NUTRITIONAL INFORMATION AND NUTRITION CLAIMS ON PRE-PACKAGED FOOD: CONSUMER AWARENESS AND IMPACT ON PURCHASE DECISIONS

A THESIS

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BY

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UNDER THE GUIDANCE OF

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June 2021

Annexure III

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Undertaking

I, **Anubhuti Gopal,** a PhD scholar of the Tilak Maharashtra Vidyapeeth in **Management** subject, thesis entitled '**Nutritional Information and Nutrition claims on Pre-packaged Food: Consumer Awareness and Impact on Purchase Decisions'** under the supervision of **Dr. Suresh Abhyankar**, solemnly affirm that the thesis submitted by me is my own work. I have not copied it from any source. I have gone through extensive review of literature of the related published / unpublished research works and the use of such references made has been acknowledged in my thesis. The title and the content of research is original. I understand that, in case of any complaint especially plagiarism, regarding my Ph.D. research from any party, I have to go through the enquiry procedure as decided by the Vidyapeeth at any point of time. I understand that, if my Ph.D. thesis (or part of it) is found duplicate at any point of time, my research degree will be withdrawn and in such circumstances, I will be solely responsible and liable for any consequences arises thereby. I will not hold the TMV, Pune responsible and liable in any case.

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Annexure IV

CERTIFICATE OF THE SUPERVISOR

It is certified that work entitled **'Nutritional Information and Nutrition claims on Pre-packaged Food: Consumer Awareness and Impact on Purchase Decisions'** is an original research work done by **Ms. Anubhuti Gopal** under my supervision for the degree of **Doctor of Philosophy in Management** to be awarded by **Tilak Maharashtra Vidyapeeth, Pune**. To best of my knowledge this thesis

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Dr. Suresh Abhyankar

Signature of the Supervisor

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Abstract

Consumers rely on various resources to collect information about the foods they buy. These resources include their own experiences, family members, friends, media and advertisements that help them in deciding which food products to purchase. Another source especially for pre packaged food items is the information provided on the pack about the ingredients and the nutritional values of various components present in the food item. Consumer awareness regarding nutritional information, their comprehension levels about the information on the panel and the use of this information affecting consumers' food purchase decisions are predominantly pertinent questions especially in times when various lifestyle-related health risk factors are claiming lives.

The study sought answers to questions on awareness, understanding and usage of the nutrition information by customers. The aim of the study was also to understand if a person with some specific health issues is cognizant of the information related to nutrients before choosing what to buy for oneself and one's family. The research was conducted on a sample consisting of 789 respondents comprising a heterogeneous mix of different demographic sections residing in the estern suburbs of Mumbai (from Andheri to Dahisar), Maharashtra, India. The results of the study led to conclusive evidence that in the present times, customers are pretty conscious towards their health and make their food purchases after evaluating various factors, nutrition information being one of such aspects.

Consumers, who are dealing with one or more lifestyle related health issues that are known to have a direct connection with the food intake, judiciously use the information provided on the nutrition information panels and base their purchase on the outcome of evaluating such information. At the same time, consumers who do not have any specific issue related to health, are also aware and enlightened regarding how the information provided on food labels about the nutrients present in the food, is to be understood and used while taking informed decisions leading to purchase of pre packaged food products.

Table of Contents

Chapter	Description	Page No.
1	**Introduction**	
1.1	Research Theme	1
1.2	Nutrition	4
1.2.1	Nutrition-Suggestions and Implications	5
1.2.2	Dietary Facts and Information	8
1.2.3	Nutrition Information Panels	9
1.2.4	Nutritional Claims	14
1.2.5	Health Claims by Food companies	16
1.3	Pre-Packaged Food	27
1.3.1	Meaning of Pre Packaged food	27
1.3.2	Pre-packaged Snacks	28
1.3.3	Pre packaged food industry in India	28
1.4	Lifestyle related health risks and their relationship with diet	30
1.4.1	Nutrition and Overweight and Obesity	31
1.4.2	Nutrition and High Blood Pressure	34
1.4.3	Nutrition and High Blood Cholesterol/Heart disease	35
1.4.4	Nutrition and High Blood Sugar	36
1.4.5	Nutrition and Allergy	37
1.5	Consumer Behaviour	38
1.5.1	Consumer	38
1.5.2	Consumer Buying Decision	39
1.6	Significance of the Study	47
1.7	Statement of the Problem	47
1.7.1	Need for the Study	47

