



The Smart Food Choice: A Study on the influence of Front of Package Nutritional label on the perceptions and buying behavior of Consumers

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ABSTRACT

India is the world's second largest producer of food next to China and has potential of being the biggest with food and agriculture sector. The Food Processing industry is the 5th largest industry in India in terms of production, consumption, export and expected growth. Among the various sectors of Food Processing industry, ready to eat food product industry is growing at the fastest pace of 30 % p.a. There are nearly 100 international, national and local players already operating in industry and equal numbers of players are likely to enter in the market in coming years due to its huge growth potential. Ready to eat food products being product of low involvement category, a little differentiation exists among the product produced by various players of the industry so to differentiate their products companies make use of various marketing tools. One of the most prominent tools used in the industry is packaging. The companies make use of various packaging elements to differentiate their products. This study is undertaken to analyze the influence of Nutritional labels like free from trans fat and cholesterol provided on the packages of Namkeens on the perceptions and buying behavior of consumers of Rajkot. To attain the aim of study, a sample of 200 respondents was taken. The research paper is structured into five sections. The first section focuses on the introductory part of the paper. It highlights the international, national and local scenario of Food processing industry. The second section focuses on the aspects like definition of Packaged food, importance and role of packaging in the category and main objectives of the study. The third section discusses the previous studies parallel to the current study. It also highlights how the current study is different from the previous studies. The fourth section reveals how the research has been undertaken. The last section i.e. fifth section narrates the findings of the paper, limitations of the study, policy recommendations and concluding remarks.

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Introduction

International, National and Local Scenario of Food Processing Industry

Global Processed Food Industry

According to Food Agricultural Organization (FAO), Food processing can be defined as the process that encompasses all the steps that food goes through from the time it is harvested to the time it arrives on consumer's plate. The size of global processed food industry is estimated to be valued around at US \$ 3.6 trillion and accounts for three-fourth of the global food sales.¹ Despite its large size, only 6% of processed foods are traded across borders compared to 16% of major bulk agricultural commodities. United States of America (USA) is the single largest consumer of processed food and accounts for 31% of the global sales. This is because as countries develop, high quality and value-added processed food such as convenience food is preferred over staples, which are prevalent in less developed economies. Over 60% of total retail processed food sales in the world are accounted by U.S.A, European Union and Japan taken together. Japan is the largest food processing market in the Asian region, though India and China are catching up fast and are likely to grow more rapidly. One of the most technically advanced food-processing industries globally is Australia as the products produced are of international standards and at

comparatively lower prices. The share of India in global Food processed industry stands at around 1.6 %. The Ministry of Food Processing Industries has stated in its Vision 2015 that it aims to increase India's share from current level to 3% of world processed food trade.

Indian Processed Food Industry

India has the second largest arable land of 161 million hectares and has the highest acreage under irrigation. Next to China, India is the second largest food producer in the world and has potential to immerge the biggest with food and agriculture sector. The size of food industry in India is estimated to be of Rs. 13, 20,000 crores (US \$ 220 billion) by the end of 2015 and that of processed food industry is estimated to be of Rs. 6, 60,000 crores (US \$ 110 billion) by the end of 2015. The food processing industry is the 5th largest industry in India in terms of production, consumption, export and expected growth. The food processing accounts for about 14% of manufacturing GDP, nearly 13% of India's exports and 6% of total industrial investment and employs about 13 million people directly and 35 million people indirectly.

¹National Skill Development Corporation report, (2010). *Human Resource and Skill Requirements in the Food Processing Sector: Study on mapping of Human Resource Skill Gaps in India till 2022*. New Delhi, India.

The main sectors of the food processing industry are given in the following table:-

Table 1. Main sectors of the Food Processing Industry

Sectors	Products
Fruits & Vegetables	Beverages, Juices, Concentrates, Pulpes, Slices, Frozen & Dehydrated products, Potato Wafers/Chips etc.
Grains & Cereals	Flour, Bakeries, Starch Glucose, Cornflakes, Malted foods, Beer and Malt extracts, Vermicelli, Grain based alcohol
Fisheries	Frozen & Canned products mainly in fresh form
Diary	Whole Milk Powder, Skimmed milk powder, Condensed milk, Ice cream, Butter, Ghee & Cheese
Meat & Poultry	Frozen and packed – mainly in fresh form, Egg powder
Consumer Foods	Snacks, Namkeens, Biscuits, Alcoholic and Non alcoholic beverages

