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Is Nutritional Labeling a Sustainable Option for Restaurants?

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IS NUTRITIONAL LABELING A SUSTAINABLE OPTION FOR RESTAURANTS?

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Abstract:
This paper will examine the feasibility of restaurants integrating or providing nutritional information labels on food menus to increase business sales and gain customer satisfaction. It weighs the pros and cons of the usage of nutritional information labeling that has changed over time due to government policies, and clearly explains how restaurants can make use of nutrition labeling to increase and sustain the business. It will then further analyze both general advantages and disadvantages, consisting of economic, social, health and environmental impacts with an unbiased perspective. With a different set of clientele for the varying types of restaurants, nutritional information labeling would inevitably be deemed as more favorable for certain restaurants. Recommendations have been made with regards to what the restaurant operators can implement to jump on the bandwagon of the health trend, increase their market share, and sustain in the long run.

Keywords: Nutrition, Menu, Nutrition Information, Nutrition Labeling, Health, Restaurant Menu
1. INTRODUCTION

Nutrition labeling acts as an informative and marketing tool (Grunet, 2013) meant to inform and sell menu items to the consumers, consisting of nutrient compositions of a certain menu item such as calorie and fat level (Brussels, 2008). It provides clues such as key and necessary nutrients that consumers will make use of to select the healthier choice (Moore & Wendt, 2012). There was little information with regards to nutrient content of food up till the late 1960s as food labels devised by the Food and Drug Administration (FDA) was still specifically meant for people with special dietary needs (Wartella et al., 2010). Simultaneously, other countries continued to develop their own legislation with regards to food nutrition (Cheftel, 2005). Nutritional labeling has been shaped by the government through a wide range of policies over the years (Ippolitto, 1999), thus the information conveyed to consumers have evolved alongside with the implementation of policies. In recent years, the traditional nutrition information found on the back of most food packages appearing in either table or grid form, has been slowly replaced and supplemented by simplified labels (Grunet et al., 2010). Even with the presence of nutrition labeling, obesity in the United States of America (USA) and other countries have doubled in numbers in the past 25 years due to the changing trends and lifestyle of the generation as more people consume their meals outside of home (Auchincloss et al., 2013). Therefore, in order to create a sustainable business for restaurant operators and set a healthier example for future generations, restaurants are turning to make use of nutritional labeling to keep up with the recent health trends and increase their market share. By gaining more insights of the sustainability of using nutritional labels, this report will further look into the viability and challenges of implementing the usage of nutritional labels, with the focus on the sustainability of food establishments.

2.0 Literature Review: Nutrition Information Labeling

2.1 History of Nutritional Information Labeling

Specific nutritional labeling first started out in the late 1960s when FDA was tasked to develop systems which will help consumers better understand the nutritional benefits of food due to the increase in processed foods (Wartella et al., 2010). The inclusion of nutritional information was finalized in the year 1973 (Wartella et al., 2010) with regulations specifying the need to present information on the labels as seen in Figure 1 and 2 below with information varying depending on the claim made with regards to the food (Brussels, 2008).

**Figure 1: Four Element Nutrition Labeling**

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Nutrition Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Composition</td>
<td>Per 100 g</td>
</tr>
<tr>
<td>Energy</td>
<td>1640 kJ</td>
</tr>
<tr>
<td>Protein</td>
<td>5 g</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>85 g</td>
</tr>
<tr>
<td>Fat</td>
<td>3 g</td>
</tr>
</tbody>
</table>

Source: (Brussels, 2008)

**Figure 2: Eight Element Nutrition Labeling**

<table>
<thead>
<tr>
<th>Group 2 (With Per Portion)</th>
<th>Nutrition Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Composition</td>
<td>Per 100 g</td>
</tr>
<tr>
<td>Energy</td>
<td>1640 kJ</td>
</tr>
<tr>
<td></td>
<td>386 kcal</td>
</tr>
<tr>
<td>Protein</td>
<td>5 g</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>85 g</td>
</tr>
<tr>
<td>Of Which Sugar</td>
<td>35 g</td>
</tr>
<tr>
<td>Fat</td>
<td>3 g</td>
</tr>
<tr>
<td>Of Which Saturates</td>
<td>1.5 g</td>
</tr>
<tr>
<td>Fibre</td>
<td>2 g</td>
</tr>
<tr>
<td>Sodium</td>
<td>0.5 g</td>
</tr>
</tbody>
</table>

Source: (Brussels, 2008)
In the year 1990, the Nutrition Labeling and Education Act (NLEA) required all nutrition labeling and health claims for foods to be consistent with the terms defined by the Secretary of Health and Human Services. As a concession to food manufacturers, the FDA authorized standardization to some health claims such as food ingredient panel, serving sizes and terms such as “low fat” and “light” (FDA, 2014a). Consequently, the European Council adopted Directive 90/496/EEC on labeling nutrition composition of food in the 1990s as there was a surge in consumers being interested in having a healthy diet and wanted to be informed of what they were consuming (Brussels, 2008). In addition, to help consumers to choose nutritionally appropriate food and reduce their risk of coronary heart diseases, information on trans-fat such as trans-fatty acid content was included in the food label in the year 2006. It was the first substantive change in nutrition facts panel on food since the label was changed in 1993. By the year 2004, FDA came up with the Food Allergy Labeling and Consumer Protection Act which required the labeling of any food that contains a protein derived from food that accounts for the vast majority of food allergies such as peanuts, soybeans, cow’s milk, eggs, fish, crustacean shellfish, tree nuts and wheat (FDA, 2014a).

