# A COMPARATIVE STUDY OF KNOWLEDGE, ATTITUDE AND PRACTICE OF YOUNG VERSUS OLD ADULT CONSUMERS FROM MUMBAI REGARDING FOOD LABELS

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**ABSTRACT**

*WHO defines food labeling as any written, printed, or visual material that should be contained on a food product's label or is displayed nearby, including that which serves to promote the sale or disposal of the item. This study aimed to assess and compare the knowledge, attitude and practices between young adults (21-40 years old) and older adults (41-60 years old) regarding food label. The study was conducted using a cross-sectional design. A convenience sampling approach was employed and subjects who were unable to understand English were excluded. The total sample size was 200 and they were all adults residing in Mumbai out of which 102 were young adults and 98 were older adults. Validated questionnaires were tailored to the Indian population and was used to collect data. Statistical analysis was carried out using a statistical package for social sciences software. The comparison between two groups was done using the chi-square test. A Pearson correlation coefficient was performed to evaluate the relationship between knowledge, attitude and practice score. P value less than 0.05 were considered significant. The younger adults showed greater knowledge of health claims on food labels compared to older adults and this was statistically significant. There was a significant positive correlation of knowledge scores with attitude (p=0.002), and practice scores (p=0.001) in young and old adults as well as for attitude with knowledge (p=0.002) and practice scores (p=<0.01). It may be inferred from the results that one of the causes of poor public health in the population may be due to a lack of understanding, a negative attitude and lack of use of food labels. Efficient programs must be conducted to inform the public about the significance of food labels.*

**Index terms**: food label, consumer awareness, old adult vs young adults

## INTRODUCTION

India is the world's second-largest producer of food and has the potential to be the largest in the food and agricultural sectors. Food labeling is a crucial step in the chain of food processing that should not be disregarded. The label is the consumer's first point of contact with the producer. Food labels are also used to differentiate between various food products and to categorize them so that consumers can choose which ones to buy. (Fatima Riaz et al.,2022)

The World Health Organization (WHO) defines food labeling as any written, printed, or visual material that should be contained on a food product's label or is displayed nearby, including that which serves to promote the sale or disposal of the item. Food labels have two main purposes: to inform consumers about food quality and to assist producers in making sales. (Riaz et al., 2022)

In a  Korean study it was found that the relationship between adult readers of nutrition labels and macro- and micronutrient consumption discovered that men who read labels consumed more calcium and vitamin C than those who did not. In the same study, female participants who consulted nutrition labels consumed fewer calories and carbohydrates than those who did not.
Furthermore, people who had more education and income were more inclined to use nutrition labels.  (Arfaoui, L et al., 2021)

## The Importance of Packaged Food Labeling

The food label is split into two categories among consumers: the first is the food label, and the second is the nutritional label. Food product labeling serves as a tool for policymakers to ensure that nutrition is provided. The usefulness of food labels in discouraging the consumption of unhealthy foods has to be analyzed and researched, particularly in the Indian setting. (Srivastav Nivi, 2018). According to FSSAI regulations from 2011, Every food label on a packaged food has the following components: Name of the Food, A list of all the ingredients, Vegetarian and non-vegetarian declaration, Date of Manufacturing or Packaging, Net Quantity, Batch, code, or lot number for recognition, Directions for Use, Declaration (Rao, S. Varuna, 2019)

## Customers' attitudes about food labeling

Numerous economic, cultural, psychological, and lifestyle aspects have always had an impact on consumer purchasing decisions for food and grocery items. Indian consumers are becoming more conscious of nutritional diet, health, and food safety issues as a result of changes in the quality of food they consume. With increased per capita income and health awareness, there is a shift from a curative to a preventive approach to food. The globe is taking notice of the attitudes and consumption habits of the Indian populace. There is a need to assist consumers in making better food decisions when they are shopping for food because diet and lifestyle choices could have catastrophic repercussions.  (Srivastav Nivi, 2018)

## Objectives of the study

-To  assess and compare the knowledge, attitude and practices between two groups: young adults (21-40 years old) and older adults (41-60 years old) regarding Food Labels, To Assess the association between Knowledge and Practice and Attitude and Practice regarding Food Label, to identify aspects of food label that influences the purchasing of food product amongst young versus older adults. Ethical clearance was obtained from the Ethics Committee, Inter System Biomedical Ethics Committee (ISBEC). A consent form was obtained from the participants at the time of their participation.

