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## FOOD LABEL USE: A STUDY OF PUNJAB AGRICULTURAL UNIVERSITY FACULTY

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### ABSTRACT

To assess the food labeling use a random selection of 240 University faculties from Punjab Agricultural University (PAU) was made. On the basis of designation the respondents were classified into three categories, i.e. 80 Assistant Professors, 80 Associate Professors and 80 Professors. The respondents were asked to respond to 8 statements pertaining to food labeling use on rating scale of 5 to 1. On the basis of findings it was concluded that respondents had a very good understanding of Nutrition Information Panel, mostly read labels on first purchase of foods and found nutrition labels very useful. Majority of the respondents gave importance to nutrition information given on food labels while picking any food item from shelf. Females scored better than the male counterparts in various aspects of food label use i.e. better understanding (4.14), usefulness (4.42), reading labels (4.49) and reading nutrition section on buying of familiar product (3.90). Professors scored better than their counterparts in various aspects of food label use i.e. reading of labels on first purchase (4.54), reading of nutrition section on buying of familiar food (3.96), influence of nutrition information on food purchase (4.02) due to their better experience.

**Key words:** Food label use, health claim, nutrition information panel, purchasing behavior, informed choices

### INTRODUCTION

Governments worldwide regulate foods with two general objectives; to ensure safety and wholesomeness of the food supply and to prevent economic fraud or deception. Recently one more objective to inform consumers about the nutritional contents of food has been added. In a highly complex society individual consumers do not have the specialized knowledge to protect themselves. The responsibilities rest on the food industry and government. This means that foods must be labeled honestly and the packaging must not be deceptive (Premakumari and Anapriya, 2012). “**Label**” has also been defined as any tag, brand, mark, pictorial or other descriptive matter, written, printed, stenciled, marked, embossed or impressed on, or attached to a container of food (Codex Alimentarius Commission, 1985). Food labels are practically on every food item we buy and eat. Nutrition Labeling is an attempt to provide consumers, at the point of purchase, with information about the nutrition content of individual products in order to enable consumers to choose nutritionally appropriate food. We use the nutrition facts label in number of ways such as to check calories, fat, fibre or sodium content etc.

Over the last few decades, consumers have become more conscious of their health and of weight control, and tend to be more aware of daily energy intake requirements and food nutrients (e.g., dietary fat) (Niva, 2007). Respondents with chronic diseases checked more

often for specific nutrients and used nutrition information on food labels more often than did participants without such diseases (Lewis *et al.*, 2009).

Type of household also has an effect on label use. Specifically, smaller households and households with young children are more likely to engage in nutrition information search behaviors. People are more likely to look for a label when they purchase a food for the first time; when they are shopping for children and they are trying to lose weight or control the intake of a particular nutrient, such as sugar or fat (Vyth *et al.* 2010). Women and people with more time available for grocery shopping and people who are more concerned about nutrition are more likely to use nutrition labels (Drichoutis *et al.*, 2006).

Significant differences in knowledge between socio-demographic groups were found, with men having poorer knowledge than women, and knowledge declining with lower educational level and socio-economic status (Parmenter *et al.*, 2000). Label use is affected by education, gender, age and time pressure, i.e. consumers search for nutrition-related information as long as the costs (time and/or price) will not outweigh the benefits (Drichoutis *et al.*, 2006).

Diet-related health problems have increased dramatically over the last few years. Consequently, nutritional labeling has emerged as an important aspect of consumer’s food purchase decisions. Nutrition labeling is widely regarded as one of the most promising instruments

for fighting unhealthy eating habits and rising obesity rates (Baltas, 2001). Increased use of nutritional labels has been associated with healthier patterns of dietary behavior as well as food choice motivations (Coulson, 2000). Other studies associated label use with diets high in vitamin C and low in cholesterol and with a lower percentage of calories from fat (Lin and Lee, 2003). Label users generally had healthier diets than non-users, i.e. lower percentage of calories from fat and saturated fat, lower cholesterol and sodium intake and higher fiber intake (Kim *et al.*, 2000). Fiber and iron intakes of label users are higher than those of label nonusers (Variyam, 2008). Since nationwide menu labeling is imminent, this field project sought to explore the effect of nutrition label's format on consumer's accuracy in dietary judgments and nutrition evaluations, their level of certainty and confusion while doing so, and their perceived label comprehension and utility. Also, how consumer's individual characteristics (Lowe, 2012).

