Food label barriers and reasons behind its use among medical college students

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Abstract:
Food labeling is a very important public health tool by providing information that aids consumers in meeting the dietary recommendations. It is important to understand the factors which are related to its use among medical college students. This study was designed to identify the main barriers and reasons that affect the use of food labels and nutrition facts among the medical college students of Al-Mustansiriyah University. This study is a descriptive cross-sectional study that was conducted among the students of Al-Mustansiriyah University/College of Medicine. A convenient sample was enrolled in the study comprised of 554 students of both genders from all the six stages for a period of one month extended (15th of February - 15th of March, 2018). A structured self-administered questionnaire was used which enquired about food labels and the reasons behind its use and none use. Only 33% of the study group knew food labeling, while 80% of them knew the meaning of nutritional facts. The results revealed that food labeling affects the food choices of 61% of the respondents, the highest percentage of students use the nutrition label to make healthy food choices, time-consuming was the main barrier stated by the students. In conclusion, the study reported a small proportion had knowledge regarding the food label with the majority of them aware of the meaning of nutrition facts.

Keywords: Food label, Nutrition facts, Barriers, Medical students

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Introduction:
The food label is a table present on the package of food items that comprise a variety of information regarding the nutritional values of this food item. Most of the food labels include standard information concerning nutrition facts about serving size, calories, fat content, type and amount of nutrients, the percentage of daily values in addition to ingredients, expiry date, and the price (1). Food labeling is an approach to provide information to the community regarding the nutrient content of food (2). One of the leading health confrontations is to find a way to assist consumers to make healthier food choices. The World Health Organization (WHO) had recommended in 2004 that food label is an important strategy to help the public to choose food wisely (3). The primary objective of food labeling is describing the nutrient content of food in an informative way (4). As a result of the increase in the conscious about promoting healthy behavior, the awareness towards the labeling of food has increased, especially those issues related to nutrition. Therefore it is significant for consumers to have the ability to read and explicit food label so as to make safe and healthy choices (5, 6).

Proper behaviors in regard to nutrition during childhood and early adult life are essential for disease prevention in adulthood, midlife and later. The university student life is characterized by independency, studying in addition to extra activities, all of these will affect the eating habits of the students, which may result in skipping meals, in particular, the breakfast, not having various food, inadequate intake of fruits, vegetables or dairy products, and increase the consumption of junk food and processed food (5,6). In addition to often being away from home and making their own decisions about food choices than ever before, for all these reasons, college students represent a suitable group to be studied (9, 10).

Excessive consumption of foodstuffs majority is available in a market rich in calories, fat, refined sugars and sodium may result in overweight, obesity and the adverse health consequences of obesity and such health problems are preventable by the sound use of food labels (11). The utilization of nutrition facts determined by a number of
factors, on top of them is the knowledge regarding food labels and the frequency of its use. Many studies have stated that there is a positive association between the level of food labels’ knowledge and its use enhancing the motivation to look for more health and wellbeing information \(^{(12)}\). The effective use of food labels may be influenced by some barriers including a negative behavior concerning food labels, a loss of trust and a high level of suspicion regarding the accuracy of food label information \(^{(13)}\). For this reason, it is substantial to highlight the factors which influence students’ use of food labels, by the identification of those factors \(^{(14)}\).

In Iraq, food label is an inadequately researched topic. Few studies in the adjacent countries reported that the awareness of consumers and utilization of food labels is relatively low but they did not clarify the reasons behind this \(^{(3, 9)}\). The current study was designed to identify the main barriers and reasons that affect food label and nutrition facts use among medical college students of Al-Mustansiryiah University.