## METHODOLOGY

### Study design

The research study was conducted using a cross-sectional design to assess the knowledge, attitude, and practice of younger (21–40 years old) adults and older (41–60 years old)
**Study location -**The study was conducted in Mumbai, India

### Sample selection

Functional definition: -  Those aged 21 to 40 years old were classified as young adults, whereas those aged 41 to 60 years old were classified as elderly people. The target population of the study was selected between 21 and 60 years old.
Inclusion Criteria - Age group between 21-60 years living in Mumbai, Gender- male and female, the individual must be fluent in reading and writing English, the individual should be shopping on their own or for their family.
Exclusion Criteria- Individuals  who are unable to read and understand English.
**Sampling techniques-**A Snowball sampling approach was employed in the study.

### Sample size

The total number of study participants was 200 participants. The study recruited 102 young adults and 98 older adults.
### Data collection

Data regarding Knowledge, Attitude and practice of food labels was collected. The link to the research questionnaire

through online platforms such as Google Forms was provided to eligible individuals at random, and data was collected spontaneously. Subjects volunteered to participate in the study by completing the questionnaire.

## Tools used for Data

KAP data: Validated questionnaires were used for data collection **(Arfaoui, L et al., 2021; and Kaur et al., 2020).** These questionnaires were tailored to the Indian population in order to collect consumer knowledge, attitudes, and practices regarding food labels.

## Questionnaire consisted of five sections

Section 1- The participants' socio demographic profile questions. Section 2- Questions on Eating habits. Section 3- This section included questions concerning the participants' knowledge of food labels. Section 4- The evaluation of attitudes toward food labels was the focus of the questionnaire's fourth section. Section 5. The fifth section of the questionnaire was dedicated for assessment of practices regarding food labels.

## Statistical Analysis

Collected data was coded then statistical analysis was carried out using a statistical package for social sciences software (spss version 20). Knowledge, attitude, and practice responses were scored. The comparison between young adults and older adults was done using the chi-square test. Pearson's correlation coefficient was used to examine the association between KAP scores. P value less than 0.05 was considered statistically significant.

## RESULTS AND DISCUSSION

**Table 1- Socio-demographic characteristics of study participant**

| Variable | Young adult total N= 102 (100) N (%) | Old adult N=98 (100) N (%) | Total N=200 N (%) |
|---|---|---|---|
| **Gender**<br>Male<br>Female | 18 (17.6)<br>84 (82.4) | 50 (51)<br>48 (49) | 68 (34)<br>132 (66) |
| **Members in the Family**<br>Less than 2<br>2-5<br>5-10<br>More than 10 | 6 (5.9)<br>69 (67.6)<br>21 (20.6)<br>6 (5.9) | 12 (12.2%)<br>50 (51.0%)<br>34 (34.7%)<br>2 ( 2.0) | 18 (9)<br>119 (59.5)<br>55 (27.5)<br>8 (4) |
| **Qualification**<br>Profession or Honors<br>Graduate<br>Intermediate or diploma<br>High school certificate<br>(HSC)<br>Middle school certificate (SSC) | <br><br>23(22.5)<br>62 (60.8)<br>9 (8.8)<br>8 (7.8)<br>0 | <br><br>23 (23.5)<br>32 (32.7)<br>12 (12.2)<br>13 (13.3)<br>18 (18.4) | <br><br>46 (23)<br>94 (47)<br>21 (10.5)<br>21 (10.5)<br>18 (9) |
| **Profession**<br>Legislators, Senior Officials & Managers<br>Professionals<br>Technicians and Associate<br>Professionals Clerks<br>Skilled Workers<br>Shop and Market Sales Workers<br>Craft and Related Trade Workers | 3 (2.9)<br>57 (55.9)<br>3 (2.9)<br>4 (3.9)<br>5 (4.9)<br>3 (2.9)<br>2 (2) | 4 (4.1)<br>31 (31.6)<br>9 (9.2)<br>3 (3.1)<br>6 (6.1)<br>8 (8.2)<br>4 (4.1) | 7 (3.5)<br>88 (44)<br>12 (6)<br>7 (3.5)<br>11 (5.5)<br>11 (5.5)<br>6 (3) |
| Unemployed<br>Retired | 25 (24.5)<br>0 | 24 (24.5)<br>9 (9.2) | 49 (24.5)<br>9 (4.5) |