Table of Contents

Continued…

Chapter	Description	Page No.
1.8	Research Questions	48
1.9	Objectives of the Study	48
1.10	Hypotheses of the Study	49
1.11	Scope of the Study	51
1.12	Limitations of the Study	51
1.13	Factors Influencing the purchase of food products	52
2	**Review of Literature**	
2.1	Consumer Behaviour for food products	62
2.2	Consumer awareness about usage of food labels and Nutrition Information	63
2.3	Nutrition and lifestyle related diseases	76
2.4	Conclusion	87
3	**Research Methodology**	
3.1	Conceptual Framework	89
3.2	Research Design	91
3.2.1	Population and Sample Size	91
3.2.2	Tools for Data Collection	97
3.2.3	Data Analysis	99
4	**Data Analysis and Interpretation**	
4.1	Cronbach's Alpha	101
4.2	Survey Findings	106
4.3	Hypotheses Testing	202
4.4	Conclusion	217
5	**Conclusions, Suggestions and Scope of the Study**	
5.1	Findings of the Study	218

Table of Contents

Continued…

5.2	Conclusions of the Study	223
5.3	Suggestions	224
5.4	Scope for further research	226

List of Tables

Table	Description	Page No.
3.1	Z scores for desired Confidence Levels	95
3.2	Population of Western Suburbs of Mumbai from Andheri to Dahisar	95
3.3	Survey Questionnaire Details	98
3.4	Data Analysis and Collection Tools	99
4.1	Respondents by Age	106
4.2	Respondents by Gender	107
4.3	Respondents by Educational Qualifications	108
4.4	Respondents by Marital Status	109
4.5	Respondents by Occupation	110
4.6	Respondents by Monthly Family Income	111
4.7	Respondents by Food Preference	112
4.8	Respondents by Family Type	112
4.9a	Awareness about Information on pre-packaged foods- Brand Name	113
4.9b	Awareness about Information on pre-packaged foods- Calorie Content	113
4.9c	Awareness about Information on pre-packaged foods- Nutrient Information	113
4.9d	Awareness about Information on pre-packaged foods- Food additives/Preservatives	114
4.9e	Awareness about Information on pre-packaged foods-Specific Ingredients	114
4.9f	Awareness about Information on pre-packaged foods-Nutrition/Health Claims	114
4.9g	Awareness about Information on pre-packaged foods- Place of Manufacturing	115

List of Tables

…Continued

Table	Description	Page No.
4.9h	Awareness about Information on pre-packaged foods-Certifications	115
4.9i	Awareness about Information on pre-packaged foods-Marketed by	115
4.9j	Awareness about Information on pre-packaged foods- Veg/Non-Veg Indication	116
4.9k	Awareness about Information on pre-packaged foods-Salt Content	116
4.9l	Awareness about Information on pre-packaged foods- Best Before/Expiry Date	116
4.9m	Awareness about Information on pre-packaged foods- Manufacturing Date	117
4.10a	Information that customers look for on pre-packaged foods- Brand Name	121
4.10b	Information that customers look for on pre-packaged foods- Calorie Content	121
4.10c	Information that customers look for on pre-packaged foods- Nutrient Information	121
4.10d	Information that customers look for on pre-packaged foods- Food additives/Preservatives	122
4.10e	Information that customers look for on pre-packaged foods-Specific Ingredients	122
4.10f	Information that customers look for on pre-packaged foods-Nutrition/Health Claims	122
4.10g	Information that customers look for on pre-packaged foods- Place of Manufacturing	123
4.10h	Information that customers look for on pre-packaged foods-Certifications	123
4.10i	Information that customers look for on pre-packaged foods-Marketed by	123

List of Tables

…Continued

Table	Description	Page No.
4.10j	Information that customers look for on pre-packaged foods- Veg/Non-Veg Indication	124
4.10k	Information that customers look for on pre-packaged foods-Salt Content	124
4.10l	Information that customers look for on pre-packaged foods- Best Before/Expiry Date	124
4.10m	Information that customers look for on pre-packaged foods- Manufacturing Date	125
4.11a	Importance of Information while shopping: Taste	129
4.11b	Importance of Information while shopping: Price	129
4.11c	Importance of Information while shopping: Best Before Date	129
4.11d	Importance of Information while shopping: Manufacturing Date	129
4.11e	Importance of Information while shopping: Calorie Content	130
4.11f	Importance of Information while shopping: Nutritional Content/Ingredients	130
4.11g	Importance of Information while shopping: Recommendations by Doctor	130
4.11h	Importance of Information while shopping: Advertisement	130
4.11i	Importance of Information while shopping: Nutrition/Health Claims	131
4.11j	Importance of Information while shopping: Place of Manufacturing	131
4.11k	Importance of Information while shopping: Certifications	131
4.11l	Importance of Information while shopping: Presence of Preservatives	131