There is a need to strengthen food labeling system and sensitize the population read the labels for wise purchase of foods.

## **MATERIALS AND METHODS**

A statistically adequate sample of 240 Punjab Agricultural University faculty members with equal proportions of Assistant Professors, Associate Professors and Professors were selected from Krishi Vigyan Kendras and four colleges i.e. Home Science, Basic Sciences, Agriculture and Agricultural Engineering College of Punjab Agricultural University, Ludhiana. Questionnaire related to label use was prepared after consulting with expert of Food and Nutrition. A pilot survey of 20 respondents was undertaken for testing the validation of questionnaire and these respondents was excluded from final sample. The respondents were asked to respond to 8 statements pertaining to food labeling use on a rating scale of 5 to 1 and then mean scores were calculated.

## **RESULTS AND DISCUSSION**

The respondents were asked to respond to 8 statements on rating scale of 5 to 1, pertaining to their use of food labels which included different segments pertaining to use i.e. their understanding, food labeling usefulness, reading of food labels, the trust bestowed in food labels and influence of food labels in purchase decision etc.

### **DESIGNATION WISE COMPARISON OF FOOD LABELING USE**

Respondents were asked to rate a statement "understanding of nutritional information panel" (S1) and the mean score was then calculated. From Table 1 mean understanding of nutrition information score was found to be 4.11 with highest score of Associate Professors followed by Professors and Assistant Professors i.e. 4.20, 4.17 and 3.96 respectively but the difference was non significant. This revealed that all the respondents had a very good understanding of Nutrition Information Panel

due to their better education. A similar result was reported by Cowburn and Stockley (2005) that consumers can understand and use nutrition labeling depends on the purpose of the task. Available evidence suggests that consumers who do look at nutrition labels can understand some of the terms used but are confused by other types of information. Most appear able to retrieve simple information and make simple calculations and comparisons between products using numerical information, but their ability to interpret the nutrition label accurately reduces as the complexity of the task increases. Annunziata and Vecchio (2012) reported that around 62% of respondents think that is not easy to understand the information include in the nutritional label; 72% of respondents view nutritional information as too technical and difficult to understand, while 86% complained that the letters of the nutritional table are too small and scarcely visible. Around 73% of respondents did not understand the actual nutritional values related to a single serving.

Respondents were asked to rate the usefulness of nutritional information (S2) and mean score was calculated. It can be seen from Table 1 that nutrition information was considered useful by the respondents with mean score 4.34. Assistant Professors scored highest followed by Professors and Associate Professors with mean score 4.42, 4.41 and 4.17 respectively but the difference was non significant. Turconi *et al.*, (2012) conduct similar study and revealed that 56 percent of consumers considered nutrition information useful. According to Bleich and Pollack (2010) consumers continue to express a strong interest in having nutrition information, particularly calorie information, on restaurant menus or otherwise near the point of purchase. Among a representative sample of U.S. adults, 76 percent indicated such information would be at least somewhat useful in making lower-calorie choices. Grunert *et al.*, (2010) reported that the degree of use of nutrition information depends on product category and usage is a question of interest in healthy eating.

Respondents were asked to rate their habit of reading nutritional labels every first time of the food purchase (S3) from 5 to 1. It can be seen from Table 1 that respondents were having regular habit of reading food labeling as they scored a very high mean score i.e. 4.39. Professors got highest mean score i.e. 4.54 followed by Assistant (4.35) and Associate Professors (4.29) and the difference was non significant. This was due to fact that the Professors were more health conscious and tried to pick up healthy food options by reading the labels. On the contrary Gbettor *et al.*, (2013) reported that label reading decreases with 60 years plus group and respondents aged 30 years and below were also better reader of labels. Annunziata and Vecchio (2012) reported that most respondents paid attention to this labeling occasionally (32%) or only when purchasing a new product (28%). 26% of respondents read regularly nutrition labeling, while 14% did not read them at all. According to Bolistein and Ewans (2006) the percentage of consumers who always consult food labels has increased to 25% since 2004, when only 8% said they consulted food labels all of the time.

