (a) Milk (b) water (c) Beverages (d) Ice Creams
15.The most valuable information in your opinion on the labeling of packaged food is: a) Nutritional Value (b) Best before use (c) Usage conditions (d) Contents (e) Name and Address of the Manufacturer.

**RESULTS:**

Gender wise distribution (n=1088)

CATEGORY	
MALE	FEMALE
375	713

Table-A: Gender wise distribution

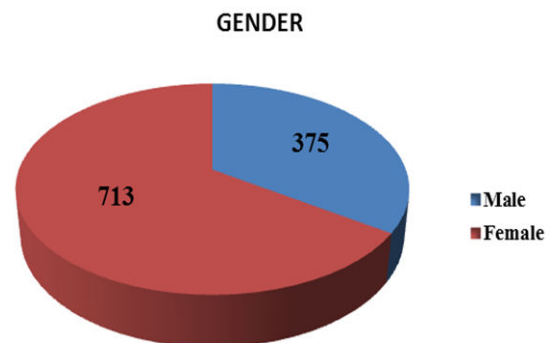


Figure-A: Gender wise distribution

Results from **Table-A& Figure-A** indicates that, in the study population out of 1088 consumers 375(34.5%) were male and 713(65.5%) were female consumers and female consumers were found to be more

**TABLE 1: Reading labels on the packaged food when shopping for packaged Food items**

CATEGOR Y	OPTIONS			
	NEVE R	ALWAY S	MOSTL Y	RAREL Y
MALE	123	104	62	86
FEMALE	273	62	70	308

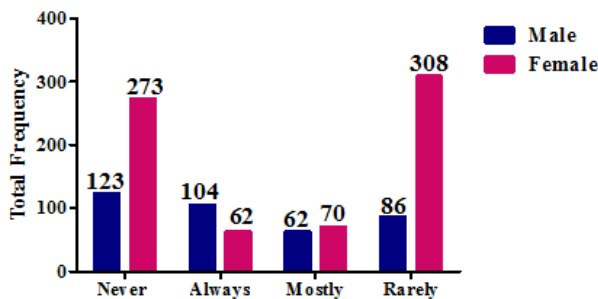


Figure 1 : Reading labels on packaged food when shopping for packaged food items.

**Table-1& Figure-1** indicates that, out of 1088 consumers about 36.3% stated that they never read labels and about 36.2% answered that they rarely read labels.

**TABLE 2: Labeling in regard to packaged food as per law**

CATEGOR Y	OPTIONS			
	OPTION AL (a)	COMPULSO RY (b)	BOT H a & b	DEPEN DS ON THE TYPE OF FOOD
MALE	66	130	110	69
FEMALE	169	151	326	67

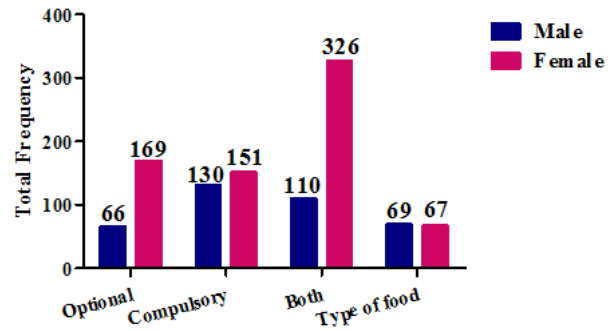


Figure 2: Labeling in regard to packaged food as per law.

Results from **Table-2& Figure-2** about 40% stated that labelling as per law is both optional and compulsory and about 25.8% stated that labelling is compulsory.

**TABLE 3: Labels made on the packaged food are informative enough in promoting informed choice of consumers.**

CATEGORY	OPTIONS			
	YES	NO	IN MOST CASES	NO IDEA
MALE	65	101	111	98
FEMALE	89	135	324	162

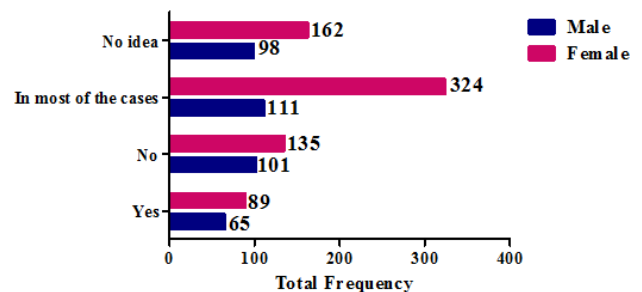


Figure 3: Labels made on the packaged food are informative enough in promoting informed choice of consumers

Results from **Table-3&Figure-3** about 39.9 answered that in most cases labels made on the packaged food are informative enough in promoting informed choice of consumers and about 23.8% answered that they have no idea.