Nutrition information can be found traditionally on the back of processed food packaging and more recently on the front due to changes in consumer purchasing behaviors (Brussels, 2008). However, even though more than 35% of consumers tend to look for nutrition information on the food they consume, many others find it hard to use and the reason is not known as to whether it is due to the presentation of the information of the technicalities involved, therefore, traditional nutrition labeling has become simplified since the year 2003 but also with concerns that there would be adverse effects due to the simplicity as seen in Figure 3 (Brussels 2008).

Figure 3: Examples of Provision of Nutrition Information

Source: (Brussels, 2008)

This can be further substantiated when FDA recently proposed several changes to nutrition labels in the year 2014, which is the first overhaul since 20 years ago (FDA, 2014b). The proposed change comes with a purpose to help consumers better understand what they are consuming as the new labels will place an emphasis on total calories, added sugar and other nutrients as well as serving size requirements to accurately reflect what consumers consume on a daily basis as seen in Figure 4 and 5 (Wilson & Christensen, 2014).
2.2 The Role of Legislation

In countries such as the United States and Singapore, legislations are put in place to ensure food safety. In addition, food nutrition labels are similarly governed by a certain set of laws defined by the government. In the United States, the Nutrition Labelling and Education Act (NLEA) clearly mandates that nutrition labels be displayed clearly in a standardized format with components such as the nutrients, calories, and fat concentrations in accordance to Recommended Daily Intake (RDI) values (Mathios, 2000). These are laws that emphasize the need to provide dietary guidelines, especially for the benefit of people with special dietary requirements while promoting healthy eating among the Americans (Shank, 1992).

While food nutrition labelling is a good practice, certain countries in the South-East Asia such as Brunei, Indonesia, Thailand, Philippines, and Singapore, do not define it as a mandatory requirement across their food industries. For instance, the law in Singapore only requires that nutritional labelling be placed on foods that have been fortified or enriched (Tee et al., 2002). Therefore, it is a point of debate as to why uniform standards are not being practiced over the globe since health is a primary concern for many people.

Apart from laws, food safety organizations have been set-up by the respective governments to ensure that food legislations are adhered to. The Food and Drug Administration of America (FDA), the National Environment Agency (NEA), and the Agri-Food and Veterinary Authority of Singapore (AVA) are...
some examples. These agencies work in cooperation with the government to ensure food safety for consumers and govern nutritional labelling by encouraging or mandating them on as many foods as possible while simplifying these information for consumer’s ease of understanding (Levy et al., 1996). As more countries become developed, the demand for safer food standards also increases. Therefore, it is necessary that the relevant authorities in each country do their part to support their food industry while working towards nutritional awareness and more transparent consumer health information (Hieke & Taylor, 2012).

2.3 Consumer Trends and Attitude towards Nutrition Labeling

Consumers are becoming increasingly health conscious and their perceptions of healthy food in restaurants are changing and more consumers are demanding for nutritional information from restaurant menus so that they can exercise personal responsibility and make informed decisions when purchasing food (Hwang & Lorenzen, 2008). Changes in dietary and lifestyle patterns produces substantial gains in population health as research show that contributing factors that stimulate the interest in nutrition and drive the increasing health and wellness trend are changing consumer needs and lifestyle, the relationship between maintaining diet and preventing disease, dietary guidelines and media attention (Foster & Lunn, 2007). According to Story et al. (2008), many consumers, such as the Americans, are having fewer home-cooked meals because the environment setting, availability of food places, and lifestyle have influenced their dietary behavior; these places include food from retail food stores, hawker centers, fast food outlets, and ready-to-eat food from grocery stores and supermarkets (Nestle et al., 1998). Therefore, consumers play a key role with regards to the use of nutritional information due to the growth in interest for healthy diets (Brussels, 2008). It is further substantiated by Shine et al. (1997) that consumers view nutrition in a positive light as seen in Table 1 where majority of respondents expressed a positive attitude towards nutrition labeling in surveys conducted by the U.S. Food Marketing Institute, American Dietetic Association, and Food Information Council.

