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Study of Consumer Awareness of Pre-packaged Food Products Labelling in Benghazi/Libya

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Abstract **Original Research Article**

Food label is one of the most important direct means of communication of product information between consumers and food manufactures. The current study aims to determine level of awareness on pre-packaged food label information, and to determine the associated socio-demographic variables that associated with level of awareness. A descriptive cross sectional study was conducted at supermarkets and malls in Benghazi city. Study included four hundred participants, data were collected by questionnaires. Data were analysed by using descriptive statistics. Chi-Square test used to examine the significant differences in the sample. The majority of participants were male, young and most of them were married, employers with high education level and middle-income level. Awareness level of pre-packaged food labels was found to be low among consumers in Benghazi city.

Keywords: Awareness level, Benghazi, Consumers, Food, Labels, Socio-demographic.

INTRODUCTION

Food label is any tag, brand, mark, pictorial or any descriptive matter written, printed, stencilled, marked, embossed or impressed on, or attached to a container of pre-packed food. Food labelling includes any written, printed, or graphic matter that is presented on the label accompanying the food, or is displayed near food for the purpose of promoting its sale. "Pre-packaged" or "Pre-packed food", means food, which is placed in a package of any nature, in such a manner that the contents cannot be changed without tampering it and which is ready for sale to the consumer [1]. The food labelling information should include name of the food, ingredients used in its manufacture, nutritional composition, manufacture and expiry dates, net content, recommended storage conditions, instructions for use, name and address of the manufacturer and country of origin. When designing the labels for food products, manufacturers should follow the legislations imposed by the government of a particular country [2]. Food label is one of the most important direct means of communication of product information between consumers and food manufactures [3]. Low awareness of food labelling, low level of education, low health consciousness, products attributes, food labelling format, influence of media, perceived role of regulatory authorities and non-availability of consumer guidelines on the use of food labelling have been reported by studies from various countries as factors related to consumers not reading and using food labelling information in purchasing food [5-7].

Changes in social and economic environment, lifestyle, the working patterns, the increased employment of women, the lack of time and the income growth have resulted in an increase in consumption of packed food in the world and this leads to the risk of non-communicable disease among consumers. This necessitates consumers to be enlightening with the knowledge and ability to read, understand and interpret food labelling and use such information in decision making during purchase of packaged foods [8]. In this context, labels of food products play a significant role as it provides all the mandatory information regarding nutritional composition, safe and quality food [3]. In USA, Rasberry, C., and others (2007) investigated the frequency of nutrition label use among college students and its relationship to label knowledge, attitudes, and beliefs regarding diet-disease relationships, also to determine factors predictive of frequent or infrequent label use. They found that label users had greater knowledge, more favorable attitudes, and more accurate perceptions of diet-disease relationships than non-users.

Females exhibited greater knowledge, more favorable attitudes, and more frequent label use than males. Health reasons, looking for specific information, weight control, and knowledge predicted frequent label use. Desire for certain foods, time constraints, and "do not care" attitudes predicted infrequent use [9]. Aryee, G., (2013) assessed awareness and use of nutrition labels on pre-packaged foods among consumers in Accra (Ghana). A cross sectional surveys with structured pre-coded questionnaires were used to interview 403 adult participants. The results showed that majority (82%) of respondents were aware that some pre-packaged foods carried food labels with nutrition information [10]. In Ghana, there is a study investigated consumer's knowledge of food labels and how this knowledge guides their decisions when making purchasing choices with regard to food. Data were collected from 100 of consumers randomly selected from supermarket. The results shown that (75%) of the subjects reported reading the food labels prior to selecting food. These findings indicate that awareness and knowledge of food labelling which may not always adequately impact on food choices, even though study respondents indicated high awareness and low to average reading of labels prior to purchasing food [11]. Another study in Ghana, by Affram, P., and Darkwa, S., (2015), conducted to assess consumers' knowledge, understanding and use of food label information. A total of 200 consumers between 18 and 65 years enrolled in the study. They came to conclude that high awareness (P<0.05) and frequency in food label reading among participants but this did not necessarily influence their purchase of food. Insufficient knowledge, time constraints and small font sizes were reported by participants as the main factors that prevented them from reading and using food label. Also the study confirmed that knowledge; understanding and use of food label information did not significantly differ with gender but did with age [12].