(Source:- Ministry of food processing India, Annual Report 2013)

Food processing industry in Rajkot

Since 2000's and more recently the food processing sector has witnessed corporatization in big way. Rajkot is the fourth largest city in the state of Gujarat (India) after Ahmedabad, Surat and vadodara.² It is world's 22nd fastest growing city. With the amalgamation of vast rural areas Rajkot has become the 23rd largest urban agglomeration in India with population of more than 3.7 million as of 2013. Due to this a huge demand especially of food products has emerged. To meet the demand supply gap, there is a big rise in private food processing units. Some of the prominent private players of packaged food industry operating at national level from Rajkot include Balaji wafers (p). Ltd, Gopal Namkeen, Radhe Namkeen, Atop Namkeen etc. Besides above there are nearly 300 small and micro units already operating at the district level. Among these, Balaji wafers is competing with international players with turnover of more than Rs. 1000 crores p.a.

Definition of Packaged food and its various segments:-

Packaged foods can be defined as those foods that are wrapped or stored in container and could be shipped to another place without any damage or destruction. They can be eaten immediately or after adding water or other product, heating or thawing. They are usually partially prepared or completely prepared. Packaged foods are also known as convenience foods because of ease of consumption. Packaged food is wide term that encompasses the various products across the different sectors of food processing industry. In broader terms, the packaged food / convenience food could be basically classified into two categories:-

Shelf stable convenience foods are further classified as:-

Ready to cook foods – e.g. instant mixes like cake mixes, gulab-jamun mix, falooda mix, ice cream mix etc., pasta products like noodles, macaroni, vermicelli etc. Ready to eat foods – e.g. breads, biscuits, buns, ice cream, chips, namkeens etc. Besides above the other general items that come under shelf stable convenience foods include milk, Atta, corn flakes, vegetable and edible oils. Frozen convenience food include fruits & vegetables in frozen form, yogurt etc Packaged food industry is expected to be Rs.91, 000 crores industry by end of 2015. The industry is largely dominated by ready to eat food segment which contributes 90 % of total sales of packaged food industry. Out of various segments of packaged food industry the ready to eat food is growing at the fastest pace of about 30 % p.a.

Packaging and its importance for packaged food industry:

The package is defined as a container which holds, protects and identifies the product throughout its distribution channel (Ampuero & Vila, 2006). It has been found from the recent research that approximately 73% of the products are sold on the self service bases at the point of sale (Silayoi & Speece, 2007). This shows that important cues need to be provided to the consumers at the point of sale so that companies could differentiate their products from the competitors on one hand and could attract and persuade the consumers to buy their products on the other hand. Under these circumstances the packaging would be the most useful tool that may be available for attracting the consumers' attention. This is because unlike other forms of communication which tend to be fleeting, packaging plays a crucial role not only at the point of sale, but also after the actual purchase of the product. The first moment of truth is about obtaining the customers attention and communicating the benefits of the offer. The second moment of truth is about providing the tools the customer needs to experience the benefits when using the product. The packaging is even more important for packaged and ready to eat food products this is because they belong to low involvement category. Low involvement products are basically low priced products with little importance. E.g. impulse purchase categories like namkeens and ice-creams. In these categories, consumers tend to be driven by in-store factors and extrinsic cues (e.g. brand name, packaging etc) to help them to make their decisions as they have neither the desire nor the need to comprehensively investigate and assess all the offerings available to them. Hence, to take advantage of the situation companies often make innovative use of various packaging elements like shape, size, color, labels, position of visual and verbal elements etc. to differentiate their products from competitors and to attract consumers to their products. Nowadays one of the most prominent techniques used by companies to sell their products, like biscuits, wafers, ice-cream, chocolates etc. is the use of nutrition information. Nutrition information on the food packaging mainly includes three things (1) Nutrition facts panel table (2) The ingredient list (3) Nutrition claims. Nutrition claims can be broadly classified in two main categories namely (a) Nutrient content claims (2) Health claims. Nutrient content claims describe specific nutritional attributes of food products e.g. of nutrition content claims include low fat, high fiber, sugar free etc. Health claims on the other hand describes relationships between food or food components and a person's health. Health claims can again be classified as (1) Disease risk reduction and therapeutic claims (e.g. fruits and vegetables may reduce the risk of some cancers). (2) Nutrient function claims (e.g. Vitamin C is important for increasing the immunity of the body). (3) General

Health claims (Health Canada, 2008). By utilizing the concept of nutrition content claims and health claims, today, most of the food companies have developed short labels. These labels are usually printed on the front panel of packages of food products and are usually known as nutrition or health or food labels.