Respondents were asked to rate the reading of nutrition labels helped make informed choices (S4). It can be seen from Table 1 that majority of respondents believed that labels helps to make informed choice while buying food product as they mean scored i.e. 4.40. Assistant Professors got highest score i.e. 4.47 followed by Professors and Associate Professors i.e. 4.39 and 4.34 respectively but there was no significant difference. Hawkes (2004) found that nutrient information does affect food choice. Furthermore, Baltas (2001) found that nutritional information affected brand choice.

Further the respondents were asked to rate their trust on food labels (S5) on a rating scale of 5 to 1. The results revealed that respondents had trust on food labels to great extent with mean score 4.11. Assistant Professors had more trust on labels with mean score 4.20 followed by Professors and Associate Professors with mean score 4.10 and 4.04 respectively but the difference was non significant.

Respondents were enquired about the reading of nutrition section of food labels before buying familiar products (S6). It can be seen from Table 1 that respondents scored 3.84 with highest score by Professors i.e. 3.96 followed by Assistant Professors and Associate Professors with mean score i.e. 3.79 and 3.77 and no significant difference was found. According to Prathiraja and Ariyawardana (2003) twenty five percent of the respondents stated that they always read the nutrition labels when purchasing a food item and 62 percent said they sometimes read it. Only 2 percent said that they never look at the label.

Respondents were further enquired about the influence of nutritional information on food purchase (S7). Purchasing of food was influenced by nutritional

information to great extent. From Table 1 it can be observed respondents mean score was 3.95 with highest mean score i.e. 4.02 of Professors followed by Associate Professors (3.94) and Assistant Professors (3.89) but the difference was not significant. Drichoutis *et al.*, (2006) reported that nutritional label use affects purchasing behavior because it influences valuations and perceptions of the food. According to Prathiraja and Ariyawardana (2003) there was consumer propensity to read nutrition labels and it could change their purchasing behavior, which ultimately reflects their relative valuation of taste versus health.

An enquiry was made on the picking up the food item from shelf by reading any health claim (S8) in order to see how much importance the respondents were paying to health claims. The respondents were asked to rate the importance bestowed up Health claims on a rating scale of 5 to 1. Overall mean score was 3.22 with highest mean score by Assistant Professors (3.35) followed by Associate Professors (3.16) and Professors (3.15) but the difference was non significant. Stranieri *et al.*, (2009) found great interest for the claims 'high fibre / vitamin' (66% of respondents were 'totally agreeing' and 'agreeing' with the question concerning the importance of this claim), 'low fat' (58%) and 'low sugar' (50%), whereas consumers revealed little interest in the claims 'light' (31%), 'low energy' (44%) and 'low sodium / salt' (47%). Williams (2005) reported that consumers see health claims as useful; customers prefer short, succinct wording rather than long and complex claims. Consumers view a food as healthier if it carries a health claim. Use of health claims improves the quality of dietary choices and knowledge of diet-disease relationships.