Moreover, Wazza, A., (2018) assessed consumer level of awareness and use of nutrition labels on pre-packaged food products. The study involving 400 respondents in Sagnarigu municipality of the northern region of Ghana. The findings of the study showed that (87.8%) of respondents were aware of nutrition labels but only (80.3%) used the nutrition information. Educational status was the only factor associated with awareness. This study found that awareness of nutrition labels on pre-packaged foods was high but use of nutrition labels was relatively low [13]. Washi, S., (2012) carried study to assessed awareness of food labelling among consumers in groceries in Al-Ain, United Arab Emirates (UAE). A total of 1200 consumers (men and women) were interviewed while shopping at various food grocery stores to assess their knowledge, attitudes and practices, using a questionnaire. Consumer's response showed that (89.5%) had a general awareness for reading the food label; however, they read basic information like production and expiry dates. More than half (58.8%) would like to see all information (manufactory; expiry dates and validity dates; nutritive value of food in addition to health claims and health warning). Also the study revealed that increased consumption of pre-packaged foods and inadequate awareness on use of food labelling information [14]. In Bahrain, Wahab, R., (2018) worked on food label use and awareness of nutritional information among consumers. The data were collected from a total of 430 consumers (60%) were female through use of questionnaire. The main findings of the study indicated that consumers' responses showed little awareness for reading the food label [15]. In India, Nurliyana, G., and others (2011) conducted study to determine the association between knowledge, attitude and practices on food label use; and to determine the factors that influence the use of food labels during making food purchasing decision among university students. (329) students volunteered to complete a Food Label Use Questionnaire (FLUQ). This study showed that, only (21.6%) of the students "often" use the food label during food purchasing decision. There is a survey aimed to investigate the frequency of reading food label and to compare the knowledge, attitude and practice of reading the food label between the residents of Ernakulam and Coimbatore in India. This cross-sectional survey was performed on 200 volunteers aged from 20 to 60 years were asked to complete a questionnaire. The results of the study showed that only (5%) of the total participants had adequate knowledge in reading food labels [1]. Dutta, S., and Patel, D., (2017) studied the level of awareness on pre-packaged food labelling information among 150 Indian consumers in Anand city of Gujarat findings of the study revealed that (86.7%) of the participants reported to read labelling information prior purchase of pre-packaged foods. However, only a third of respondents were very much informed about food labelling and computed awareness scores. It was observed that level of education and gender difference had statistically significant association with awareness scores and perception of importance of food labelling [3]. In Sri Lanka, a work conducted by Simmaky, S., and others (2015) to assess the awareness on food labels and the effect of the level of awareness on the buying behaviour of consumers in Jaffna district. Information from the consumers were collected by a questionnaire from a random sample of 260 consumers purchasing pre-packaged foods at supermarkets and retail shops. This study found that (92%) of the consumers were aware of the information provided on the food labels [16]. Benghazi is the second largest city in Libya and estimated to have a total population of 500,000 according to the national census in 2012 (National Population Survey, 2012) [17]. Consumer's attitude towards reading food labels can be influenced by demographic characteristics such as, age, sex, education level, health status and nutrition knowledge. Situational factors such as income, time and being in special diet can also influence a consumer to seek information about a particular pre-packaged food and use the information to make an informed food choice [2]. In Libya especially in

Benghazi city, the information available in regard to consumer awareness on food label was very meagre, therefore the present study is worthwhile and it will evaluate the awareness of food label information among consumers in Benghazi city as well as the social-demographic factors that associated with consumers' level. Hopefully, findings from this study will facilitate future public education efforts to promote the use of food labels.