| Monthly family income (Rs) | | | |
|---|---|---|---|
| ≥120,000 | 15 (14.7) | 11 (11.2) | 26 (13) |
| 30,000- 120,000 | 76 (74.6) | 70 (71.4) | 146 (73) |
| ≤30,000 | 11 (10.8) | 17 (17.3) | 28 (14) |
| **Medical diagnoses** | | | |
| Diabetes | 1 (1) | 14 (14.3) | 15 (7.5) |
| Hypertension | 2 (2) | 14 (14.3) | 16 (8) |
| Heart disease | 0 | 6 (6.1) | 6 (6) |
| Thyroid disease | 8 (7.8) | 5 (5.1) | 13(6.5) |
| Gastrointestinal disease | 1 (1) | 6 (6.1) | 7 (3.5) |
| No disease | 88 (86.3) | 53 (54.1) | 141 (70.5 |
| Others | 2 (2) | 0 | 2 (1) |
| **Any Food allergy** | | | |
| Yes | 7 (6.9) | 8 (8.2) | 15 (7.5) |
| No | 95 (93.1) | 90 (91.8) | 185 (92.5) |
| **Following any specific Diet** | | | |
| Yes | 15 (14.7) | 20 (20.4) | 35 (17.5) |
| No | 87 (85.3) | 78 (79.6) | 165 (82.5) |
| **Frequency of purchasing processed or packaged foods** | | | |
| Daily | 31 (30.4) | 6 (6.1) | 37 (18.5) |
| Once a week | 26 (25.5) | 19 (19.4) | 45 (22.5) |
| Twice a week | 19 (18.6) | 20 (20.4) | 39 (19.5) |
| Fortnightly | 9 (8.8) | 19 (19.4) | 28 (14) |
| Once a month | 17 (16.7) | 34 (34.7) | 51 (25.5) |

Table 1 presents the socio-demographic characteristics of young and old adult study participants. Among them, 102 individuals belonged to the young adult category and 98 to the older adult category. In the young adult category, there were around 82.4% females, whereas in the older adult category, there were 49% females. 69% of young adults and 59% older adults belonged to a family size of two to five family members. The majority of participants 94% (young adults 60.8% and older adults 32.7%) had a graduate degree overall. A household income of between ₹30,000 and ₹120,000 per month was earned by 74.6% young and 71.4% old adults. 86.3% young adults and 54. % of older adults were disease-free. In terms of frequency of purchasing processed or packaged food, 31% of young adults bought it daily, while 34% of older adults bought it once a month.

**Table 2 Responses of study participants to Knowledge questions regarding food labels**

| Knowledge Questions | Response | | | | | | |
|---|---|---|---|---|---|---|---|
| | Young Adults -N (%) 102(100) | | | Older adults -N (%) 98(100) | | | p value |
| | Yes N (%) | No N (%) | Not sure N (%) | Yes N (%) | No N (%) | Not sure N (%) | |
| Food labels include logos or pictures | 79 (77.5) | 14 (13.7) | 9 (8.8) | 37 (37.8) | 22 (22.4) | 39 (39.8) | **0.000** |
| Nutritional information on a food package is a food label | 79 (77.5) | 3 (2.9) | 20 (19.6) | 46 (46.9) | 17 (17.3) | 35 (35.7) | **0.000** |