**Table: 1- Designation wise comparison of Food Labeling Use**

|  | <b>Assistant Professors (n=80) (Mean±SD)</b> | <b>Associate Professors (n=80) (Mean±SD)</b> | <b>Professors (n=80) (Mean±SD)</b> | <b>Total (n=240) (Mean±SD)</b> | <b>F value</b> |
|--|--|--|------------------------------------|--------------------------------|----------------|
| Understanding of nutrition information panels (S1)           | 3.96 ± 1.49                                  | 4.20 ± 1.21                                  | 4.17 ± 1.19                        | 4.11 ± 1.30                    | 0.801          |
| Usefulness of nutrition labels (S2)                          | 4.42 ± 1.17                                  | 4.17 ± 1.28                                  | 4.41 ± 1.16                        | 4.34 ± 1.20                    | 1.09           |
| Reading labels on first purchase (S3)                        | 4.35 ± 0.78                                  | 4.29 ± 0.86                                  | 4.54 ± 0.67                        | 4.39 ± 0.78                    | 2.36           |
| Reading labels helped make informed choices (S4)             | 4.47±0.81                                    | 4.34 ± 0.91                                  | 4.39 ± 0.96                        | 4.40 ± 0.89                    | 0.48           |
| Trust on food labels (S5)                                    | 4.20 ± 0.77                                  | 4.04 ± 0.95                                  | 4.10 ± 0.82                        | 4.11 ± 0.85                    | 0.745          |
| Reading of nutrition section on buying of familiar food (S6) | 3.79 ± 1.07                                  | 3.77 ± 0.98                                  | 3.96 ± 0.79                        | 3.84 ± 0.95                    | 0.964          |
| Influence of nutrition information on food purchase (S7)     | 3.89 ± 1.03                                  | 3.94 ± 0.89                                  | 4.02 ± 0.76                        | 3.95 ± 0.89                    | 0.48           |
| Picking up of food by reading any health claim (S8)          | 3.35 ± 1.10                                  | 3.16± 1.20                                   | 3.15± 1.23                         | 3.22 ± 1.18                    | 0.72           |

### **GENDER WISE COMPARISON OF FOOD LABELING USE**

All the statements (S1 to S8) pertaining to food

label use were further segregated on the basis of gender. It can be seen from Table 2 that females scored better than the male counterparts in various aspects of food label use i.e. better understanding (4.14), usefulness (4.42), reading

labels (4.49) and reading nutrition section on buying of familiar product (3.90) but the difference was non significant. Similar results was reported by Kim *et al.*, (2001) reported that females were more likely than men to use nutritional labels because males did not agree that nutritional information was useful. According to Misra (2011) females seem to be more likely to use nutritional labels compared to males. Driskell *et al.*, (2008) reported that significantly higher percentages of women than men using Nutrition Bytes labels indicated being interested in having serving sizes ( $P<0.005$ ) and ingredients ( $P<0.0005$ ) listed, whereas higher percentages of men than women indicated being interested in having protein listed ( $P<0.05$ ). Gbetor *et al.*, (2013) assessed label reading habits among respondents base on gender, majority of the

males, 350 (38.89%) and female 311 (34.56%) reported reading labels occasionally whilst 129 (14.33%) males and 172 (19.11%) females reported reading labels always. Furthermore, a significant proportion of the respondents thus 220 (24.44%) of male and 172 (19.11%) of female rarely read labels at all. Females were better readers of labels than males. .

The male respondents scored better than females respondents in various aspects of food label use i.e. reading of food labels helped make informed choices (4.43), trust on labels (4.09), influence of nutrition information on food purchase (3.96) and picking up food by reading health claim (3.23) but the difference was non significant.

**Table: 2- Gender wise comparison of Food Labeling Use**

|  | Male (n=133)<br>(Mean±SD) | Females (n=107)<br>(Mean±SD) | t value |
|--|---------------------------|------------------------------|---------|
| Understanding of nutrition information panels (S1)           | 4.09 ± 1.32               | 4.14 ± 1.29                  | -0.29   |
| Usefulness of nutrition labels (S2)                          | 4.27 ± 1.25               | 4.42 ± 1.15                  | -0.96   |
| Reading labels on first purchase (S3)                        | 4.32 ± 0.81               | 4.49 ± 0.73                  | -1.66   |
| Reading labels helped make informed choices (S4)             | 4.43 ± 0.855              | 4.36 ± 0.94                  | 0.55    |
| Trust on food labels (S5)                                    | 4.09 ± 0.85               | 4.01 ± 0.85                  | -0.45   |
| Reading of nutrition section on buying of familiar food (S6) | 3.77 ± 0.99               | 3.90 ± 0.89                  | -1.35   |
| Influence of nutrition information on food purchase (S7)     | 3.96 ± 0.88               | 3.93 ± 0.92                  | 0.24    |
| Picking up of food by reading any health claim (S8)          | 3.23 ± 1.16               | 3.21 ± 1.21                  | 0.07    |