METHODOLOGY

400 randomly selected Libyan adults aged 18 years and above were enrolled in the study. The subjects were purchasing pre-packaged foods from 21 supermarkets and malls in Benghazi city between March and September 2019. The study sample represents 63% of the total population in Benghazi city according to the national census in 2012. Five regions were excluded from the study because they were going through hard post- war times during the study period. The non-Libyan-citizens were excluded, since they may have different culture and attitude towards food labelling. Data were collected by using close ended questions questionnaire. The questionnaires were filled by one of the researchers. The questionnaire was based on the questions of previous studies with some modifications [2, 10, 18, 19]. Respondent's level of awareness on food labelling was determined by the awareness score that was computed using respondent's response on their familiarity with food labelling information by four different routes [2, 14, 16]. Awareness of food labels was categorized into two levels of low and high. Those who answered yes to all two questions were classified as having high awareness level and those who said no to at least one question were classified as having low awareness level. Respondents' level of awareness on food labels was determined by the awareness score that was computed using respondents' response on their familiarity with the 9 standard information found on pre-packaged food labels. The level of awareness was classified into 3 categories: high level of awareness if one responded to 7-9 items, middle level of awareness if the responses were on 4-6 items and low level of awareness if responses were on 3 items and less. Data entry and analysis were performed using the Statistical Package for Social Sciences (SPSS) version 20. Chi–square test was performed to assess statistical significance between the socio-demographic characteristics of respondents and awareness of food labelling information. If (P<0.05) was considered statistically significant. Ethical approval for conducting this study was obtained from the Directorate of Graduate Studies and Training of University of Benghazi. Permission to conduct the study in supermarkets and malls was obtained from the managers of each supermarket and mall. Informed consent was obtained from the participants.

RESULT

Table (1) shows the participants characteristics. The largest proportion of participants (45.8 %) was in the age group 29 to 39 years. (74.3%) of participants were males; 25.8 were females. In addition, (54.5%) of participants were married. (43%) of participants had college/university education, followed by (40.8%) had secondary education. Furthermore, (38.8%) of participants earned a monthly income 550 to 749 Libyan Dinar (LYD). Moreover, employed, freelancers were account (69.5%), (20.5%) respectively. Table (2): shows that (64%) of participants aware to read cardboard packages label, followed by (38.8%) read plastic packages label. Table (3) shows different categories of pre-packaged food products that participants were likely aware to read the food labels. The results showed that majority of participants (86.3%) reported to check food labels of dairy products, and (40.3%) check baby foods. (23.3%) reported to check cereal products, (6.5%) reported to check special food, (6%) reported to check meat and poultry products, two percent reported to check fruits products, and (1.5%) of participants were likely to use the food labels of vegetable products. As shown in table (4): more than (97%) of participants were checking for expiry dates when purchasing pre-packaged foods, followed by country of origin which was sought by (50.5%). Table (5) shows participants' awareness level according to requisite presence of food labels and use. The results indicated that (63.5%) of participants showed low awareness level of food labels on pre-packaged foods compared to (36.5%) of participants who showed high awareness level. Furthermore, table (5) shows participants' responses to questions determining level of awareness of food labels according to package types. The finding shows that majority of participants (96.3%) possessed low awareness level of food labels on pre-packaged foods, while only (3.8%) of participants possessed high awareness level of pre-packaged food labelling. In addition, table (5) shows the participants' awareness level of food labels according to types of food products; (89%) of participants had low level of awareness, while (9%) of them had medium and (2%) of participants had high level of awareness about food labels. Table (6) shows the awareness level of food labels according to the familiarity of participants with standard components of food labels showed that, (95%) of participants had low level of awareness on food labelling, while only (5%) of participants had middle level of awareness on food labelling and no of participants had high awareness level.

Table 1: Scio-Demographic Characteristics

Variables		Number	Percentage
Age (Years)	18-28	56	14
	29-39	183	45.8
	40-50	119	29.8
	51-60	37	9.3
	> 60	5	1.3
Gender	Male	297	74.3
	Female	103	25.8
Marital status	Single	180	45
	Married	218	54.5
	Widowed	0	0
	Divorced	0	0.5
Education	Primary	64	16
	Secondary	163	40.8
	University Level	172	43
	No formal education	1	0.3
Income (Libyan dinars)	350-549	48	12
	550-749	155	38.8
	750-949	141	35.3
	>950	56	14
Occupation	Student	35	8.8
	Employee	278	69.5
	Retired	4	1
	Unemployed	1	0.3
	Freelancers	82	20.5

Table 2: Participants Distribution according to food package type's effect on awareness of labelling

Types of packages	No.	%
Glass containers	43	10.8
Plastic containers	153	38.8
Cardboard packages	256	64
Tinplate cans	127	31.8