**Table 1: Consumers’ Attitudes towards Nutrition**

<table>
<thead>
<tr>
<th>Attitudes to Nutrition</th>
<th>Agree (%)</th>
<th>Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet is an Important Part of Lifestyle</td>
<td>97</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition Content of Food Products is Important</td>
<td>95</td>
<td>5</td>
</tr>
<tr>
<td>Relationship between Diet and Disease</td>
<td>87</td>
<td>13</td>
</tr>
<tr>
<td>Increased in Learning More About Nutrition</td>
<td>81</td>
<td>19</td>
</tr>
</tbody>
</table>

Source: (Shine et al., 1997)

However, the expectations of people varies in diverse ways and are likely to have different concerns with regards to the information given on the menu such as those with special needs and diets (Brussels, 2008). With a longer life expectancy, more consumers want to lead an active and healthy lifestyle in the later part of their lives. Besides that, the growing concern of chronic disease as a major cause of death has motivated most consumers to become mindful of their dietary requirements. Foster and Lunn (2007) also suggested that the consumers’ growing interest towards healthy diets has led to the demand in nutritional information that assist in a consumer’s evaluation of the food products that they purchase. Therefore, more consumers have become more health conscious and are skewed towards healthier options and are looking to the food label for nutrition information.

2.4 Role of a Restaurant Menu

Menus plays a dominant role in Food and Beverage (F&B) operations as it acts as a silent salesmen communicating and selling products to the consumers as well as dictate what the restaurants needs in terms of ingredients, equipment and manpower qualifications for the sustainability of the establishment (Kincaid & Corsun, 2003). In addition, a menu also shows the consumer a first impression of the food
establishment, as a well-designed menu would mean credibility in their offerings and with that impression, the menu can direct consumers to purchase items that the restaurant wants to sell more of (Antun & Gustafson, 2001). With its innate ability to attract and satisfy consumers in their overall experience, researchers turned their attention to studying the potential of the menu as well as issues faced such as planning, pricing and design (Ozdemir & Caliskan, 2013). Consumers were observed to value a variety of choices in the menu items (Bernstein et al., 2008) and there was a recent observation with regards to the food preferences of consumers that healthy food items are increasingly preferred and important even in quick service restaurants (Ozdemir & Caliskan, 2013). According to Yang et al. (2009), consumer purchasing behavior can be influenced by the labeling of menu item description as it presents positive impressions with regards to the taste and health quality aspects of the food.

3.0 Advantages: Restaurant Inclusion of Nutritional Information

Including nutritional information on food labels and restaurant menus has received positive feedback from consumers over the years. The following section of the report studies in depth various positive impacts faced by consumers and industry players alike. Furthermore, trends such as the effect of nutrition labelling on the consumers’ caloric intake and perceptions of food are also examined.

3.1 Social Impacts

3.1.1 Corporate Image

With the nutritional information available, consumers are not only looking at the price, but they are now looking for a healthier choice of food. This can be substantiated by Din et al. (2012) as it states that more consumers show a greater concern when they asked about the nutritional contents offered on the menu. Restaurant operators recognize that nutritional information is vital and agree that it would be a good decision to include or display it in the restaurant menu as it enhances consumers’ confidence in an organization and improves the consumers’ perception of the company’s image (Glanz et al., 1992). It is further substantiated by Yang et al. (2009) that providing nutritional information in menus can be beneficial not only to consumers but to restaurant operators as well due to the influence nutrition labeling have on consumer purchase behaviors. A study defining the relationship between Corporate Social Responsibility (CSR) and the increase in consumer market showed results of increased sales with establishments that are moving forward with CSR activities (Du et al., 2007). This is further substantiated by (Lee et al., 2014) that by providing nutritional information and healthy alternatives in the restaurant, helps to gain healthy profits and support consumer’s healthy lifestyles.

Consumers have a tendency to give positive feedbacks for products and organizations who are implementing CSR initiatives. A study has been carried out to determine if a restaurant’s CSR activities would influence consumer satisfaction level towards the restaurant and results showed that such activities will create a positive impression of the restaurant in the consumers’ mind (Lee et al., 2014). This implies that when the perception of CSR toward restaurants increase, consumers’ attitudes of the organization increase as well, which is beneficial for the organization. Thereon, Yum Brands, the parent company of many quick service restaurant chains such as Taco Bell, KFC and Pizza Hut, announced their initiation on including nutritional information on their menu boards in the year 2011, sparking other industry players in following their lead and creating a positive image for health conscious consumers (Horovitz, 2008).

3.2 Health Impacts

3.2.1 Nutritional Awareness

With the inclusion of nutritional information in restaurants, consumers were beginning to be aware of what they are actually purchasing. This can be substantiated by a two year study after Philadelphia implemented the menu labeling law which requires full service restaurant chains to list nutritional information including calories, fat, sodium and carbohydrates
on their menu items in the year 2010 (Auchincloss et al., 2013). The study involved seven outlets whereby only two outlets had implemented menu labeling and the other five outlets functioned as per normal (Auchincloss et al., 2013) and results show that there was a difference in the purchasing trends of consumers in terms of calories and nutrients (Moorman, 1998). Consumers dining at labeled restaurants purchased food with up to an average of 151 lesser kilocalories (Kcal) (95% CI = -270, -33), 224 milligram (mg) less sodium (95% CI = -457, +8) and 3.7 gram (g) less saturated fat (95% CI = -7.4, -0.1) as compared to the restaurants that were not labelled as seen in Figure 6 showing a decrease in purchase of high calorie food (Auchincloss et al., 2013).