**TABLE 4:Labels on the packaged food should be made in the vernacular language**

CATEGO RY	OPTIONS			
	NOT NECESSA RY	ALWA YS	NO IDE A	ONLY ON SOM E ITEM S
MALE	110	57	120	88
FEMALE	148	98	350	117

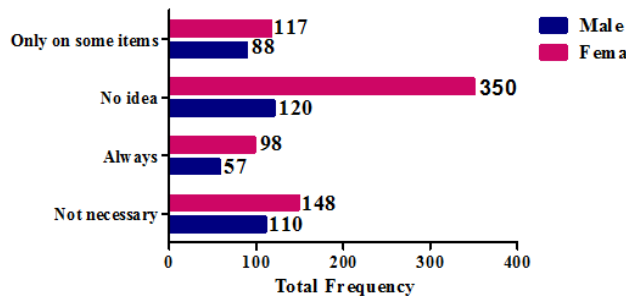


Figure 4: Labels on the packaged food should be made in the vernacular language

As per **Table-4& Figure-4** about 43.1% answered that they have no idea in the vernacular language and about 23.7% stated that only on some items.

**TABLE 5:Reading labels on packaged Food.**

CATE GORY	OPTIONS						
	A	B	C	D	E	F	G
MALE	98	80	106	77	6	5	3
FEMA LE	98	150	220	82	65	78	20

**A-**NUTRITIONAL INFORMATION; **B-** CALORIE CONTENT; **C-** USE BY / BEST BEFORE DAY; **D-** FAT CONTENT; **E-** FOOD ADDITIVES; **F-** STORAGE

INFORMATION; **G-** FOR SELECTING RIGHT KIND OF FOOD

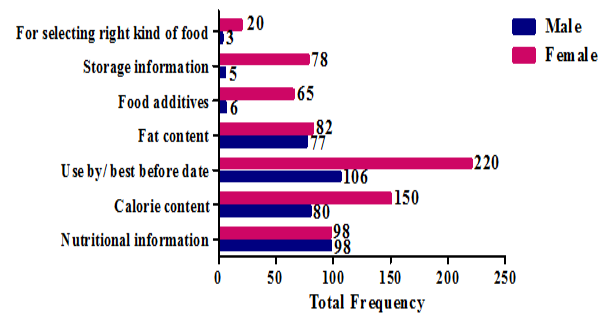


Figure 5: Reading labels on packaged food

According to **Table-5& Figure-5-** about 29.9% members answered that they see the use by/best before date on the label of packaged food and about 21.1% stated that they see calorie content.

**TABLE 6: Opinion On The Information Provided On The Labels Of The Packaged Food.**

CATEGO RY	OPTIONS			
	FALSE	COR RECT	SOME FALSE & SOME CORRECT	MISLEA DING
MALE	20	75	168	112
FEMALE	89	98	376	150

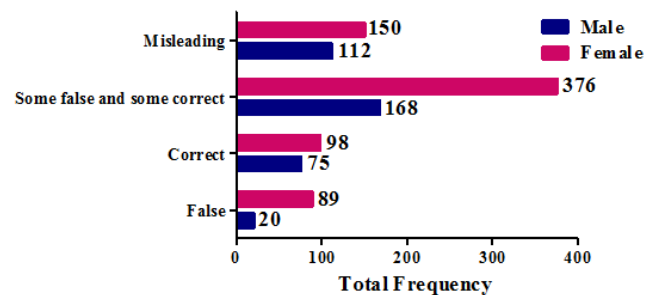


Figure 6: Opinion on the information provided on the labels of the packaged food

As per **Table-6& Figure-6-** about 50% stated that the information provided on labels are some false and some correct and about 24% stated that they are misleading.

**TABLE 7:** Opinion on Misbranded Food.

CATEGORY	OPTIONS			
	FALS E BRAND D	SOLD WITH ANOTH ER BRAND NAME	CONTAININ G IN ACCURATE INFORMATI ON	NONE OR THE ABOVE
MALE	70	110	152	43
FEMALE	145	390	96	82

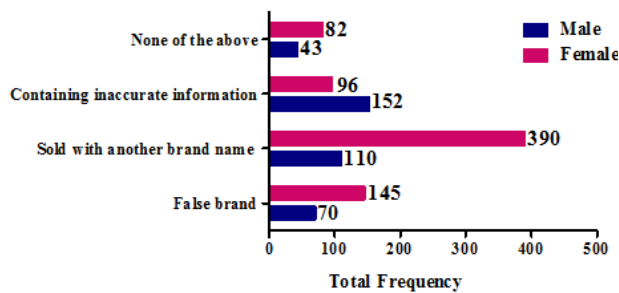


Figure 7 : Opinion on misbranded food

According to **Table-7&Figure-7,** about 45.9% answered that misbranded food is sold with another brand and about 22.7% stated that containing inaccurate information.