Table 3: Participants Distribution according to the effect of type of food products on awareness of labelling

Food products	No.	%
Cereal and cereal products	93	23.3
Dairy and dairy products	345	86.3
Vegetables products	6	1.5
Fruits products	8	2
Meat and poultry products	24	6
Baby foods	161	40.3
Special foods	26	6.5

Table 4: Participants Distribution according to the effect of food label information on awareness of labelling

Food label information	No.	%
List of ingredients	61	15.3
Net weight/Package size	7	1.8
Name of manufacturer	7	1.8
Country of origin	202	50.5
Expiration date	390	97.5
Storage condition	5	1.3
Nutrition information	69	17.3
Instructions for use	6	1.5
Health claims	7	1.8

Table 5: Distribution of participants according to awareness level of pre-packaged food label

Consumers awareness level of pre-packaged food label	No.	%
Awareness level according to requisite presence of food label and use		
Low awareness	254	63.5
High awareness	146	36.5
Awareness level according to the requisite presence of food label and use		
Low awareness	385	96.3
High awareness		3.8
Awareness level of food labels according to types of food products		
Low awareness	356	89
Middle awareness	36	9
High awareness	8	2

Table 6: Participants awareness level of food labels according to familiarity with standard information of food labels

Awareness level	No.	%
High awareness	0	0
Middle awareness	20	5
Low awareness	380	95
Total	400	100

Table (7) shows association between socio-demographic characteristics and awareness level according to package type, association between socio-demographic characteristics and awareness level according to food product type, and association between socio-demographic characteristics and awareness level according to food label components.

Table 7: Association between socio-demographic characteristics and awareness level of labelling

Socio-demographic variables	Awareness level of food labels	
	χ^2	*P*
	Awareness Level according to package types	
Age	5.645	0.227
Gender	0.469	0.494
Marital status	730.9	0.615
Education	9.378	0.009
Income	3.968	0.265
occupation	1.060	0.900
	Awareness Level according to types of food products	
Age	12.670	240.1
Gender	2.222	0.329
Marital status	4.433	0.351
Education	31.084	0.000
Income	3.368	0.761
occupation	12.553	0.128
	Awareness Level according to food label component	
Age	3.152	0.533
Gender	0.006	0.937
Marital status	0.999	0.607
Education	14.962	0.001
Income	6.473	0.091
occupation	4.637	0.327

DISCUSSION

As indicated in (Table 1), most of participants about three-quarters were aged from twenty nine years old to fifty years old with (75.6%) of the total participants. This finding indicated that individuals who purchase pre-packaged food products in Benghazi city were mostly young. The result was close to the result of a study done in India, conducted amongst 100 individuals. They found that the dominant age group amongst the consumers of pre-packaged food products was between 25 years old and 54 years old (65%), while over 55 years old and less than 25 years old were (35%) [20]. These findings come along with result of the present study, and revealed that younger age people were more frequently purchasing pre-packaged food than older. As shown in (Table 1), the majority of participants were male with (74.3%), while female constitute (25.8%). More than half of participants (54.5%) were