Figure 6: Consumers’ Favorability of Calorie Level after Nutrition Labeling

Source: (Burton et al., 2009)

Consumers dining away from home began to choose food with better nutritional value and quality as 98% of consumers reported that they noticed calories and up to 70% of these consumers reported looking at other nutritional information such as sodium, fats and carbohydrates, which influenced 34% (84/250) of consumers on their decision to order healthier food choices (Auchincloss et al., 2013) as seen in Figure 7, 8 and 9.

Figure 7: Consumer Perceived Likelihood of Weight Gain After Nutrition Labeling

Source: (Burton et al., 2009)

Therefore, from these results, it can be seen that with the implementation of menu labelling, it would aid consumers in making healthier choices and they were willing to pay for food in which they perceive to be healthier (Hwang & Lorenzen, 2008).
3.2.2 Promotion of Healthy Food

Disclosing nutritional information comes with a purpose to help consumers make informed choices, bring about certain positive results, facilitate competition among food producers and stimulate development and improvement of food quality in the industry (Baltas, 2001). Thereon, inclusion of menu nutritional information have set researchers with the hypothesis that the movement will lead to reformulation of products and innovating better and healthier food choices (Moorman, 1998). The hypothesis was proven valid when there was an increase in healthy brand extensions as various food establishments caught the health trend and significantly increased the amount of positive nutrients in the menu items (Moorman, 1998) whereas the rest with food items that are less healthy in the consumers’ perception is in a less favorable position (Burton et al., 2009). A restaurant has done an investigation by evaluating and measuring consumer satisfaction level with healthier and lower fat foods and assessing the consumers’ response to such menus. The investigation was carried out where there were 1127 menu items, 205 were lower fat foods, 878 were regular, and 44 were of unknown classification (Fitzpatrick et al., 1997).

Results have shown that consumers were significantly more satisfied with lower-fat menu foods as compared to the regular food menu items. This further implies that consumers do show a support for restaurants providing healthier food choices and it is recommended that restaurateurs can use these findings to include lower fat choices on the menus (Fitzpatrick et al., 1997). It is further substantiated on a larger scale by Foster and Lunn (2007) as the British food industry created more food that appeal to health conscious consumers and rebranded existing food profiles as healthy when they recognized that health problems and diet was becoming an important issue with consumers. Quick service restaurants that are known to be responsible for the increase of obesity levels also started to introduce low calorie options such as salads and grilled chicken burgers from McDonalds and Burger King respectively (Burton et al., 2009). This is further substantiated by a study conducted over a span of 7 years of quick service restaurants switch to lower caloric food and increase in healthier food options as seen in Figure 10 (Namba et al., 2013).

![Figure 10: Average Calories and Percentage of Healthier Items on Fast Food Chain Restaurant Menu in the U.S.](image)

Source: (Namba et al., 2013)

In addition, many restaurant chains expect that their menus will consist of fresher and healthier foods in the future. Restaurant operators see opportunities for increasing their menus to healthier options and they believe that promotion of healthier foods give consumers a wider range of choices. However, Burton et al. (2009) mentioned that organizations must be assured that by increasing their menus to healthier dishes, they would be able to earn an increase in sales and profits as well.
3.3 Economic Impacts

3.3.1 Increase in Business Market Share

The F&B industry is a demand-driven market where consumers satisfy their hunger with food that are accessible and affordable to them. Food nutritional information available to the public has been increasing tremendously (Jin & Zhou, 2014) and business market share can be expanded or sustained when the business have competitive advantage over their competitor which is the usage of menu labeling. Corporation branding can be a competitive advantage that strengthen the company’s image, thus, generate more profitability for the business (Willkins & Huisman, 2013). Hence, nutritional information on restaurant menu can act as a form of marketing that brands the corporation image. Quick service restaurants utilize nutritional information to brand themselves as healthier food choice as consumers are more well-informed of their choices (Breck et al., 2014). A study conducted yielded results showing that consumers were willing to pay a higher price of up to 50% more for healthful food with private brands being more adept to enjoying the profits gained as seen in Figure 11 (Bauer et al., 2012).

Figure 11: Mean Values of Consumer Willingness to Pay a Price Premium for Healthful Food

Source: (Bauer et al., 2012).

It is further substantiated by the Foster and Lunn (2007) that the consumer market share for healthy foods in Europe have increased from 30.3% in the year 1998 to 34.5% in 2005, showing an annual 44% growth in sales from the year 2000 as low carbohydrate meal sales increased from £5 million in the year 2002 to £25 million in 2004 with nutritional labeling, ultimately generating total sales of up to £1700 million in the year 2007 as compared to £150 million in 1998 as seen in Figure 12.