**Methodology:**
A cross-sectional study was conducted at Al-Mustansiryiah University College of Medicine (MUCOM). The collection of data was carried out for a period of one month extended (15th of February - 15th of March 2018). The study sample was a convenient sample of 565 students of both genders from all the six stages who agreed to participate in the study. The study questionnaire was distributed to the students during the rest-time after lectures and then was recollected on the next day with the help of the leader of each subgroup in each stage. Only 554 questionnaire forms were valid giving a non-response rate of about 2%. The tool of the study is a structured self-administered questionnaire, designed by the researcher, consists of two parts: First, the demographic characters include the following: Age, gender, stage and living conditions. Second, variables related to nutrition label include 9 questions as follow:

1. Did he/she know the meaning of nutrition labeling? (Yes or No)
2. The meaning of nutrition facts "by putting the nutrition fact box in the questionnaire and ask them if they know the meaning of this box" (Yes or No)
3. Did the nutrition label influence their food choices?
4. The food label utilization.
5. The reasons behind using food label which included: understand information on food label, make healthy food choices, help others (family members, friends), maintain or lose weight, control energy intake, select foods high in vitamins and minerals, avoid food high in fat and calories, avoid food allergy, or to prevent diseases.
6. The information check most frequently on food labeling: nutritional facts, additives, artificial color, brand, expiratory date, price, product's weight, and expiry date.
7. The information check most frequently on nutrition facts label: calories, carbohydrates / sugar, fibers, total fat, Tran’s fat, saturated fat, sodium, calcium, and others.
8. He/she has an application on a smartphone to check the nutritional information.
9. Reasons for not using food labeling including nutritional facts: time-consuming, lacking in knowledge about nutritional facts, food label is not attractive, small font size, make him/her select expensive foods, have no disease, not believe it, or no opinion at all.

**Ethical Approval and permission**
The participants were fully informed about the study’s purpose and significance. Verbal consent was taken from all the students before participating in the study.

**Statistical analysis**
Data were entered by Excel versions 2015, reviewed, and cleaned. The data were presented in the form of frequencies and percentages.

**Results:**
The age of students that was ranging between 17 to 26 years with 55% of them of 20-22 years, 63% of were females, and the majority (85%) were living with their families (Table 1). Table 2 revealed that only 33% of the medical students knew what is food labeling and 80% of medical students knew the meaning of nutritional facts. The results also revealed that food labeling affects the food choices in 61% of the participants and only 41% of them used nutrition facts during shopping.
Table (1): Distribution of the sample according to socio-demographic characters

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. (n=554)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-19</td>
<td>139</td>
<td>25.0</td>
</tr>
<tr>
<td>20-22</td>
<td>304</td>
<td>54.9</td>
</tr>
<tr>
<td>23-25</td>
<td>110</td>
<td>19.9</td>
</tr>
<tr>
<td>=&gt;26</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>203</td>
<td>36.6</td>
</tr>
<tr>
<td>Female</td>
<td>351</td>
<td>63.4</td>
</tr>
<tr>
<td>Stage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>102</td>
<td>18.4</td>
</tr>
<tr>
<td>2nd</td>
<td>114</td>
<td>20.5</td>
</tr>
<tr>
<td>3rd</td>
<td>100</td>
<td>18.0</td>
</tr>
<tr>
<td>4th</td>
<td>87</td>
<td>16.0</td>
</tr>
<tr>
<td>5th</td>
<td>89</td>
<td>16.0</td>
</tr>
<tr>
<td>6th</td>
<td>62</td>
<td>11.1</td>
</tr>
<tr>
<td>Living condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With family</td>
<td>474</td>
<td>85.5</td>
</tr>
<tr>
<td>With relatives</td>
<td>33</td>
<td>5.6</td>
</tr>
<tr>
<td>Dorm</td>
<td>47</td>
<td>8.9</td>
</tr>
</tbody>
</table>

Table (2): Distribution of the studied sample according to their response to the questions regarding food label and nutrition facts.