married. As indicated in (Table 2), a large percentage of respondents (74.1%) had a monthly income between 550 to 949 Libyan Diner, while (14%) of participants had a monthly income more than 950 Libyan Diner and only (12%) had a monthly income between 350 to 549 Libyan Diner. These results suggested that the majority of the study participants were middle-income earners, and this explains the interest in price for pre-packaged food products as a motivation for the use of the food labels. A comparable study carried out in Ghana by Aryee, G *et al*., in (2013) [10]. The study found that more than half (52.1%) of respondents earned a monthly income less than 500 Ghanaian cedi (GH₵), while (47.9%) of respondents earned more than 500 GH₵. The study revealed that more than half of the respondents were low income earners. Types of food package most likely to be preferred by consumers were shown in (Table 2). Nearly two-thirds (64%) of participants read cardboard package labels, (38.8%) read plastic package labels, (31.8%) read tinplate package labels and (10.8%) read glass package labels. These results indicated that the majority of participants read cardboard package labels. Perhaps the reason was that the participants were aware that cardboard packaged food products more vulnerable to the expiration, such as milk and dairy products. In addition to, the believe that glass containers were the most secure and safe for food consumption and the cardboard packages less trusty. Comparable study was conducted in Turkey, which aimed to understanding the buying behaviour of young consumers regarding packaging attributes and labels. The results indicated that (69.75%) glass packages attracted the consumers with their protective structure, transparency and healthy nature, whereas (51.23%) of respondents who preferred plastic packages attracted the consumers with their resistance to physical impacts and easy-to-use abilities [21]. The primary focus of interest in buying food among the consumers might be different according to culture, age, gender, price, advertising and promotion. Another variable associated with consumer awareness of food label was the type of food product to be purchased. The result showed that the degree of food labels' awareness was variable when consumers purchase different types of food products (Table 3). The food label of dairy products was the most read frequently (86.3%) following by infant food (40.3%), where (23.3%) of participants checked cereal products, (6.5%) checked special foods, (6%) checked meat and poultry products, (2%) checked fruit product and only (1.5%) checked vegetables products. These results indicated that the milk was the most concerned by participants, may because it was the most commonly eaten, familiar and majority of the participants have knowledge or understanding greatly that milk and dairy products always have a close expiration date. The present study agreed with the study done in China, which aimed to investigate the understanding, attitude and use of label among consumers. The primary data were collected from 1153 consumers, from different supermarkets. The study revealed that most of consumers (57.5%) would read label information carefully when they purchase milk, (33.3%) infant food, and (32.3%) biscuits or bread. The frequency of beans was (6.9%) which was the lowest among all food products [23]. The effect of food label information on awareness of participants was shown in (Table 4). The components of food label that mostly to be used by the participants were expiration date (97.5%), country of origin (50.5%), nutrition information (17.3%), list of ingredients (15.3%). While health claims, name of manufacturer and net weight were used by only (1.8%) of participants for each. The least used by consumers were instruction for use (1.5%) and information on storage condition (1.3%). This result indicated that the consumers were always concerned about the risks which might appear from consuming expired foods that may cause diseases. They also expressed concern about the country of manufacturing which indicated that they were concerned about buying foods form preferred sources. The percentage of the expiry date in present study was consistent with most of the studies conducted in different countries. These results resemble what Washi, S., (2012) revealed during cross-sectional survey conducted in the UAE, whereby when consumers were asked about what information they check on food labels, (85.6%) indicated expiry date followed by production dates (70.3%), while the country of manufacturing was selected by (12.5%) of the participants [14]. Moreover, the result of present study was similar to findings of another study conducted in Sri Lanka by Simmaky, S., and others in (2015), which aimed to assess the awareness on food labels and the effect of the level of awareness on the buying behaviour of consumers in Jaffna district. They found that more than three-quarters of respondents (89.5%) were checking for date of manufacture and expiry dates on pre-packaged food labels before purchase of such foods. (16) A considerably comparable similar study was conducted in Ghana, the study found that majority of respondents (99.5%) were checking for expiry dates when purchasing pre-packaged foods, followed by ingredients which were sought by (78.4%) of respondents, (66.8%) of respondents selected health claim, (65.3%) of respondents were checking for nutritional information and only (24.1%) of respondents were checking for net weight [23]. The similarity between these results with the findings of the present study could be due to the similarity of the participants in education level and culture. As shown before extent of reading food labels before purchase of pre-packaged foods was relatively high as (88.5%) of the study participants reported to read labelling information prior purchase of pre-packaged foods. This high percentage of those who use the food label may be related to the high educational level of the consumers in the present study. In addition to, this high extent of reading food labels did not reflect the awareness level of participants when purchasing pre-packaged foods. Furthermore, Table (5) shown that (63.5%) of participants had low awareness level when measured according to the requisite presence of food labels and use. As indicated in Table (7); socio-demographic characteristics such as age (P=0.000)