**TABLE 8a:** Buying food product with the following claims.

S.NO	CLAIMS	OPTIONS	
		YES	NO
1	LOW SALT	190	185
2	EDIBLE SALT WITH OUT IODINE SALT	175	200
3	HIGH IN ANTIOXIDANTS	125	250
4	TRANS FATS	268	107
5	HIGH FIBER	251	124

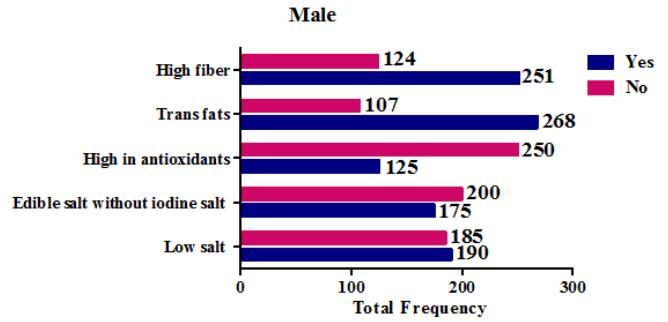


Figure 8a : Buying food products with the following claims

TABLE 8b: Buying food product with the following claims.

S.NO	CLAIMS	OPTIONS	
		YES	NO
1	LOW SALT	380	333
2	EDIBLE SALT WITH OUT IODINE SALT	341	374
3	HIGH IN ANTIOXIDANTS	322	392
4	TRANS FATS	400	314
5	HIGH FIBER	398	317

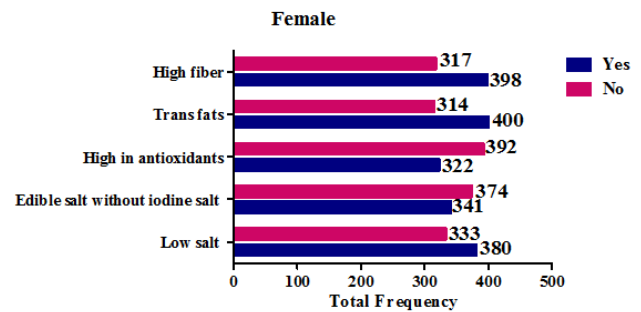


Figure 8b : Buying food products with the following claims.

As per **Tables-8(a); 8(b)& Figure 8(a); 8(b)** states that consumers are willing to take trans-fat food and second priority is given to high fibre food while compared with the other claims given above.

**TABLE 9:** Packaged food contains a green dot on its labeling.

CATEGORY	OPTIONS			
	VEGETARIAN	NON VEGETARIAN	MEDICAL USE	NOT FOR CHILD



			<b>ONLY</b>	<b>REN</b>
<b>MALE</b>	155	40	160	20
<b>FEMAL</b>	366	56	270	21
<b>E</b>				

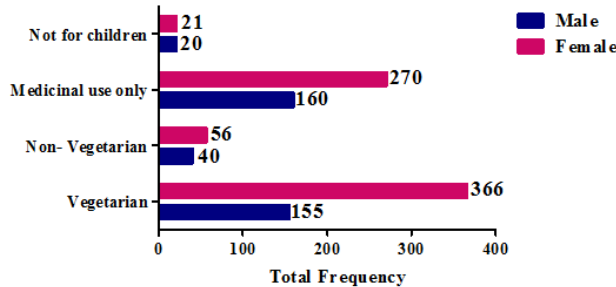


Figure 9 : Packaged food contains a green dot on its labeling

As per **Tables-9& Figure-9**; about 47.8% stated that green dot indicates it is vegetarian.

**TABLE 10: Packaged food contains a red dot on its labelling.**

CATEGOR Y	OPTIONS			
	FOOD FREE FROM SUGAR	NON VEGETARIAN	MEDIC AL USE ONLY	NOT FOR CHILDR EN
<b>MALE</b>	68	171	79	57
<b>FEMALE</b>	280	350	23	60

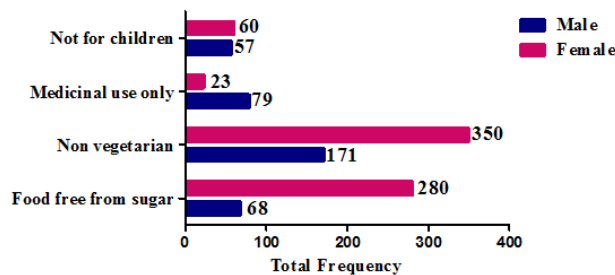


Figure 10 : Packaged food contains a red dot on its labeling.