| A food label has information about food which is enriched with nutrients | 70 (68.6) | 10 (9.8) | 22 (21.6) | 31 (31.6) | 20 (20.4) | 47 (48) | **0.000** |
|---|---|---|---|---|---|---|---|
| A food label has information about food which is fortified with nutrients | 63 (61.8) | 9 (8.8) | 30 (29.4) | 25 (25.5) | 20 (20.4) | 53 (54.) | **0.000** |
| **Participants' understanding of the color-coded symbols for vegetarian and nonvegetarian symbols found on food labels** | | | | | | | |
| Green for vegetarian | 83(81) | 19 (18.6) | - | 62 (63) | 38 (37) | - | **-** |
| Brown for non-vegetarian | 47 (46.1) | 55 (53.9) | - | 31 (31.63) | 67 (68.4) | - | **-** |

Note- p-value < 0.05 is considered statistically significant

Out of the total 102 young adults and 98 older adults - about ¾ of young adults showed knowledge regarding logos, nutritional information and enriched nutrients on food labels (Table 2). Comparatively, only about ⅓ of older adults exhibited the same food label knowledge.

61.8% and 25.5% of young and old adults were aware about foods that are fortified with nutrients. The understanding of color coding and symbols on the food packages was slightly higher in the younger adults versus the older group. 81% of young adults and 63% of young adults were aware about vegetarian symbols and 46% of young adults and 31.6% of older adults were aware about non vegetarian symbols. However, the knowledge and understanding of elements found on the food labels was fairly low in both the groups. Only about 52% of the young adults and 39.2% of older adults reported an understanding of the elements on the food label. Results were statistically significant with p value <0.05. Research from both experimental and "real-life" trials, reviewed in 2020, shows that FOPL programs promote better food shopping habits. The potential for behavior changes on labels with an interpretative message (that goes beyond just providing nutritional information) appears to be more powerful. (Croker, et al., 2020). Similarly in the current study participants who had better knowledge of food labels were more likely to inculcate good habits and had better understanding of health claims given on food labels.

**Fig- 1- Awareness of study participants regarding claims given on food labels**
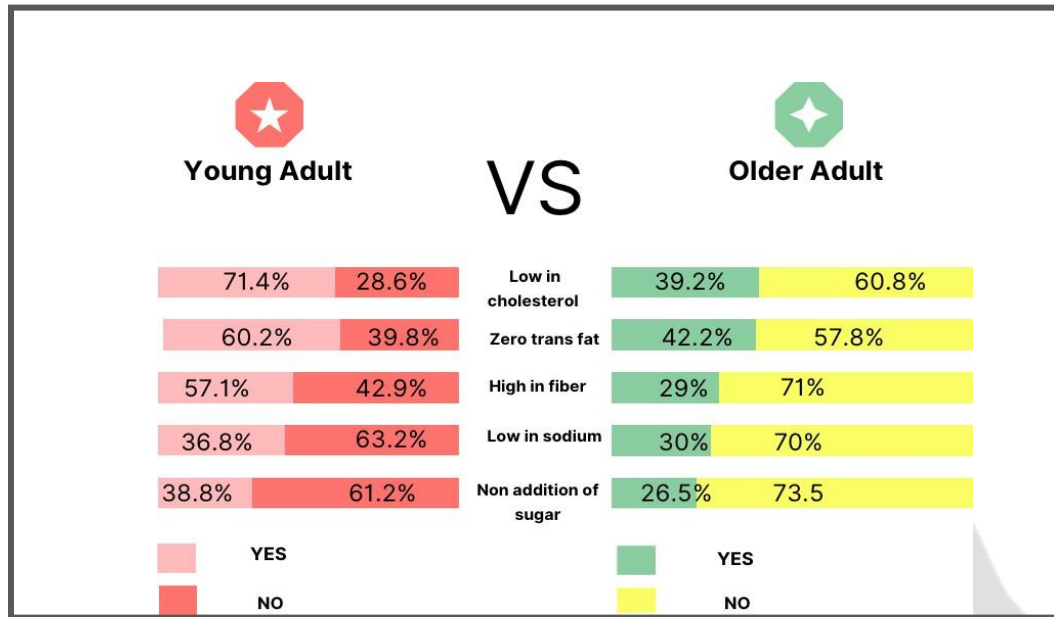
Both groups that are young adults and older adults showed weak knowledge regarding food claim awareness on food packages. The most commonly recognized health/nutrition claims included 'low in cholesterol' (70% in young adults and 39% in older adults), 'high in fiber' (57% in young adults and 39% in older adults) and 'zero trans-fat' (60% in young adults and 42.2% in older adults). The younger participants showed greater knowledge of health claims on food labels compared to older adults.

**Table 3 Responses of study participants to Attitude questions regarding food labels**

| Attitude Questions | Responses | | | | | | | | | | p value |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Young adult Total -N (%) 102(100) | | | | | Old adult Total -N (%) 98(100) | | | | | |
| | Strongly agree N (%) | Agree N (%) | Neither agree nor disagree N (%) | Disagree N (%) | Strongly disagree N (%) | Strongly agree N (%) | Agree N (%) | Neither agree nor disagree N (%) | Disagree N (%) | Strongly disagree N (%) | |
| The nutritional information on the food package helps to purchase the food item. | 19 (18.6) | 55 (53.9) | 20 (19.6) | 8 (7.8) | 0 | 17 (17.3) | 19 (19.4) | 32 (32.7) | 24 (24.5) | 6 (6.1) | **0.000** |
| Do you feel Food labels have an effect on nutritional awareness? | 20 (19.6) | 50 (49) | 24 (23.5) | 8 (7.8) | 0 | 14 (14.3) | 32 (32.7) | 27 (27.6) | 19( 19.4) | 6 (6.1) | **0.005** |
| Nutritional health claims on food labels are truthful. | 6 (5.9) | 51 (50) | 26 (25.5) | 15 (14.7) | 4 (3.9) | 12 (12.2) | 20 (20.4) | 33 (33.7) | 21 (21.4) | 12 (12.2) | **0.000** |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| You would not read nutrition labels that contain too much information. | 14 (13.7) | 38 (37.3) | 21 (20.6) | 26 (25.5) | 3 (2.9) | 27 (27.6) | 26 (26.5) | 23 (23.5) | 13 (13.3) | 9 (9.2) | **0.019** |
| The date written on food labels assures us that the product is fresh. | 40 (39.2) | 56 (54.9) | 4 (3.9) | 2 (2) | 0 | 27 (27.6) | 35 (35.7) | 16 (16.3) | 14 (14.3) | 6 (6.1) | **0.000** |
| Information that is provided on the food nutrition label is important. | 41 (40.2) | 50 (49) | 10 (9.8) | 1 (1) | 0 | 22 (22.4) | 28 (28.6) | 25 (25.5) | 17 (17.3) | 6 (6.1) | **0.000** |
| Health claims on food labels are must | 15 (14.7) | 55 (53.9) | 26 (25.5) | 6 (5.9) | 0 | 16 (16.3) | 21 (21.4) | 45 (45.9) | 10 (10.2) | 6 (6.1) | **0.000** |