These labels usually describe one of the following things:- health benefits that the product provides, the absence of harmful ingredients and thereby preventing the disease, product recommendation by well known associations etc. The size of these labels usually varies between 1 to 4 words. The well known examples of Nutrition or health labels are "No added Sugar", "Cholesterol Free", "Diabetic Friendly", "Least oil", "Healthy choice", "Nutritionist Recommended" etc. These

²Industries Commissionerate, Government of Gujarat (2013).

labels are usually printed on the front panel of packages of food products.

Objectives of the study:-

The main objectives of the research study are as under:-

- 1) To evaluate how disclosure of nutrition information and nutrient content claims on the packages of packaged food products like biscuit influence the consumers' overall evaluation of selected Packaged food product, perception about the overall nutritional healthiness and disease risk reduction power of the product and consumers purchase intentions & overall attitude towards the product.
- 2) To explore the various consumer reasons for not using the food labels or nutrition information provided on the packages of ready to eat food products.
- 3) To determine various demographic characteristics of respondents influencing the use of nutrition information provided on the packages of ready to eat food products.

Literature Review:-

Food marketing to consumers is wide spread phenomenon. Various researches have been undertaken from time to time to analyze the success of various strategies that companies had already employed for selling their food products to consumers and for finding still new strategies that could be developed and employed so as to attract still more number of consumers. Some of the researches that served as source of inspiration for the current study are given below:-

(Guthrie, Fox, Cleveland & Welch, 1995) conducted a study to identify the various determinants that could stimulate the use of nutrition information / food label. Researchers found that one of the most influential variable was education level. The higher educated consumers were more conscious of the diet- disease relationship and therefore more eager to use the nutrition information on the food label. Another reason was that since consumers were more educated so they were able to interpret the information and food labels at much faster pace. The other variable was no. of household members living in the consumer's family. Consumers living in family with more members were more likely to use nutrition information as compared to the consumers living in small family or alone. The reason was that in case of more no. of members in family, the no. of persons who will be benefited from the use of nutrition information will be more and so spending extra amount of time and effort in reading, interpreting and using the nutrition information would be worthwhile

(Levy and Fein, 1998) conducted a study to identify the various reasons for which consumers make use of nutrition information. It was found that consumers often make use of nutrition information for one of the following reasons:- to identify the content of specific nutrient, to determine the nutrient composition of serving size, to make decision about whether the product has high or low concentration of a particular nutrient, to assess the validity of any health claim made on the package of the product, to use nutrient contents to make comparisons, to determine the product's nutritive contribution to either meal or dietary intake for the day.

(Kozup, Creyer & Burton, 2003) conducted three experiments to determine the impact of health claims and nutrition information provided on the packages of packaged foods and on restaurant menus. The results indicated that when healthy heart claim (a heart shaped symbol) is provided on the packages of packaged foods and on restaurant menus then due to that information consumers tend to have more favorable attitude toward the product, nutrition attitudes, and purchase intentions

and tend to perceive that the risks of heart disease and stroke would be much lower.

A study was conducted by (Charlton et.al, 2004) to identify the potential sources of information that could provide some background knowledge and information to consumers so as to enable them to interpret the nutrition information of food packages. The main sources of information found from the study were TV, Radio, Magazine articles, Newspaper articles, church, health professionals, advertising, waiting room leaflets etc. Out of these sources, the most trusted source was health professional and least trusted source was advertising.

(Fitzgerald et.al, 2004) suggested that when health claims such as symbol of healthy heart is provided on the restaurant menu items then due to inclusion of such healthy heart claims the consumers find it very easy for locating the healthier options among various options. Moreover, researchers found that inclusion of such healthy heart claims on restaurant menus had a positive influence on nutrition attitude and purchase intentions of consumers and consumers tend to perceive that chances of occurrence of diseases would be much lower if items with such healthy heart claims would be consumed.