According to **Table-10& Figure-10**; about 47.9% answered that red dot indicates it is non-vegetarian.

**TABLE 11: The law prescribing food standards and preventing adulteration in India**

CATEGORY	OPTIONS			
	A	B	C	D
<b>MALE</b>	25	199	52	99
<b>FEMALE</b>	220	63	390	40

- A- THE PREVENTION OF FOOD ADULTRATION Act
- B- THE SALE OF GOODS Act, 1930
- C- THE FOOD SAFETY & STANDARDS Act, 2006
- D- THE DRUGS AND COSMETICS Act

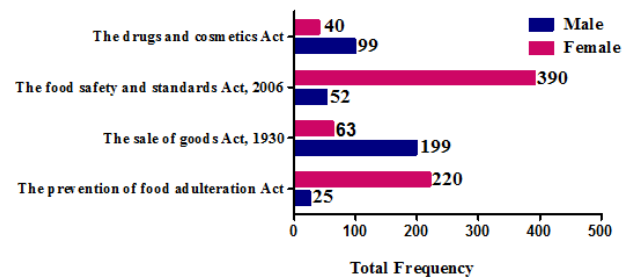


Figure 11 : The law prescribing food standards and preventing adulteration in India.

As per **Tables-11& Figure-11**; about 40.6% answered that the food safety and standards act, 2006.

**TABLE 12: Sale of dietary / health supplements with a claim of medicinal use in India.**

CATEGOR Y	OPTIONS			
	ALLOWE D	PROHIBITE D	REGU LATE D	NO IDEA
<b>MALE</b>	15	176	163	21
<b>FEMALE</b>	74	328	229	82

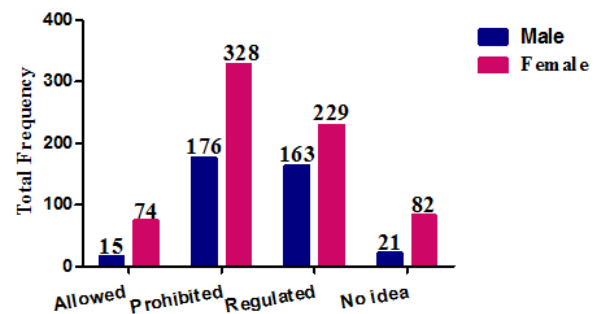


Figure 12 : Sale of dietary/ health supplements with a claim of medicinal use in India.

According to **Table-12 & Figure-12**; about 51.1% answered that Sale of dietary / health supplements with a claim of medicinal use in India is prohibited.

**TABLE 13:Complaints against food adulteration, misbranding and mislabeling can be lodged by a victim.**

CATEGORY	OPTIONS			
	POLICE	FOOD INSPECTOR	COURT	FOOD SAFETY OFFICERS
MALE	38	174	35	128
FEMALE	60	302	30	321

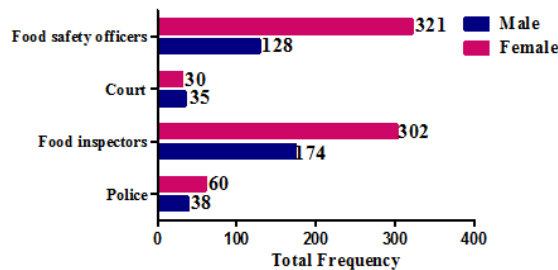


Figure 13 : Complaints against food adulteration, misbranding and mislabeling can be lodged by a victim

According to **Table-13& Figure-13**; about 43.7% answered complaints against food adulteration, misbranding and mislabeling can be lodged by a victim to food inspector and about 41.2% stated that to food safety officer.

**TABLE 14:The most adulterated packaged food in your opinion in India.**

CATEGORY	OPTIONS			
	MILK	WATER	BEVERAGES	ICE CREAMS
MALE	150	40	75	110
FEMALE	281	47	202	183

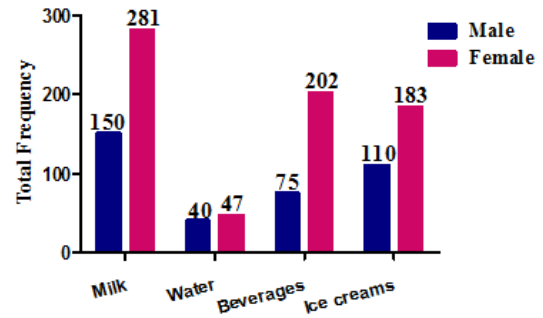


Figure 14 : The most adulterated packaged food in your opinion in India

As per **Tables-14& Figure-14**; about 39.6% answered most adulterated packaged food in your opinion in India is milk.