**Table: 3- Annual family income wise comparison of Food Labeling Use**

|  | 5-10 Lac<br>rupees/ annum<br>(Mean±SD) | 10-15 Lac<br>rupees/ annum<br>(Mean±SD) | 15-20 Lac<br>rupees/ annum<br>(Mean±SD) | ≥20Lac<br>rupees/ annum<br>(Mean±SD) | F value |
|--|--|---|---|--------------------------------------|---------|
| Understanding of nutrition information panels (S1)           | 3.97 ± 1.46                            | 4.15 ± 1.30                             | 4.18 ± 1.18                             | 4.21 ± 1.17                          | 0.411   |
| Usefulness of nutrition labels (S2)                          | 4.50 ± 1.07                            | 4.28 ± 1.24                             | 4.33 ± 1.27                             | 4.11 ± 1.29                          | 0.84    |
| Reading labels on first purchase (S3)                        | 4.35 ± 0.76                            | 4.53 ± 0.71                             | 4.28 ± 0.88                             | 4.36 ± 0.78                          | 1.36    |
| Reading labels helped make informed choices (S4)             | 4.54 ± 0.63                            | 4.39 ± 1.00                             | 4.18 ± 1.02                             | 4.54 ± 0.79                          | 2.07    |
| Trust on food labels (S5)                                    | 4.25 ± 0.62                            | 3.92 ± 1.05                             | 4.21 ± 0.78                             | 4.07 ± 0.81                          | 2.27    |
| Reading of nutrition section on buying of familiar food (S6) | 3.93 ± 1.01                            | 3.77 ± 1.00                             | 3.92 ± 0.82                             | 3.71 ± 0.94                          | 0.76    |
| Influence of nutrition information on food purchase (S7)     | 4.00 ± 0.89                            | 3.86 ± 0.92                             | 4.00 ± 0.93                             | 3.93 ± 0.81                          | 0.44    |
| Picking up of food by reading any health claim (S8)          | 3.21 ± 1.19                            | 3.27 ± 1.27                             | 3.08 ± 1.13                             | 3.43 ± 1.03                          | 0.61    |

### ANNUAL FAMILY INCOME WISE COMPARISON OF FOOD LABELING USE

All the statements (S1 to S8) pertaining to food labeling use were further segregated on the basis of annual family income. It can be seen from Table 3 that respondents belonged to income category of 5-10 lac rupees/annum scored better than their counterparts in various aspects of food label use i.e. usefulness (4.50),

reading of food labels helped make informed choices (4.54), trust on food labels (4.25), reading of nutrition section of familiar food (3.93) and influence of nutrition information on food purchase (4.00) but the difference was non significant.

Respondents belonged to income category ≥20Lac rupees/annum scored better than their counterparts in various aspects of food label use i.e. understanding

(4.21), reading labels helped make informed food choices (4.54) and picking up a food by reading any health claim (3.43) but the difference was non significant. Aygen (2012) reported that high levels of income seem to use nutrition labels less, compared to those who have middle and low income levels.

## CONCLUSION

Respondents had a very good understanding of Nutrition Information Panel due to their better education, mostly read labels on first purchase of foods and found nutrition labels very useful. Majority of the respondents gave importance to nutrition information given on food labels while picking any food item from shelf and believed that labels helps to make informed choice while buying food product. Females scored better than the male counterparts in various aspects of food label use i.e. better understanding, usefulness, reading labels and reading nutrition section on buying of familiar product. The professors scored better than their counterparts in various aspects of food label use i.e. reading of labels on first purchase reading of nutrition section on buying of familiar food, influence of nutrition information on food purchase due their better experience.

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