Note- p-value < 0.05 is considered statistically significant

In response to questions about their Attitude towards Food labels, participants were asked to select one option from a 5-point Likert scale Only 47.5% of young adults agreed that it is critical for consumers to read the information on food labels every time, 22.1% of older s agreed with this statement. According to the of young adults (53.9%) and 19.4% of older adults felt that the nutritional information on the food box helps them purchase the food item. 37.3% of young adults agreed that they would not read nutrition labels with too much information, whereas only 27.6% of older adults  agreed (Table 3).
Young adults (49%) agreed with the statement that information on food nutrition labels is important, but just one-third of older adults (28.6%) agreed. More than half of young adults (50%)  agreed that nutritional health claims on food labels are true, whereas only 20% of older adults agreed to this. 55% of young adults and 36% of older adults agreed that the date on food labels ensures that the product is fresh. Food labels, according to 50% of young adults, can help people control their calorie intake, However, only 28.6% of older adults agreed. 44.1% of young and 39% of older adults agreed that Food labeling can help people with health concerns make educated decisions.
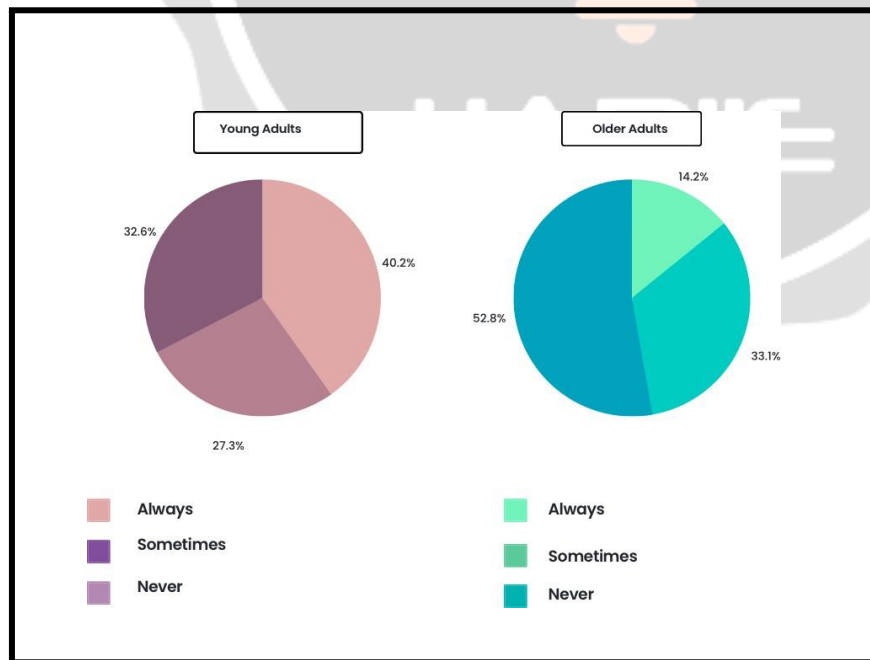


**Fig- 2- Frequency of reading Food Label**

**Table 4 Responses of study participants to Attitude questions towards different aspects of food labeling and their influence on consumers' decisions to buy food products.**

| Attitude question | Response | | | |
|---|---|---|---|---|
| **Aspects of food label** | **Young Adults N (%) 102(100)** | | **older adult N (%) 98(100)** | |
| | **Yes** | **No** | **Yes** | **No** |
| Price | 38 (38.7) | 64 (64) | 37 (37.2) | 61 (59) |
| Taste | 17 (17.3) | 85 (85) | 56 (56.5) | 42 (43.5) |
| Ingredient | 26 (26.1) | 76 (75.9) | 15 (17.2) | 83 (82.8) |
| Packaging | 12 (12) | 90 (90) | 13 (12.7) | 85 (87.3) |
| Expiry date | 20 (20) | 82 (82) | 33 (32.3) | 65 (67.7) |
| All of the above | 55 (56) | 47 (44) | 46 (45.1) | 52 (54.9) |

In Table 4, respondents were asked to choose different components of food labeling and their influence on their purchasing decisions. Six alternatives were provided: 'Price,' 'Taste,' 'Ingredient,' 'Packaging,' 'Expiry date,' and 'All of the above options. When selecting a food product, 56% of young adults and 45% of older adults check for all of the following choices. In a recent cross-sectional study conducted in 2022, it was concluded that expiry date, price and brand name were top three considerations while reading food labels (Hoteit., et al, 2022). Similarly in the current study, the majority of young adults chose these components. The reason for this may be that they are more knowledgeable about current food trends, more health conscious, and concerned with their diet and its relation to their health. Young adults are also more likely to be digital savvy and read social media posts and watch health-related videos.