(Hwang & Lorenzen, 2008) conducted a study to evaluate the impact of providing nutrition information on restaurant menus. It was found that those items for which precise nutrition information was provided were considered healthy and good by consumers. Moreover, they were likely to order such items for consumption and were even willing to pay more for those items whose nutrition information was provided. Besides this, researchers also tried to find out those components of nutrition information which are considered most important by the consumers. They found out that the most effective nutrition components that consumers considered to be important and useful for evaluating the food items were calories, macronutrients and fats. Fiber content of menu items was not deemed to be of great importance as compared to the other components of nutrition information.

A study was conducted by (Jacobs, 2009) to investigate the adult consumers' understanding regarding the information provided on the packages of food products and to determine whether they use the information on food labels in making their food choices or not. The study was conducted in Northwest province of South Africa. The results of the study indicated that the food choices of the majority of respondents who read the food labels were influenced by the information of the food labels. The main information that consumers often looked in food packages were expiry dates, ingredient list, fat and cholesterol contents. The study also identified the various reasons for which consumers do not read the food labels. Some of the reasons which consumers provided for not using the food labels were limited amount of time, lack of education and nutritional knowledge, selection of products on the basis of taste and price rather than nutritional content of the item.

What distinguishes this study from earlier studies:-

The previous studies undertaken have shown that nutritional labels on the front panel of the packages of food products like as cereals, snacks etc. can be successful in increasing the consumer's attention, recognition and liking for these food products as well as in stimulating the thoughts like chances of heart attack and other related diseases would be much lower if products with these labels are consumed.. But, hardly there was any research that evaluated the impact of using nutritional label like free from transfat and Cholesterol Simultaneously on the packages of packaged food products like Namkeens on the overall perception of consumers about the products healthiness.

Moreover, in all the researches undertaken till date the impacts of nutrition information and labels have been analyzed using 3-dimensional artificial product packages that mock up the real world product packages. But, this is the study that evaluated the nutritional label impact using real world product examples. Furthermore, in the previous studies conducted by other prominent researchers the participants were required to rate 2 items simultaneously (1 with nutritional label / symbol packaging and 1 without nutritional label / symbol packaging) and select the one with better health benefits. But however in our study participants were exposed to 1 item only at a time and as result of this experimental condition the results obtained from the study would be far more accurate ones and would add confidence to the general conclusion that consumers prefer products with nutritional labels/ symbols even in the absence of forced choice situation between the products with and without nutritional labels / symbols. Besides this as per the knowledge of researchers various previous studies have been undertaken in the foreign context. This study is likely to be the first one to evaluate the impact of no added sugar label in Indian and especially in Gujarat context.

Research Methodology:-

v **Target Population:-** Adult consumers of Rajkot

v **Design and Setting:-** The study was undertaken in month of November and December 2014 in the city of Rajkot.

v **Type of Research:-** Descriptive research. Since the aim of the study is to examine and analyze the perceptions, preferences and buying behavior of consumers of Rajkot especially with respect to ready to eat food products.

v **Research Hypothesis:-** The hypothesis tested using the study are:-

I. H_{null 1}:- Consumers would rate the Namkeens with free from transfat and Cholesterol label on the package as nutritionally healthier and more powerful in reducing disease risks as compared to biscuits without such No added sugar on the package. **9586**

II. H_{null 2} :- Premium amount spent by consumers for buying the food products with nutrient content claims like free from transfat and cholesterol on the package is independent of the age of the consumer.

Sampling Plan

i. Samples and their size :-

a) Consumers- 200 adult consumers residing in Rajkot.

b) Products selected for Study:- Namkeens with and without nutritional labels/ symbols on the package,

ii. Sampling Method: - Convenience sampling method was used for study.

v **Sources of Data:-** The research study employed both secondary and primary sources of data. The details are as under:-

a) Primary sources of Data:- Personal Interview, Mall Intercept, Observation

b) Secondary sources of Data:- Rajkot related websites, Leading Magazines and Newspapers, Company Reports, Research papers, books.

Experiment / Study Procedure:-

For conducting the study Namkeens were selected. The main reason for selecting these products was that the packages with nutrition content claims (like free from transfat and cholesterol) and without nutrition content claims were readily available in the market. Namkeens selected for study were of very superior quality and were being manufactured by leading FMCG Companies of Gujarat. Before the experiment took place, participants' oral consent was taken. During the introduction, the interviewer emphasized that there were no right or wrong

answers and that their own opinion was valued the most. Once it was apparent that the respondent has understood the objective of the experiment, then the experiment was conducted formally as follows.

Namkeens: - For conducting a study, an overall sample of 200 adult consumers was considered for the study. Out of this, 100 were asked to rate the Namkeens whose package had no nutrient content claims (like free from transfat and cholesterol) on it. The responses were noted using 5 point likert scale. Another 100 consumers were asked to rate the Namkeens whose package had nutrient content claims (like free from transfat and cholesterol) on it. Again the responses were noted down using 5 point likert scale and results were analyzed using appropriate statistical tests.

Findings of the Study:-

Experiment comprises of mainly three phases or sections. In 1st phase of experiment the impact of nutrient content claims on consumers' general perception, product evaluation, disease risk perception and purchase intention was analyzed. In 2nd phase of experiment the demographic characteristics of the respondents were analyzed. Besides this, the relationship between the various demographic factors of respondents and use of nutrition information was also investigated. In 3rd and final phase of each experiment, the various sources of information which could provide the basic knowledge for interpreting the nutrition information were found out and trust priority index was developed for the same. All the 3 phases of experiments have been discussed as under:

Phase: 1 Analysis of how nutrient content claims like free from transfat and cholesterol provided on the packages of Namkeens influences the consumers' general perception, disease risk perception, product evaluation and purchase intention.

Before starting the experiments formally, a screening question was asked to all the respondents in each experiment. It was asked to each respondent that whether they or their spouse or any household member work in health or health related field or not. Only those respondents who replied negatively to the above asked question were considered for the study while the rest were eliminated from the study.

First thing that was asked to consumers was that besides company and brand name whether they use any other additional information provided on the packages of Namkeens or not. Nearly 71 % (n=142) of respondents replied that they use other information provided on the packages of Namkeens for assisting their product purchases while 29 % (n=58) of respondents replied that they do not use other information except company and product name.

Then, it was asked to those respondents who replied positively to the above question that besides company and product name which information they use from product packages. To this 89 % of respondents replied that they use Nutrition Facts Panel information while purchasing the food products from the market. 80 % of the respondents replied that they use expiry date as well as Nutrition Facts Panel information while purchasing the food products. While 45 % of the respondents replied that they use expiry date, Nutrition

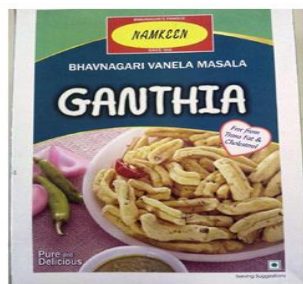
Facts Panel (NFP) information and ingredient list also for assisting the purchase of biscuits. Thus besides company and product name, Nutrition Facts Panel information of the product was the most important information that consumers look at while purchasing biscuits from the Market.

Now the next thing that was analyzed in experiment was the impact of nutrient content claims like free from transfat and

cholesterol on consumers' perception about the healthiness of the product.

In Namkeens experiment the impact of least oil label was analyzed. Now out of 200 consumers, 100 consumers were shown the Namkeens without least oil label on the package. While the other 100 respondents were exposed to the Namkeens with free from transfat and cholesterol label on the package.

Each consumer was asked to rate the Namkeen in terms of nutritional healthiness and its disease risk reduction power. The rating was done simply on the basis of the package of the Namkeens. None of the consumers had been allowed to taste the Namkeens. The responses were noted down using 5 point likert scale. The pictures of the Namkeens are shown below in figure 1.



Namkeen with Free from Transfat & Cholesterol label



Namkeen without Free from Transfat & Cholesterol Label

Related to impact of least oil label on the consumers perception about the healthiness of the product and its disease risk reduction power the following hypothesis was developed and tested

I. Hnull 1 :- Consumers would rate the Namkeens with free from transfat and cholesterol label on the package as nutritionally healthier and more powerful in reducing disease risks as compared to Namkeens without least oil label on the package.

II. Halter 1 :- Consumers would rate the Namkeens with free from transfat and cholesterol label on the package as nutritionally healthier and more powerful in reducing disease risks as compared to Namkeens without least oil label on the package.

The responses of consumers were served as data for testing the above hypothesis. The resultant data was analyzed using z test of independent samples. The value of alpha was assumed to be 0.01. The analysis showed that consumers of Rajkot rated the Namkeens with least oil label as nutritionally healthier and more powerful in reducing disease risk as compared to the biscuits without such labels.

In next step it was asked to the respondents that whether they agree with the opinion that the assessment of the overall healthiness of the food product would become much easier and simpler if nutrient content claims or health claims were directly provided on the front of the package by way of symbol like healthy heart symbol or by way of labels like sugar free or cholesterol free label or not. To this 64% of the respondents replied that they would strongly agree with such suggestion or opinion. 14 % of the respondents replied that they would agree to such suggestion to some extent. 12 % had neutral stance. 8 % of the respondents disagreed with such opinion. While 2 % of the respondent from both the experiment replied that they would totally disagree with such suggestion or opinion

In next step of phase experiments it was asked to respondents that how much premium price they would be willing to pay if same product is available with features like free from transfat and cholesterol version. Out of 200 respondents,

34 (n=34) respondents agreed to buy the item with free from transfat and cholesterol features if and only if premium price lies within Rs. 5. Total 41 respondents agreed to buy the item with such features even if premium price falls within range of Rs.6-10. 38 respondents agreed to buy the food item with sugar free label even if the price lies in the range of Rs.11-15. Again 33 respondents were such that who agreed to buy the food item with transfat free or cholesterol free label even if the premium price falls within the range of Rs. 16-20. While remaining 54 respondents were such who agreed to buy the food item even if the premium price is above Rs. 20.

Lastly in phase 1 it was asked to the respondents to provide appropriate reason for not using the nutrition information of the food packages. This question was specifically asked only to those respondents who did not use nutrition information while purchasing the food products. Among those respondents, 33 % replied that they do not use nutrition information of food packages as it is very time consuming task. 22 % of respondents said that for them price is more important than nutrition information and so they would not pay any attention to nutrition information. 17% of respondents said that for them taste is more important than price and nutrition information and so they would buy the item readily without reading the nutrition information if it seems tasty to them. 13% said that they do not use nutrition information as they lack sufficient knowledge. 7 % said that they do not read nutrition information as they lack interest for such things. They considered reading the nutrition information as completely useless task. While 8 % of the respondents said that they do not read the nutrition information of food packages as they find the size of the fonts of nutrition information to be too small to read and hence they avoid using nutrition information.

Phase: 2 Analysis of the relationship between the various demographic characteristics of the respondents and use of nutrition information of the product packages.

The various demographic characteristics of the respondents that were analyzed were age, gender, highest education level, primary grocer status, no. of household members and disease condition of the respondent.

The relationship between the various demographic characteristics of the respondents and the use of nutrition information of product packages for both the experiments is shown in the following table.

Table 4. Cross tabulation of use of nutrition information of the product packages versus Gender of consumer, Age of consumer, Highest education level of consumer, being primary grocer, No of household members and diseases condition of consumer

Demographic Factor		Total		
		T _v	T _N	T
Gender	Male	42(46%)	50(54%)	92
	Female	72(66%)	36(34%)	108
	Total			200
Age	18-40 Yrs	34(40%)	50(60%)	84
	41-62 Yrs	47(68%)	23(32%)	70
	>62 Yrs	35(76%)	11(24%)	46
	Total			200
Highest Education Level	10 th grade	5(20%)	20(80%)	25
	12 th grade	7(28%)	19(72%)	26
	Graduate	76(62%)	46(38%)	122
	PG	17(74%)	6(62%)	23
	Other	3(75%)	1(25%)	4
	Total			200
Primary Grocer	Yes	79(59 %)	54(41%)	133
	No	34(54%)	23 (46%)	67
	Total			200

Number of members in household	One	8(29%)	15(71%)	23
	Two	9(60%)	6(40%)	15
	Three	26(62%)	16(38%)	42
	Four	44(59%)	30 (41%)	74
	Five	14(63%)	8 (37%)	22
	Six or>	13(64%)	11(36%)	24
	Total			200
Disease condition of consumer	Diabetes	11 (73%)	4 (27%)	15
	BP	17 (77%)	5(23%)	22
	Obesity	19(74%)	8(26%)	27
	Others	8(56%)	5(44%)	13
	No disease	70 (57%)	53 (43%)	123
	Total			200

Here:- No. of persons(% of total respondents)

T_Y = total no. of respondents who used nutrition information.

T_N = total no. of respondents who did not use nutrition information.

T = total no. of respondents

From the above table following things can be concluded.

Out of 200, total no. of female respondents who utilized nutrition information for assisting their purchases was 72 while the total no. of male respondents was 42. Thus female respondents are more likely to use nutrition information as compared to male respondents.

Age variable: Out of 200, 34 respondents who use nutrition information were having the age in range of 18-40 years. 47 respondents who utilized nutrition information were having the age in range of 41-62.

While 35 respondents who used nutrition information were having the age above 62. Thus majority of the respondents who use nutrition information while purchasing the food products were having the age in the range of 41-62 years.

Highest level of Education: The education levels of the various respondents who use nutrition information while purchasing the food products are as under:- Out of 200, 122 respondents were graduates, 23 were post graduates, 26 were 12th grade pass and 25 were 10th grade pass. Thus more educated a consumer would be, he / she would be more likely to read the nutrition information of the food packages.

Primary grocer status: Out of 200 respondents, 79 consumers who utilized nutrition information were primary grocers while 34 were other than primary grocers. Thus primary grocer would be more likely to pay more attention to the nutrition information of the food packages.

No. of house hold members: In terms of no. of house hold members, 44 respondents who used nutrition information were having 4 members in the household, 26 respondents were having 3 members in the household, 27 respondents were having 5, 6 or more members in the household ,8 respondents were living alone and 9 respondents were having 2 members in the household . Thus a shopper with more members in the house hold is likely to pay more attention to the nutrition information on the package.

Finally in phase 2 of the study the following hypothesis was developed and tested.

i. Hnull 3 :- Premium amount spent by consumers for buying the food products with nutrient content claims like free from transfat and cholesterol on the package is independent of the age of the consumer.

ii. Halter 3 :- Premium amount spent by consumers for buying the food products with nutrient content claims like free from transfat and cholesterol on the package is not independent of the age of the consumer.

The above hypothesis was tested using chi square goodness of fit test with following contingency table.

Table 5. Contingency table for hypothesis testing

		Premium amount spent by the consumers for buying the food products with nutrient content claims like free from transfat and cholesterol label				
		Rs. 0-5	Rs. 6 - 10	Rs.11 - 15	Rs.16 - 20	> Rs. 20
Age of the respondents (No. of persons)	18-40 years	19	18	18	14	15
	41-62 years	10	15	14	12	19
	Above 62 years	5	8	6	7	20

The alpha was assumed to be 0.01.

The results suggested that the two variables namely age of the respondent and the premium amount spent by the consumers for buying the food item with sugar free label / cholesterol free labels were completely independent.

Phase:3 Analysis of various sources of information that could provide the basic knowledge for interpreting the nutrition information provided on the packages of the food products.

In last phase of each experiment the respondents were asked to rank the following sources of information which could provide the basic knowledge for interpreting the nutrition information and which they think would be most trusted one. Here rank 1 was provided to the most trusted source of information and rank 5 was allocated to the least trusted source of information. The various sources of information are as under:

- Newspaper articles / Magazine articles.
- Family members / friends.
- TV advertising / Radio advertising.
- Health professional / Dietician / Family Doctor.
- Internet.

The responses were recorded and revealed that out of 200 respondents, 81 % of respondents allocated rank 1 to health professionals while 70 % allocated rank 2 to family members / friends. The combined trust priority index table for sources of information is shown below:

Table 6. Sources of information in order of trust

Name of source of information	Rank Allocated
Health professionals / Dietician / Family Doctor	1
Family / Friends	2
Newspaper articles / Magazine articles	3
TV advertising / Radio advertising	4
Internet	5

Limitations of the study:-

(a) The study evaluated the impact of only one type of labels or claims. The same study could be extended further for other types of labels or claims (b) The study evaluated the impact of relatively well known nutrient content claims like free from transfat and cholesterol. These claims are clearly important because of its link to diet and the number of people who die each year because of diabetes and cardiac related diseases. The results would have been completely different if effects of lesser known health claims such „Calcium reduces the risk of osteoporosis“ would have been evaluated. or claims. (c) The selected group of products and number of consumers sampled limit the degree to which these findings can be generalized. (d) The study evaluated the impact of nutrition labels only one product namely Namkeens But same impact could be evaluated for other products like cheese; edible oils etc .whose packages also incorporate such nutritional labels. (e) The study evaluated the impact of only one packaging cue namely use of nutritional symbols or labels but the impact of other packaging cues like color, shape etc. used for selling the products targeted to general public could also be assessed. (f) The product- label combination used in the study was already available in the

market hence any previous food or label association bias might have influenced the results of the study.

Regardless of the above mentioned limitations the study is likely to be the first one in Indian and especially in Gujarat context to document the findings on impact of using nutrient content claims for selling the food products targeted to the general public.

Suggestions and Concluding remarks:-

The findings of the study indicate that consumers often give much importance to cholesterol content, fat content, carbohydrate content (sugars) and saturated fat content. Hence, these specific components of Nutrition Facts panel should be highlighted on the front of the packages by using multiple traffic light labels as shown below. Such use of multiple traffic light labels would directly grab the customer's attention and would make customers feel that product is comparatively more healthy.

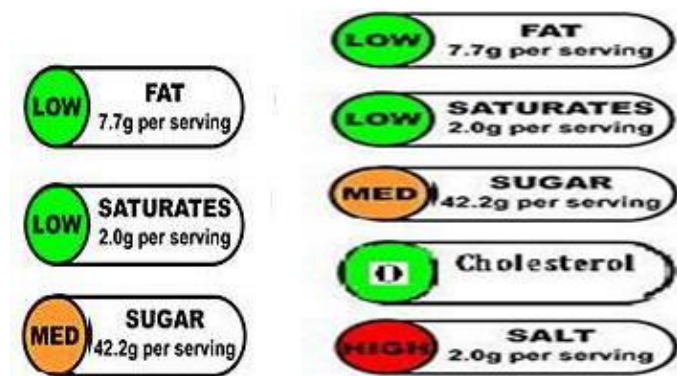


Fig 3. Examples of Multiple traffic light labels that could be used at the front of the packaging of food products .

The findings of the study indicate that often perceive the products with labels like free from transfat and cholesterol as comparatively more healthy so wherever possible if company has no sugar or no cholesterol content in its food products then the company should highlight it by means of labels. Similarly if product has high content of fibers or low fat and such similar good features then it should be highlighted by using short labels like low fat, high fiber etc on the front of packages of the food products.

The findings revealed that most of the people would trust the information related to nutrition, if it is provided by health professionals/ Dieticians / Family Doctors. This suggests that companies should make these individuals aware about the company's healthy and nutritious products and should urge these professionals to disseminate the same information about the company's products to the patients or clients. Moreover incentives should be provided to these professional for promoting the products.

The research suggests that consumers who were likely to use nutritional information for guiding their product purchases were likely to be (1) female consumers, (2) most probably of above 40 years of age, (3) highly educated, (4) tend to be primary grocer, (5) likely to have 4 or more members in the household. This tentative profile of the consumer could be used in designing the TV advertisements of FMCG companies especially ready to eat food products selling companies. For e.g. a company could develop a TV advertisement featuring a highly educated female consumer of above 40 years of age going for shopping with her family members and purchasing the company's product and recommending to her family members for purchasing the same product next time as it is highly healthy

from nutritional point of view and has distinguishing features like low fat, zero cholesterol, no sugar etc.

The findings of the study indicate that two variables namely (1) the premium amount spent by the consumers for purchasing the food products with nutrient content claim (like sugar free label / cholesterol free label) and (2) the age of the consumer are totally independent. Hence one cannot presume that since old people tend to be more health conscious so they would be ready to pay more premium amount for buying the food products with features like sugar free or cholesterol free. Similarly one cannot also presume that since young people tend to be somewhat more healthy hence would be less lenient in spending the premium amount for buying the food item with nutrient content claims like sugar free or cholesterol free labels. The two variables are completely independent. The reasons for this could be changing lifestyles, increasing health consciousness, increased occurrence of diseases like obesity, blood pressure etc. at earlier stages of life, availability of wide range of products, significant increase in per capita incomes of the people etc.

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