($\chi2$=20.168), gender (*P*=0.000) ($\chi2$=15.183), occupation status (*P*=0.000) ($\chi2$=36.857), level of education (*P*=0.000) ($\chi2$=110.294), marital status (*P*=0.000) ($\chi2$=28.572) and income level (*P*=0.000) ($\chi2$=54.652) were significantly associated with consumers' awareness level of food labels. On another hand, the use of food packages types as a measure of participant's awareness level as shown in (table 5); indicated that (96.3%) of participants had low awareness level. The statistical analysis shown that only level of education (*P*=0.009) ($\chi2$=9.378) significantly associated with awareness level of food labels according to package types. Moreover, participant awareness level of food labels according to type of food products as indicated in (Table 5); shown that (89%) of participants had low awareness level. The statistical analysis documented that level of education (*P*=0.000) ($\chi2$=31.084) significantly associated with awareness level of food labels. As indicated in Table (6); the majority (95%) of participants had low awareness level according to the familiarity of participants with standard information on the food labels. Among the social demographic characteristics of respondents, results have shown statistically significant relationships between level of education (*P*=0.001) ($\chi2$=14.962) with awareness level of food labels. These results suggested that awareness level of pre-packaged food label was found to be low among consumers in Benghazi city by using four indices for measuring participants awareness level. Also it is clear that the use of food packages type and the standard information of label as indices for measuring participant awareness level were give the highest percentage 96.2% and 95%, respectively. As a result, these two indices can be considered as good parameters of awareness level of pre-packaged food label among consumers in Benghazi city. In India, Vijayeta, P. (2014), carried out study to assess the awareness of consumers about the information provided on food labels, by undertaking a survey among 120 consumers. The study indicated that half (51.66%) of the consumers had middle level of awareness, while (19.16%) with low level of awareness. According to the score computed, only (29.16%) of the consumers had high level of awareness [24]. According to Samson, G., (2012) carried out study to determine awareness of food labelling and use of the information in purchasing pre-packaged food products among consumers [2]. The results of this study were close to result of present study, where among the previously mentioned basic food labelling information that were normally found on food labels showed that (23.5%) of the respondents had high awareness level. The study revealed that the awareness level of pre-packaged food labelling was found to be low among consumers (74.7%). A study by Dutta, S., and Patel, D., (2017) in India, reported only (25.3%) of participants had high level of awareness about food labelling information [3]. A study by Washi, S., (2012) in the UAE, reported that (42%) of the consumers had middle level of awareness, while (37%) with low level of awareness on food labelling. (14) The similarity between these studies and the findings of present study could be due to either a lack of or inadequacy in nutrition knowledge or perhaps due to the way in which the information was printed in packaged food label, that makes it difficult to comprehend. This indicated that a lot of effort has to be exerted by nutritionists to raise the level of awareness of the consumers about the importance of reading and using information on the food label. On another hand, the present study disagreed with the study done in Nigeria, which aimed to investigate consumer's awareness of the use of food labels in Lagos state. The primary data were collected using pre-tested structured questionnaire from 220 food shoppers who bought pre-packaged food products. The study revealed that more than half (61.8%) of participants had high level of awareness and high use of the information [24]. In Ghana, a study conducted to assess consumers' knowledge, understanding and use of food label information. The study reported that high awareness level among consumers with more than three quarters aware of food labels and the related nutrition information labels provided [12]. A similar study in the eastern region of Ghana, which aimed to investigate consumers' knowledge of food labels and how this knowledge guides their decisions when making purchasing choices with regard to food. The study indicated that more than three-quarters (80%) of participants had high awareness level [11]. A cross-sectional study was carried out from May to August 2016, around seven supermarkets were there in urban area of Puducherry, India, were involved. The result indicated that (92%) of the participants had high level of awareness [25]. The disagreement between these studies and the findings of the present study could be as result of differences in socio-demographic characteristics and health knowledge of participants.

CONCLUSION

Individuals who purchase pre-packaged food products in Benghazi city were male, young or middle ages and most of them were married. Employers with high education level and middle-income were the predominate categories. Study of variables associated with consumer awareness of pre-packaged food label, such as type of food packages, type of food products and label information, indicated that, the majority of consumers were aware about expiration date of dairy products that packaged in cardboard packages. Results suggested that awareness level of pre-packaged food label was found to be low among consumers in Benghazi city by using four indices of measuring participants' awareness level. This study will provide data related to the use and awareness of food labels by consumers in Libya especially in Benghazi city, which are necessary to then put in place public health recommendations and programs to improve consumers' behaviours towards better use of the information on the food label.

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