**Table 5 Responses of study participants to Practice questions regarding food labels**

| Practice Questions | Response | | | | | | | | P value |
|---|---|---|---|---|---|---|---|---|---|
| | **Young adult N (%) 102(100)** | | | | **Old adult N (%) 98(100)** | | | | |
| | **Always N (%)** | **Sometimes N (%)** | **Rarely N (%)** | **Never N (%)** | **Always N (%)** | **Sometimes N (%)** | **Rarely N (%)** | **Never N (%)** | |
| How often do you read food labels? | 53 (52) | 36 (35.3) | 11 (10.8) | 2 (2) | 18 (18.4) | 42 (42.9) | 26 (26.5) | 12 (12.2) | **0.000** |
| Do you read the | 49 | 40 | 9 | 4 | 16 (16.3) | 42 | 26 | 14 | **0.000** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| nutritional information on a food label? | (48.0) | (39.2) | (8.8) | (3.9) | | (42.9) | (26.5) | (14.3) | |
| Do you use food labels because of the importance of health claims? | 32 (31.4) | 50 (49.0) | 17 (16.7) | 3 (2.9) | 11 (11.2) | 36 (36.7) | 32 (32.7) | 19 (19.4) | **0.00** |
| Do you replace items on the basis of the importance and value of food labeling? | 14 (13.7) | 57 (55.9) | 27 (26.5) | 4 (3.9) | 10 (10.2) | 38 (38.8) | 34 (34.7) | 16 (16.3) | **0.006** |
| Do you buy food items without food labels? | 3 (2.9) | 33 (32.4) | 24 (23.5) | 42 (41.2) | 6 (6.1) | 40 (40.8) | 37 (37.8) | 15 (15.3) | **0.001** |
| Do you buy expired food items if they are available at a low cost or for free? | 0 | 4 (3.9) | 2 (2.0) | 96 (94.1) | 2 (2) | 14 (14.3) | 20 (20.4) | 62 (63.3) | **0.00** |
| Do you read Entire food Label? | 44 (42.6) | 0 | 0 | 58 (57.4) | 43 (43.9) | 0 | 0 | 55 (56.1) | **0.853** |
| Do you read a part of a food label? | 58 (57.4) | 0 | 0 | 44 (42.6) | 55 (56.1) | 0 | 0 | 43 (43.9) | **0.853** |

Note- p-value < 0.05 is considered statistically significant

As for the practice of using food labels to purchase and consume foods, only about half the participants in the young adults group reported 'always' reading nutritional labels before purchasing a food product and about 40% of older adults reported reading labels 'sometimes'. 9-11% of young adults and 26% of older adults reported 'rarely' reading nutritional labels prior to purchasing items. Nearly 43% of participants in both the groups said that they 'always' read the complete food label and 44% never entirely read nutritional labels but only a part of it. (Table 5) Statistics were significant in the practice results between young and older adults. (p=<0.05). The use of food labels is linked to healthier diets; hence policy and education initiatives should continue to support this practice, according to a systematic review that was published in 2019. (Kim Anastasiou, et al., 2019)

**Table 6- Correlation among KAP scores of study participants**

| Response | | | | |
|---|---|---|---|---|
| | **Knowledge scores** | **Attitude scores** | **Practice scores** | **p value (KAP)** |
| **Knowledge scores** | 1 | .218 | .235 | <0.01 |
| **Attitude scores** | .218 | 1 | .646 | <0.01 |
| **Practice scores** | .235 | .646 | 1 | <0.01 |
| **KAP scores** | .528 | .917 | .788 | <0.01 |

KAP, Knowledge, Attitude and Practice
Note- p-value < 0.05 is considered statistically significant

A Pearson correlation coefficient was performed to evaluate the relationship between knowledge, attitude and

practice scores. There was a significant positive correlation of knowledge scores with attitude (p=0.002), and practice scores (p=0.001). The correlation was also positively significant for attitude with knowledge (p=0.002) and practice scores (p=<0.01). Overall, there was a significant correlation between knowledge, attitude and practice of food labels in this group of participants. (Table 6)