Figure 12: Sales Figure of Healthy F&B Products in Europe from 1998 to 2007

Source: (Foster & Lunn, 2007)

As seen in the above figures, it can be seen that the health conscious market have grown rapidly throughout the years and there is an increase in consumer spending on healthful food to the extent of being willing to pay a higher premium for it. Therefore, restaurant operators can rest assure that by tapping on to the health trend and including nutritional information on their menus, they will benefit both socially and economically in the long run.

4.0 Disadvantages: Restaurant Inclusion of Nutritional Information

Despite significant advantages, the inclusion of nutritional information on restaurant menus has undoubtedly created controversy. With varying views supporting the inclusion while skeptics retort that the attainment of nutrition information process is too expensive to be sustainable. Furthermore, apart from the risky investment needed by restaurants, the consumers’ ability to understand the technicalities eventually negates the benefits and sustainability.
4.1 Social Impacts

4.1.1 Administrative Burden – Employee Dissatisfaction

In modern marketing concepts, nutritional information has become readily available to end-point consumers in the market. Similarly, selected restaurants have begun displaying caloric values and other related nutritional data on their menus. This is an initiative welcomed by many consumers, however, these information may result in certain social resentments and misunderstandings. By providing data transparency to consumers, it means that additional costs and man-hours are involved in making it possible. Food safety and other related food information in countries such as Singapore is tightly controlled by the National Environment Agency (NEA) and the Agricultural Food & Veterinary Authority (AVA) by various legislations and restaurant operators have to submit their information for approval before it is being stamped on menus and food labels. The same issue occurs in the U.S. as the NLEA requires most food to bear specific nutrition and ingredient labeling and the nutrient content claims should comply with specific requirements by the U.S. Federal Food, Drug and Cosmetic Act (FFDCA) (Registrar Corp, 2014). As a result, time and money investment increases the expenditure of food businesses. Similarly in the United Kingdom, releasing a new food label requires the company to be well versed with the legislation to conform to the standards of the law. An administrative burden assessment found that monetary costs channeled towards familiarization and understanding of general food labeling regulations was responsible for 13% of all administrative operational costs and 5% of total administrative burden (Food Standards Agency [FSA], 2006).

Consequently, the growing trend of consumers eating healthily causes complications in menu planning due to additional work needed in order to source for innovative healthy menu options to keep up with changing consumer trends (Ozdemir & Caliskan, 2013). Which may lead to employees in the F&B industry disliking the extra workload they may receive, especially where menu labeling and other administrative measures are involved. Usually, processes that require huge manpower include changing of nutritional information, printing of new menus, gathering of new information and designing new exterior outlook of packaging or menu (Bremmers et al., 2008). Therefore, keeping up with consumer trends may lead to resentment within organizations as employees may find themselves having to spend time obtaining resources and getting them ready on time.

4.1.2 Consumer Understanding towards Nutritional Labeling

Given that displaying nutritional information is now a trend in the food industry, the issue arises when consumers are unable to interpret these data accurately. Most consumers determine the “goodness” of a certain food product by the figures provided on caloric and fat intake indicators (Burton et al., 1999).

The situation can get worse since not everyone in the market has scientific knowledge of human nutrition values and their meanings; therefore, it is difficult to say that consumers definitely know what they are consuming despite the transparency of information catered to them. In a research by Kozup et al. (2003), the authors supported that many consumers do not understand nutritional claims by restaurants that include specific data such as serving size, lipids, proteins, carbohydrates, and other place elements that form the content of a certain dish, resulting in the judgment of nutritional values of a dish based on the overall perception of the restaurant. For example, a steak house would definitely sell foods that are less healthy than a salad bar. Given this situation, the market potential of steak houses would most likely be at a disadvantage. It is further substantiated by Brussels (2008) and Shine et al. (1997) that many consumers find it difficult to understand the information given and the reason is not known as to whether it is due to the presentation of the information of the technicalities involved.

Furthermore, the elderly community faces a larger disadvantage of health risks as they are more susceptible to toxicities, deficiencies and allergies, especially those who have lower education levels (Ng et al., 2009). For instance, a
A lady at 70 years old may not understand the nutritional labels and fail to consume enough calcium to prevent Osteoporosis or enough Omega-3 to delay the onset of dementia. This is further substantiated by an experiment conducted by Li et al. (2014), showing that age was found to be a significant factor in influencing consumers to use nutritional labels and results show that consumers above the age of 66 were least likely to make use of the nutritional information. As such, most developed countries such as Singapore is at a high tendency of seeing an aging population by 2030 with 26% of its entire population being over 60 years old (Teo, 1994). Another estimate by Phillips and Bartlett (1995) endorses the fact of Singapore’s aging population by mentioning that nearly 20.6% of the population will be beyond the age of 65 by 2025 as seen in Figure 13.

**Figure 13: Population Distribution in Singapore According to Age in 2025**

Source: (Phillips & Bartlett, 1995)

This shows that keeping the elderly educated on nutritional data is paramount because they tend to refer to nutritional information more frequently because of their health concerns (Ranilovic & Baric, 2011). As such, it is necessary to take care of these people by highlighting the issues that face them in terms of larger health implications due to incorrect consumption of needed vitamins, minerals, and other nutrients to prevent malnutrition. Food labels searching do not induce consumers to buy products, instead, consumers who tends to eat more unhealthily may tune out the nutritional values and continue their bad eating habits (Lin et al., 2004). This means that consumptions patterns may be irrelevant with nutritional values. As such, putting on food labels may not be viable for business. Moreover, psychological factors of believing healthy diet, induces consumers refer to nutritional values of food products (Satia et al., 2005). Nonetheless, with relevant education with food labeling, this may change consumers behavior and encourage healthier food consumed (Lin et al., 2004).

### 4.2 Economic Impacts

#### 4.2.1 Social-Economic Class - Understanding of Nutritional Label

Social economic status may also be a factor that influences consumers to purchase healthier food choices. In the United Kingdom (U.K.), the campaign ‘Healthy Lives, Healthy People’ shown that individuals with lower income group are consuming less healthy food than those who are more affluent (Pechey et al., 2013). This is further substantiated by Faupel (2014) as seen in Figure 14 below whereby consumers from higher and lower social status are purchasing quality, organic brands and low quality, inorganic brands respectively.
Furthermore, nutrients dense food costs are perceived as more expensive in low income groups (Ball et al. 2008). This shows that lifestyle choices may be associated with individuals’ income level and as a result, healthy choices do not seem to play an important role as an indicator for quality or health value in the conscious decision making process of most consumers from a lower social status (Faupel, 2014). Lower income groups may choose unhealthy food due to the perceived affordability, coupled with the fact that healthier food accessibility is not as convenient for lower income groups (Alwitt & Donley, 1997; Baker et al., 2006; Chung & Myers, 1999). Therefore, social inequality influences food choices. It is further substantiated by a dietary survey conducted by the British Nutrition Foundation that low-income households purchase lesser healthy foods such as fruits, vegetables and fresh meat as it is perceived as expensive (Foster & Lunn, 2007). Hence, nutritional information may be more useful to consumers who belong to a higher social status.

### 4.2.2 Increase in Operational Costs

Businesses are striving to make more revenue and with nutritional information printed on restaurant menus, consumers may seek smaller portions to control their calorie intake which also means that may translate to lower sales, thus, reducing profitability for business (Roberto et al., 2014). Restaurants that plan to include healthier menu items may face obstacles such as shorter shelf life for food, increase in preparation time, low sales and high labor costs (Glanz et al., 2007). Therefore, it is not surprising that restaurants choose to not add in nutritional information and continue to serve healthier food options as it decreases their profit margin. On
the other hand, despite the trends of restaurants adding healthy items to their menu, there are also another trends moving toward offering large portion sizes in order to improve the price and perceived value for the consumers (Peregrin, 2001; Young & Nestle, 2002; Nestle, 2003). As a result, this may encourage over consumption as consumers are consuming more food at a lower price, ultimately leading to a decrease in profit margin as well (Wansink, 2004).

4.2.3 Training and Re-training Costs
The manpower capital of an organization is the driver of the restaurant’s business on a daily basis. Therefore, in order to attain this organizational goal, the human resource department has to instill a sense of value and teamwork into their employees to keep them motivated while promoting continuous skill development (Scheel et al., 2014). The ability of frontline employees and customer satisfaction directly carves the conceived reputation of the restaurant as a whole. If employees are unable to explain the correct nutritional data during an enquiry, the public will perceive the service quality of the restaurant to be inferior to that of its competitors; thus, defeating the purpose of implementing the transparency of nutritional data. Therefore, a restaurant organization has to facilitate training programs and workshops to impart new product knowledge to their employees to make it possible.

As such, organizations generally spend 15 billion man-hours invested a year in terms of opportunity costs to facilitate training courses and workshops to train and re-train employees (Chonko et al., 2013). Therefore, businesses find themselves faced with challenges that encompass motivating their employees through the organizational culture to be updated on timely information, and managing the large amount of finance expenditure (Goh, 2002). To substantiate, the employee turnover rate in the F & B industry is relatively high; thus, leading to a quantum of costs involved in training and re-training of employees (Hinkin & Tracey, 2000).

4.2.4 Investment Costs - Design and Printing
According to Registrar Corp (2014), the fee for the production of nutritional labeling and graphic design for F&B menus can go up to US$1,495. Small scaled restaurant operators are further confronted with higher costs in developing nutritional information for their restaurant as it costs up to US$6250 per item sold (The Washington Post, 2010), which imply that small restaurant operators may have insufficient funds to conduct formal research to implement the usage of nutritional labels in their menus (Gehlhar et al., 2009). This is further substantiated by Rabin (2007) as the author mentioned that restaurant operators find the inclusion of nutritional labels being too expensive and cumbersome. Investment costs alone have erected yet another barrier of entry to the health conscious market as it may be too costly for small restaurants to start up in the first place as seen in Figure 15, showing the overview costs involving up to €14,000 in the food labeling process in the USA.

Figure 15: Overview of Costs in the Food Labeling Process in Europe

Source: (Brussels, 2008)

In addition, restaurant operators have to pay agencies to attain nutritional information through either the product analysis or collection from recipes process, with costs increasing along with a higher number of nutrient information attained depending on the process as seen in Figure 16 below.

Figure 16: Overview of Estimated Costs to the F&B
Industry Associated with the Provision of Information on 4, 5, 8 or 9 Nutrients by Analysis of the Product or Calculation from Recipes

![Graph showing cost of data collection](image)

Source: (Brussels, 2008)

The nutritional labeling process is also affected by regulation, marketing, product reformation and voluntary inclusion of information as any changes with regards to these four factors will lead to change of the information shown on the food label itself (Brussels, 2008). These four factors should also comply with regulations with local government agencies so that the product is safe and lawful in the country. Under NLEA, for a restaurant to inculcate food labeling in their menu, the restaurant has to fulfil 7 Laws and 13 regulations before the food nutritional label can be published in the restaurant (FDA, 2009). Furthermore, should there be a change in information, the need to redesign would increase additional costs by up to €9000 (Figure 15) (Brussels, 2008). As such, this raise barriers to entry for restaurants since it takes time to produce an accurate and lawful nutritional facts for the restaurant going up to 36 months should there be a need to redesign the menu label as seen in Figure 17 (Muth et al., 2002).

**Figure 17: Time Taken for Scheduled Labeling Change**

<table>
<thead>
<tr>
<th>Compliance Period</th>
<th>Branded</th>
<th>Private Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Month</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>12 Month</td>
<td>33%</td>
<td>5%</td>
</tr>
<tr>
<td>24 Month</td>
<td>67%</td>
<td>33%</td>
</tr>
<tr>
<td>36 Month</td>
<td>100%</td>
<td>67%</td>
</tr>
</tbody>
</table>

Source: (Muth et al., 2002)

Therefore, the competitiveness of small restaurant operators may be compromised as the cost involved for developing food nutrition label is high and they are less likely to enjoy economies of scales as compared to large restaurant brands (Brussels, 2008). It is further substantiated by (Moorman, 2005) that financial risks involved for small restaurant operators pose as a survival threat as they usually do not have sufficient resources to carry out the inclusion of nutritional labeling thus leading to them shutting down whereas compared to larger establishments enjoying the economies of scale.

### 4.3 Environmental Impacts

#### 4.3.1 Usage of More Resources

At an international level, environmental issues have become a threat to the livelihood of all living organisms on earth. Without a doubt, restaurant operators utilize huge amounts of plastics, paper, and other non-biodegradable resources that ultimately need to be managed by waste management companies. Most restaurants are still using conventional methods of printing hard copy menus for customers’ reference. This could mean a marginal increase in usage of paper resources when it comes to the changing of menus or alteration of existing nutrition data. Restaurants have seek to skew towards environmentally green marketing processes; however, current technologies, costs and feasibility issues do not always make it possible for every restaurant (Polonsky & Rosenberger, 2001). Furthermore, takeaway packaging is sometimes used as a marketing product as well (Hawkins, 2013). Once the nutritional information on the packaging is no longer valid, restaurants tend to dispose of them and order new ones from the factory. Sometimes, it is necessary for manufacturers to increase the size of the menu or food packaging to enable the provision of new information in a legible format that leads to the escalation of paper material usage and the utilization of more resources and energy, and increment in the total amount of waste production (Brussels, 2008).
The contribution to waste is in bulk and plays a detrimental role in environmental degradation (Gronman et al., 2012). For example, the amount of waste paper collected in Denmark in 1999 for both incineration and recycling amounted to 1275 thousand tons (Schmidt et al., 2007). Similarly, Marsh and Bugusu (2007) noted that paper and plastics accounted for 45.9% of municipal waste in the United States in 2005, equivalent of 83.9 million tons of waste as seen in Table 2.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Weight Generated (Million Tons)</th>
<th>Weight Recovered (Million Tons)</th>
<th>Discards (Million Tons)</th>
<th>Recovery As Percentage of Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper and Paperboards (34.1%)</td>
<td>39.0</td>
<td>22.9</td>
<td>16.1</td>
<td>58.8</td>
</tr>
<tr>
<td>Packaging</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Packaging</td>
<td>44.9</td>
<td>19.0</td>
<td>25.9</td>
<td>42.4</td>
</tr>
<tr>
<td>Total</td>
<td>83.9</td>
<td>42.0</td>
<td>41.9</td>
<td>50.0</td>
</tr>
<tr>
<td>Plastics (11.8%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td>13.7</td>
<td>1.3</td>
<td>12.4</td>
<td>9.4</td>
</tr>
<tr>
<td>Non-Packaging</td>
<td>15.3</td>
<td>0.4</td>
<td>14.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Total</td>
<td>28.9</td>
<td>1.7</td>
<td>27.3</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Source: (Marsh & Bugusu, 2007)

Amounts like these are partially the result of packaging materials and menu wastes from restaurant organizations that put extra stress on waste management companies to handle these wastes properly in landfills or incineration plants. Also, the manufacturing and waste management processes eventually lead to air and water pollution from the emission of carbon dioxide and methane, and the release of biological oxygen demand, chemical oxygen demand, volatile suspended solids and total suspended solids respectively (Kutz, 2007). Therefore, providing nutritional information that is updated and current also encompasses a negative aspect to this initiative.

### 5.0 Recommendations

With regards to including nutritional information into restaurant menus, it all boils down to which is a more viable option in terms of sustainability and the ability to increase business revenue for the restaurant operators. Restaurants are still competing head to head with regards to the costs being pumped in to produce the nutritional information; thus, placing restaurants without nutritional information in a higher economical ground. However, these have caused several drawbacks such as the increase in obesity in the general populous and the general populous becoming more health conscious. Some restaurants may improve their portfolio of healthy items by introducing innovative new products or improving the nutrition profile of foods on their current menu by switching to lower calorie ingredients. Consequently, they can also choose to reduce the serving sizes of food that are less healthy and in return, increase the size of healthy items with ingredients such as fruits and vegetables.

In the case of restaurants including nutritional information, the major concern is cost and that the general public does not understand the technicalities of the information; thus, some do not choose to make use of it. Nonetheless, the information is still being used by consumers who have a general understanding of the data. In addition, it can be seen from the growing health trend of consumers that their willingness to
purchase food items from restaurants is tied to the disclosure of nutrition information as it boosts their confidence in making informed food choices. Ultimately, this market trend will see restaurants with nutritional information being better contenders as compared to those which do not.

Therefore, the choice is obvious for a restaurant which aims to sustain and increase its business. With that being mentioned, the level of educational focus with regards to food nutrition in each country has to be considered as it is still a stumbling block for certain restaurant operators, especially in developing countries. For example, developed countries are usually equipped with competitive educational systems, financial resources, and a garage of technological advances to produce better and specific nutritional information. As per this fact, these countries have the appropriate tools in facilitating a better understanding of nutritional data in students from a young age. Whereas for developing countries, they need to get out from the grasp of underdevelopment in order for restaurant operators situated there to reap the benefits of such information and the changing consumer trends.

However, in the long run, including nutritional information on menus will indefinitely provide restaurant operators with the most promising social and economic benefits in return. Advancements in technology and education system will soon define a new group of consumer markets, including the present advantages, as it will only be a matter of time when the health trend peaks with a larger market share. Only then will regrets come from restaurant operators who were not willing to invest and did not follow the trend.

6.0 Conclusion

Even with the disadvantages present with the inclusion of nutrition information, the most impactful benefit will still be neutralized to a certain extent by the issues present mainly due to consumers’ technical understanding of nutritional information. In addition, research has shown that the cost of attaining, producing and including nutritional information comes at a high price. The unfavorable economies-of-scale might be a factor that fuels the reluctance of small-medium food establishments to include them on the menu. Nevertheless, it must be stressed that sustainability and enhancements will indefinitely be present due to the continually growing health trends that pushes consumers toward being more open in terms of paying for healthy foods with higher prices.

With this trend in mind, including nutritional information will contribute significantly to the sustainability and expansion of food establishments as well as a healthier population. Even though costs are always factored into decision making processes in all businesses, it is important to remain current in consumers’ changing trends. All investments are inevitably risky to a certain extent. However, a larger profit margin is at risk if the consumer market deems the products provided by the food establishment as unsatisfactory. Damage to the reputation of a food establishment as being a burden to the health of the populous is usually irreversible, leading to an extensive operational loss for the food establishment.

Furthermore, nothing comes without a price and food establishments must always be able to view a momentary loss of assets in a peripheral view. As the market skews towards healthy eating, unhealthy food will eventually become a secondary choice for the populous. The younger generation is moving towards attaining knowledge to choose healthy foods as part of their diets; spelling a successful market trend for the usage of nutritional information in the near future. When the market matures, restaurants providing nutritional information to consumers will reap several long term benefits such as an increase in consumer market share and a healthier population with fewer unhealthy foods in supply. With the increase in curiosity of consumers and accessibility of nutritional information, it can be safely inferred that healthy food will become more appealing; thus, the inclusion of nutritional information can be used on a commercially on a global scale to indefinitely assist in sustaining and increasing revenue business for food establishments.
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