**TABLE 15:The most valuable information in your opinion on the labeling of packaged food.**

CATEGORY	OPTIONS				
	A	B	C	D	E
MALE	110	108	107	20	30
FEMALE	198	272	123	70	50

**A**; NUTRITIONAL VALUE **B**; BEST BEFORE USE **C**; USAGE CONDITIONS **D**; CONTENTS **E**; NAME& ADDRESS OF MANUFACTURER

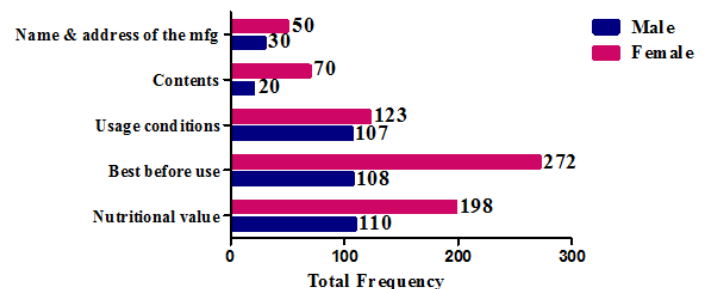


Figure 15 : The most valuable information in your opinion on the labeling of packaged food

As per **Tables-15& Figure-15**; 34.9% stated that most valuable information in consumer's opinion on the labeling of packaged food is best before use and about 28.3% stated that is nutritional value.

## Discussion

The present study provides overall pattern of awareness level of food safety and labels. In the study population out of 1088 consumers 375(34.5%) were male and 713(65.5%) were female consumers and female consumers were found to be more than male.

As per the study, about 36.3% stated that they never read labels and about 36.2% answered that they rarely read labels. About 40% stated that labelling as per law is both optional and compulsory and about 25.8% stated that labelling is compulsory.

According to the study, about 39.9% answered that in most cases labels made on the packaged food are informative enough in promoting informed choice of consumers and about 23.8% answered that they have no idea. About 43.1% answered that they have no idea on vernacular language and about 29.9% members answered that they see the use by/best before date on the label of packaged food and about 21.1% stated that they see calorie content.

Corresponding to this study 50% stated that the information provided on labels are some false and some correct and about 24% stated that they are misleading and about 45.9% answered that misbranded food is sold with another brand and about 22.7% stated that containing inaccurate information.

As per survey that consumers are willing to take trans-fat food and second priority was given to high fibre food while compared with the other claims given above and 47.8% stated that green dot indicates it as vegetarian and about 47.9% answered that red dot indicates it as non-vegetarian.

According to the survey about 40.6% answered the food safety and standards act, 2006 and about 51.1% answered Sale of dietary / health supplements with a claim of medicinal use in India is prohibited and about 43.7% answered complaints against

food adulteration, misbranding and mislabeling can be lodged by a victim to food inspector and about 41.2% stated that to food safety officer.

Present survey states that, 39.6% answered most adulterated packaged food in consumer opinion is milk and 34.9% stated that most valuable information on the labeling of packaged food is best before use and about 28.3% stated that is nutritional value.

## Conclusion

As per the study on awareness on food safety and labelling most of the consumers stated that they never read labels and in few cases they rarely read labels. Most of them feels that labelling as per law is both optional and compulsory. In most cases labels made on the packaged food are informative enough in promoting informed choice of consumers. Most of the consumers have no idea on vernacular language. Mostly they see the use by/best before date on the label of packaged food.

Their idea, information provided on labels tend to be false sometimes and misbranded food is sold with duplication of brand name containing inaccurate information. Consumers are willing to take trans-fat food and second priority was given to high fibre food while compared with the other claims. Green dot indicates it as vegetarian and red dot indicates it as non-vegetarian.

According to the survey the law prescribing food standards and preventing adulteration in India is food safety and standards act, 2006 and sale of dietary / health supplements with a claim of medicinal use in India is prohibited. Complaints against food adulteration, misbranding and mislabeling can be lodged by a victim to food inspector and food safety officer. Most adulterated packaged food in consumers opinion in India is milk and most valuable information on the labeling of packaged food is best before use and nutritional value.

## Acknowledgements

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