## SUMMARY

Both the groups showed a fairly low level of knowledge, regarding health claims. However, when comparing the two groups, the younger adults had a higher sense of awareness. In the current study, participants were asked to identify the correct symbol for vegetarian and non-vegetarian logos. 81% of young adults and 63% older adults gave the correct answer. Once again, the younger adults exhibited better awareness of food claims, with the most common one's being 'low in cholesterol', 'high in fiber' and 'zero trans-fat'. The overall knowledge of both the sample groups was statistically low. We evaluated the attitudes of the study participants by asking several sets of questions and analyzing the answers. We found that younger adults had more favorable attitudes towards food labels than older adults did. Participants largely concurred that reading the date on food labels gives them confidence that the item is still fresh. Younger adults  51%) were more likely than older adults (33%) to think that nutritional health claims on food labels are accurate. In the present study, participants were questioned about their willingness to read nutrition labels that are packed with data. The majority of study participants disagreed with this claim because they prefer concise, informative, and clear food labels. Participants were given five food label elements—price, taste, ingredients, packaging, and expiration date—and asked to indicate which of these factors influences their decision to buy particular foods. Young adults (55%) and older adults (46%) who participated in the study selected "all of the above options" in the majority. Finally, practice was examined by asking how frequently they read food labels. Younger adults (52%) appear to read them constantly, while the majority of  older adults (43%) read food labels just occasionally. Participants also replaced food items based on the significance and worth of food labeling. However, younger adults (42%) never made a purchase without food labels, but older persons (40%) were inclined to do so. Even if it were inexpensive for free Participants, neither young adults 94.1%) nor older adults 63.3%) would ever buy outdated food items. Only a portion of the food label was read by the majority of participants.

**Strength of the study**

The present study includes specific population groups of young adults, an age group that will represent the future demographics of disease prevalence and older adults, the new aging population increasing in number. Studying these populations can help effectively design interventions that can pave the way for future improvements in public health. The study was carried out in Mumbai city, a highly urbanized setting where the population is diverse and consists of all social classes.

**Limitation of the study**

The participants must have lacked sincerity due to other factors including time restrictions and may have provided different responses because responses to the questionnaire were obtained via an online Google form without one-on-one contact.

## CONCLUSION

Our findings indicate that the knowledge, attitude and practice of subjects residing in Mumbai city regarding food labels is moderate. In comparison between the two groups, the younger adults hold a greater level of knowledge, a more positive attitude towards and greater practical utilization of the food labels. From the results, it may be inferred that one of the causes of poor public health in the population may be due to a lack of understanding, a negative attitude towards, and a lack of use of food labels. Food labels are crucial pieces of information on all consumable items that affect an individual's health. It is for the public's information and hence more effort must be made towards helping the general population understand all aspects of it.

Future studies must explore the knowledge, attitude and practices of food labels in various other populations across the country that can help develop cost-effective and productive interventions in enhancing all three aspects in relation to food labels. Furthermore, research questions about what determinants drive the attitudes and practices regarding food labels, which aspects of health are most affected by the awareness and utilization of food labels must be explored.

On a broader level, food label regulation must be given distinct attention as it affects food choices and ultimately the health of the public. Health claims and information printed to attract customer's attention must be strictly regulated to avoid misconceptions, deceptions and adverse outcomes. Finally, awareness campaigns and media attention must be considered for effectively and quickly increasing knowledge about reading and understanding

food labels.

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## Author Contributions

All authors agreed to submit the work to the current journal, gave final approval of the version to be published, and agreed to be responsible for all aspects of the work. They also all actively participated in the conception and design, acquisition, analysis, and interpretation of the data, contributed significantly to the article's writing or critically revised it for important intellectual content.

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## Disclosure

For this work, the authors declare that they have no conflicts of interest for this work.

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