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. (n=554)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know about food label</td>
<td>183</td>
<td>33</td>
</tr>
<tr>
<td>Know the meaning of nutrition facts</td>
<td>443</td>
<td>80</td>
</tr>
<tr>
<td>Food label have influence on food choices</td>
<td>338</td>
<td>61</td>
</tr>
<tr>
<td>Usage of nutrition facts during shopping</td>
<td>327</td>
<td>59</td>
</tr>
<tr>
<td>Having an application in smart phone about nutrition facts</td>
<td>116</td>
<td>21</td>
</tr>
</tbody>
</table>

Figure (1): Reasons of using food labeling.
The result clarified that only 21% of students have an application on their smartphones. Regarding the reasons for using food labeling, 17% of students answered that they use it to make healthy, 15% use it to understand information on a food label as in figure 1. In response to the question about the most frequently checked information on a food label, the highest percentage of the participants (34%) used to check expiratory date, and only 8% check...
additives and artificial colors, as shown in figure 2. Figure 3 demonstrates the mostly checked information while reading nutritional facts, in which 30% of students check calories, 16% check carbohydrates, and only 3% check trans-fat. Figure 4 shows that the reasons for not using nutritional facts were students thought it is time-consuming (23%) or it makes them choose expensive foods (5%).

Discussion: The study revealed that only one-third of medical students knew food labeling which is lower than that reported in Thailand more than two-thirds (19), a difference that might be due to the differences in the nutrition knowledge background. In regard to the meaning of nutrition facts, 80% of the studied sample answered the question correctly, while several international studies have demonstrated that consumer's understanding of the terminology and numerical content of food label was average at best (16,17). Such difference could be attributed to the level of the knowledge level of medical students that play a vital role in their ability to understand nutrition facts better. About two-thirds of the students mentioned that the usage of food labeling has an impact on their food choices. This finding is in line with the result obtained by a study done in France, which found that knowledge concerning nutrition had a low to moderate impact on their food choices since the consumers who mentioned reading the food labels did not do so in a regular manner (18). Only 41% of medical students sample use nutritional facts during shopping, this finding is consistent with the result of a study done in Ghana which reported exactly the same percentage 41% (19), the reasons behind this might be due to that students consider other factors as more important than nutrition facts while purchasing foods, like expiry date or price (20).

Regarding the reasons behind using food labeling in the current study, we notice that the use of nutrition facts to select healthy choices was on the top of the list of reasons, this finding coincides with what Norazmiret al, reported in their study done at 2012, which stated that the main purpose for the use of nutrition fact is to assess the nutrient content of the various products for health reasons (21). The second motivator to use the nutrition label was to understand the information and it represents 15% of the whole responses. This result disagrees with the finding reached in Ghana by Drake et al in which only 6.7% of the sample read the nutrition label to obtain and understand nutritional information (19). Only 9% of them use it to have an idea about the energy content of the food. Since the previous study found that about two-thirds of nutrition label users were interested in its reading to control their energy intake (22).

Regarding the most frequently checked information on a food label, the study revealed that expiratory date was the most frequently checked among food label users. This finding is in line with the result obtained from a study carried out in Malaysia (23) in order to avoid rotten and expired food items while the lowest checked information on a food label was the product content of additives and artificial colors, this could be due to loss of interest in such information. The present study found that calorie is the most frequently checked item in the nutrition facts. A finding that is consistent with the study performed by Temple et al (23) explained by the increasing interest of educated young adults especially the medical students in preventing obesity which is an important public health problem which raises the risk of many diseases like diabetes, heart disease, hypertension, stroke and certain types of cancer. As calorie labeling used as a policy to prevent obesity (24).

The majority of the medical students from all stages did not have an application concerning nutrition facts on their smartphones this may be due to problems in understanding and interpreting the information provided by these applications. The current study results revealed that the main barrier to using nutrition facts during shopping is time constraints since they have limited time to read and understand these facts, this is similar to a study done by Driskellet al, in the USA (25). Only 8% of the studied sample reported that the reason behind not using nutrition fact is lacking knowledge about it. This may be due to the timing at which most of the students received nutrition knowledge (previous years of the study). The present study finding is contradicting with the result of a study done in Malaysia that the main barrier to using nutrition facts was not understanding its terms (26).

The main finding of this study that there were several reasons behind the use of food labeling, included select healthy food choices and understand the information on it. The use of a food label has an impact on food choices while shopping needs for a long time to read and interpret the information on a food label, and was the main barrier to use. Nutrition education regarding food labeling needs to be emphasized and promotes among the consumers especially among the young generation in order to reduce the risk of diet-related disease in the future. Further studies are needed to understand the association and the factors that influence the use of the food label.

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References:


