AN ASSESMENT OF CONSUMERS' KNOWLEDGE, ATTITUDES AND HABITS IN RELATION TO FUNCTIONAL FOODS

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ABSTRACT
This paper discusses the outcomes of a research project conducted to identify the people's perspectives on different types of functional foods, hindrances faced by them to approach functional foods and make suggestions to increase the demand for functional foods and discovering the feasibility in approaching them. The primary aim of this study are, to measure and track changes in consumer awareness of an interest in functional foods over time and to explore how awareness levels and health benefit pairs with impact of behavior and perceptions among consumers and to check the consumption of functional foods among people in order to prevent certain diseases.

Keywords – Functional foods, nutrition, diseases, overcoming the hindrances

1. INTRODUCTION

"Functional foods" can be defined as foods and food components that may provide benefits beyond basic nutrition. Functional foods include a wide variety of foods and food components believed to improve overall health and well-being, reduce the risk of specific diseases, or minimize the effects of other health concerns. These foods include, for example, the naturally healthful components in fruits and vegetables, whole grains and fiber in certain breads and cereals, calcium in milk, and fortified foods and beverages such as vitamin D fortified milk. Functional foods, in its broadest definition, can also include dietary supplements [1].

In 2009, the American Dietetic Association (ADA) released a position paper where functional foods were similarly defined as foods that "provide additional health benefits that may reduce disease risk and/or promote optimal health" [2]. The Institute of Medicine's Food and Nutrition Board (IOM/FNB, 1994) defined functional foods as "any food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains [3].

The term functional foods was first introduced in Japan in the mid-1980s and refers to processed foods containing ingredients that aid specific bodily functions in addition to being nutritious. To date, Japan is the only country that has formulated a specific regulatory approval process for functional foods. Known as Foods for Specified Health Use (FOSHU), these foods are eligible to bear a seal of approval from the Japanese Ministry of Health and Welfare. Currently, 100 products are licensed as FOSHU foods in Japan [3].

Although familiar in the western society, the term 'functional food' is still novel to the Sri Lankan context. But we can observe an emerging trend regarding functional foods in our society. Therefore this research survey was designed to study the increasing attention among people on functional foods, their knowledge on them, the role of functional foods in disease prevention and health promotion and to identify the hindrances faced by people in reaching required functional foods.

The outcome generated from this study shows how advance the functional foods have influenced the society. The knowledge acquired from the study contributes to the fact that functional foods have to be made available with much consumer acceptability in order to provide their optimum impact on the Sri Lankan society.

2. METHODOLOGY

The data about nutrition and food patterns among people in the Colombo district were to be recorded and analyzed to enhance the food patterns among people following the term "functional foods" or in other terms consumption of foods that will provide a health benefit.

The universe of the study is composed of general public from various locations such as supermarkets, hospitals, pharmacies, schools, universities, offices and in other public places within the Colombo city limit. The sample of the study is composed of 198 randomly assigned individuals aged 18 or more who volunteered to participate in the study.

The study was designed with a general survey model and carried out in March 2014. The survey instrument used to collect data was a questionnaire, which included series of open ended questions and questions with responses where respondents were asked to rate specific responses in related to knowledge on nutrition, common food habits, hindrances to reach the required nutrition, usage of additional food as nutrition supplements, health benefits gained through those additional foods and suggestions to provide nutritional food to all.

The questionnaire was validated by conducting a pilot study prior to the sampling survey. The public survey we carried out including the above mentioned facts provided us with a reliable amount of data to conduct the data analysis. Data were weighted by basic categories such as gender, age, education level and monthly income level.

Gathered data were analyzed by using the Statistical Package Social Sciences (SPSS).

3. RESULTS

Totally 198 questionnaires were filled and at the beginning of the analysis they were divided into two groups based on the disease category selected under D2. In this separation 183 came under 1-6 category & only 15 came under other category. So, we conducted the in depth analysis based on the major category which included 183 data sets. At the same time important factors in the other 15 were also observed and reported.

Demographic features of sampling group:

55.7% respondents were females and 41% respondents were males. Among participants 55.7% belonged to the age of 18-34 years, 30.6% were between the age of 35-54 years and 12.6% belonged to the 55+ category. Most of the individuals (54.1%) are above advanced level qualified and 12%, 32.2% are below and up to advanced level respectively. The marital status of the respondents was divided almost equally among the two categories. It was found that 38.8% of respondents were getting a monthly income of Rs. 40 000 while 24.6% above Rs. 40 000, and 21.9% were dependents without direct individual income. Among the sample 25 people did not responded for income and hence excluded in income categorization. As a whole there were few missing values among the collected data.

Nutritional knowledge:

In this study it was found that most of the people are not very knowledgeable in the area of nutrition. Only 15.8% of the respondents found to be have knowledge on nutrition. Further it was found that the knowledge on nutrition did not have a relationship to basic demographic data.

Sources of nutrition information:

The major sources of nutrition information are shown in Figure 1. As indicated by the results the major information source for general public is media. Even though availability of internet in the country is developed it

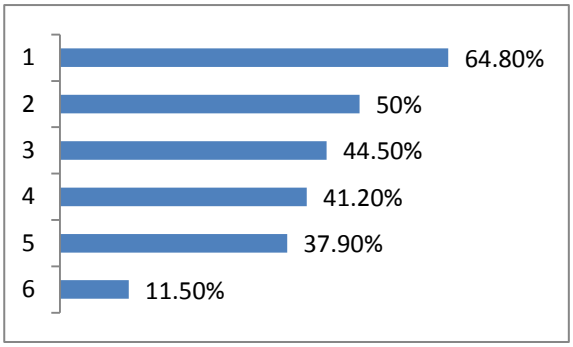

Figure 1: Sources of nutrition information, 1=Media; 2= Resource persons; 3=Family; 4=Internet; 5=Books and magazines; 6= Other sources, n=183

Perspective on the nutrition:

As shown in the Figure 2 we could observe that ¾th of the people get only some of the nutrients required for their good health.

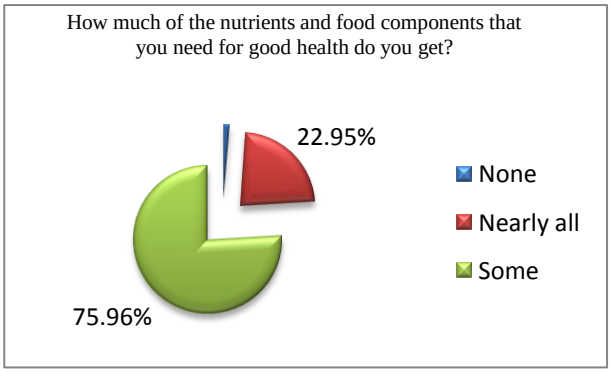

Figure 2: Peoples perspective on nutrition

Common food habits: Among interviewed 183 respondents 84.7% found to be non-vegetarians. The significant relationship (p=0.016) between diet

and gender was found at the level of 5% confidence. Most people (41.3% males & 35.3% females) preferred to have functional foods for their breakfast while least people (13.3% males & 12.7% females) liked to have functional foods for late-night snack. The percentage of both males and females who preferred to include functional food for their dinner was similar.

Attitude over natural and artificial foods:

58% females and 41.7% of males showed their preference to get food components from natural food items. Results showed that no females interviewed in this study disliked natural foods. The people who disliked the idea of getting food components from artificial foods were mostly females (61.7%). When asked for reasons for preferring natural foods, most believed that natural foods are generally more nutritious than artificial foods (61.8%) and natural foods are generally safer than artificial foods (59.5%). Among the other reasons there were views like "there is no doubt about the hygiene and nutritional value of natural foods", "natural foods look pleasant", "fewer amounts of chemicals are included in natural foods", etc. The most preferred reason (45.2%) for selecting artificial foods was the fact that artificial foods are generally more convenient than natural foods. Some others have mentioned that they like artificial foods due to their increased taste.

Hindrances for people to reach the required nutrition:

Under this objective what we tried to investigate was, the barriers faced by consumers when reaching functional foods. The mostly considered hindrance was that functional foods do not taste good. Mismatching with the life style & the packaging method of functional foods were among the least affected barriers (Figure 3).

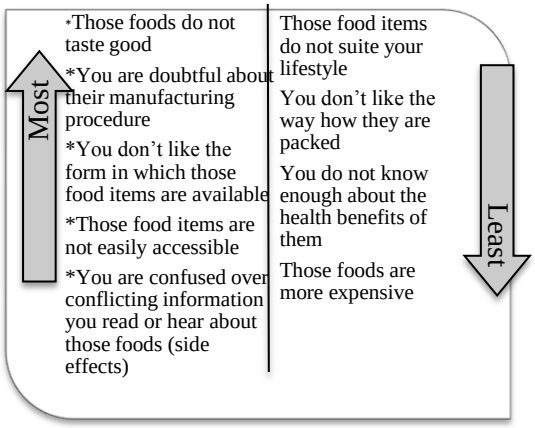

Figure 3: Hindrance factors to reach the required nutrition

Usage of additional food as nutrition supplements:

The first thing we checked here was the agreement of the respondents on the statement "Certain foods (Functional Foods) provide health benefits beyond basic nutrition". 82.5% of the respondents agreed with this statement. When considering the low percentage of respondents who had a very good knowledge about nutrition this seems to be a positive trend. Therefore it is obvious that majority of the people believe that certain foods can provide something beyond basic nutrition. Results further indicated that the agreement for this statement depends on the gender at 5% level of confidence ($p = 0.042$).

Attitudes over the foods with functional value:

Respondents were asked for the foods that provide functional benefits. In this we gave a list of foods and asked the respondents to prioritize them. Vegetables, fruits & green leaves were the most concerned in order while tea/green tea was least concerned. The results were summarized in the Figure 4.

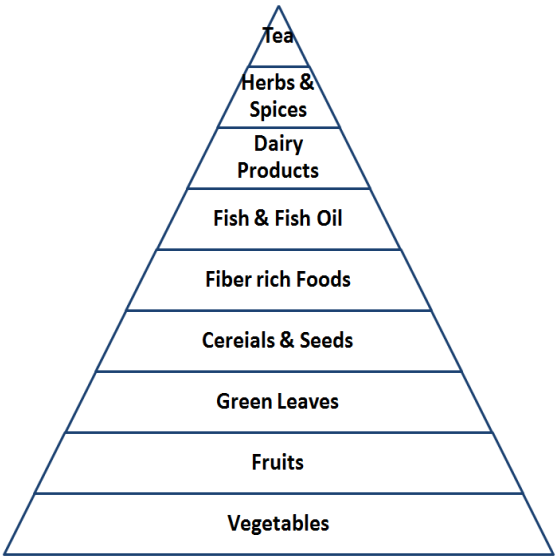

Figure 4: Scaling of foods with functional properties

Respondents were asked for the purpose of consuming functional foods. The reason selected by most people (114) was "These foods can make a meaningful impact on my health when I consume them" and the next important reason was "Health benefits of these foods provide a compelling reason to consume them more often". Apart from the reasons mentioned in the questionnaire, there were some other reasons given by the respondents. Those were less cost, less chemical usage and natural taste.

The next task we did with relative to this objective was to determine the purpose of consuming functional foods. The reason selected by most people (114) was "These foods can make a meaningful impact on my health when I consume them" and the next important reason was "Health benefits of these foods provide a compelling reason to consume them more often". Apart from the reasons mentioned in the questionnaire, there were some other reasons given by the respondents. Those were less cost, less chemical usage and natural taste.

Health benefits gained through additional foods:

Within this objective what we investigated at the very beginning was the types of diseases present among the respondents. Basically we looked for six commonly found diseases. The results were 28 having gastrointestinal diseases, 26 having Obesity, 16 having cardiovascular diseases, 15 having diabetes, 7 having osteoporosis and 2 having cancer. So, mostly common disease among the respondents was gastrointestinal diseases. Apart from this, when checked for the separated 15 questionnaires, we could found that they had diseases like phlegm, migraine, and vision problems. Seven of the other respondents were females and the rest were males.

Next we checked whether the six main diseases have any relationship with the basic demographic categories. Obesity, gastrointestinal diseases & cancer had no relationship with those categories at 5% confidence level. But cardiovascular diseases and osteoporosis had a relationship with age. Their relative p values were 0.000 & 0.002 respectively at 5% confidence level. Most importantly diabetes had most relationships with the basic categories. Those relationships were with gender ($p = 0.011$), age ($p = 0.002$) and education level ($p = 0.037$) at 5% level of confidence.

Then we tried to find out what are the commonly used functional foods for each of the diseases. Green tea was mostly (38.5%) consumed by people having obesity. Barely, Banana, avocado & *Lacia aculeate* (Kohila) were used by a majority having gastrointestinal diseases. Those who had cardiovascular diseases consumed low fat products such as low fat margarine and fish oil (omega 3). Functional foods common among diabetes patients were red rice, kurakkan, bitter gourd, asparagus and olive oil. There were no significant functional foods used by people having osteoporosis and cancer.

As the next step we checked whether those who are consuming functional foods are actually benefited from them. 59.6% of the respondents had said that they are actually benefited from the use of functional foods. This can be taken as a positive factor concerning functional foods and this idea will be useful to promote functional foods among others.

Finally we searched what are the other functional foods used by the respondents apart from those mentioned in the functional food list provided by us. Some of them were eggs, apple, non-fat milk, fish and milk fortified with calcium.

Suggestions to provide nutritional food for all:

In this we investigated the preferences of the people who consume functional foods and how the quality and the nutritional value should change in order to increase the consumption among people.

The result showed that most of the people we surveyed who had obesity consumed green tea. People concerned more about the health benefits of green tea more than its packing and the external appearance. Therefore it suggests taking necessary steps to enhance the nutritional values of green tea.

People who had gastrointestinal disease consume fruits and herbal leaves such as barely, banana, Avocado and Kohila. This indicates the possibility of novel foods containing those components.

Low fat products such as low fat margarine and fish oil (omega 3) and bitter gourd were consumed by people who suffered from cardiovascular disease. So there is chance to promote process foods with a low healthy fat amount people with cardiovascular diseases.

Most people who had diabetes consumed food with low sugar such as red rice and kurakkan, a notable number of people (who had diabetes) consumed bitter gourd, olive oil and asparagus. It is necessary to promote the consumption of these food items, specially kurakkan and red rice among the society regardless of the disease condition. Also for the people who don't like the taste and their natural state, we should process foods with a better quality and a taste which will attract the younger generation as well.

Most respondents who had osteoporosis consumed foods such as bitter gourd, maize, kathurumurunga. Food items containing components of these foods will attract the people suffering from osteoporosis.

4. CONCLUSION

Based on the results it can be suggested that the knowledge on nutrition among people is not up to a considerable level. Results indicated the high population of non vegetarians. Therefore following two recommendations could be given:

1. To increase the nutritional value of vegetarian foods and also to gain the same proteins through some added food components;
2. To promote the consumption of healthy non vegetarian foods. Finally it can be concluded that functional foods should be promoted among the people.

5. REFERENCES

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