List of Tables

…Continued

Table	Description	Page No.
4.12	Awareness about Nutritional Information on food packages being mandatory	135
4.13	Looking for Nutritional Information on Food Packages	136
4.14	Age-wise looking for Nutritional Information on Food Packages	137
4.15	Gender-wise looking out Nutritional Information on Food Packages	138
4.16	Educational Qualification-wise looking out for Nutritional Information on Food Packages	139
4.17	Marital Status-wise Looking for Nutritional Information on Food Packages	140
4.18	Employment Status-wise Looking for Nutritional Information on Food Packages	141
4.19	Monthly Family Income-wise Looking for Nutritional Information on Food Packages	142
4.20	Food Preference-wise Looking for Nutritional Information on Food Packages	144
4.21	Family Type-wise Looking for Nutritional Information on Food Packages	145
4.22a	Nutrient looking for on Nutrition Information Panel: Energy	146

List of Tables

…Continued

Table	Description	Page No.
4.22b	Nutrient looking for on Nutrition Information Panel: Fat	146
4.22c	Nutrient looking for on Nutrition Information Panel: Sugars	146
4.22d	Nutrient looking for on Nutrition Information Panel: Vitamins	147
4.22e	Nutrient looking for on Nutrition Information Panel: Minerals	147
4.22f	Nutrient looking for on Nutrition Information Panel: Sodium/Salt	147
4.22g	Nutrient looking for on Nutrition Information Panel: Protein	147
4.22h	Nutrient looking for on Nutrition Information Panel: Fiber	148
4.22i	Nutrient looking for on Nutrition Information Panel: Cholesterol	148
4.23	Understanding Terminology on Nutritional Information Tables	152
4.24	Age-wise Understanding Terminology on Nutritional Information Tables	153
4.25	Gender-wise Understanding Terminology on Nutritional Information Tables	154

List of Tables

…Continued

Table	Description	Page No.
4.26	Educational Qualification-wise Understanding Terminology on Nutritional Information Tables	155
4.27	Marital Status-wise Understanding Terminology on Nutritional Information Tables	156
4.28	Employment Status-wise Understanding Terminology on Nutritional Information Tables	157
4.29	Monthly Family Income-wise Understanding Terminology on Nutritional Information Tables	159
4.30	Food Preference-wise Understanding Terminology on Nutritional Information Tables	161
4.31	Family Type-wise Understanding Terminology on Nutritional Information Tables	162
4.32	Food purchased for whom	163
4.33	Reason for not reading nutritional information	164
4.34	Factors that may lead to reading Nutrition Information	165
4.35	Additional Information on Nutrition Tables	166
4.36	Buying Decision influenced by Nutrition Information	167
4.37	Age-wise Buying Decision influenced by Nutrition Information	168
4.38	Gender-wise Buying Decision influenced by Nutrition Information	169

List of Tables

…Continued

Table	Description	Page No.
4.39	Educational Qualification-wise Buying Decision influenced by Nutrition Information	170
4.40	Marital Status-wise Buying Decision influenced by Nutrition Information	171
4.41	Employment Status-wise Buying Decision influenced by Nutrition Information	172
4.42	Monthly Family Income-wise Buying Decision influenced by Nutrition Information	173
4.43	Food Preference-wise Buying Decision influenced by Nutrition Information	175
4.44	Family Type-wise Buying Decision influenced by Nutrition Information	176
4.45	Influence of Nutrition/Health Claims on Food Purchase Decision	177
4.46	Age-wise Influence of Nutrition/Health Claims on Food Purchase Decision	178
4.47	Gender-wise Influence of Nutrition/Health Claims on Food Purchase Decision	179
4.48	Educational Qualification-wise Influence of Nutrition/Health Claims on Food Purchase Decision	180
4.49	Marital Status-wise Influence of Nutrition/Health Claims on Food Purchase Decision	181

List of Tables

…Continued

Table	Description	Page No.
4.50	Employment Status-wise Influence of Nutrition/Health Claims on Food Purchase Decision	183
4.51	Monthly Family Income-wise Influence of Nutrition/Health Claims on Food Purchase Decision	184
4.52	Food Preference-wise Influence of Nutrition/Health Claims on Food Purchase Decision	186
4.53	Family Type-wise Influence of Nutrition/Health Claims on Food Purchase Decision	187
4.54	Checking genuineness of Claims	188
4.55	Food purchased By	189
4.56	Food purchased from	190
4.57	Health Profile of Self and Family	191
4.58	Consumer awareness about nutrient relationship with health condition	192
4.59	Summary of Hypothesis Testing	202

List of Figures

Figure	Description	Page No.
Figure 1.1	Back of the package labeling of Cadbury's Dairy Milk Silk Miniatures and its Nutritional Information Panel	10
Figure 1.2	Nutritional Information Panel on Naturals Ice Cream 500 g pack	11
Figure 1.3	Nutrition Information on Mapro Kokum Crush	12
Figure 1.4a	McDonalds Tomato Ketchup Sachet	13
Figure 1.4b	Surabhi Mixed Pickle Sachet	13
Figure 1.5	Nutella Farrero ChocoSpread Ingredients and Nutritional Information Panel	13
Figure 1.6	Jindal Cocoa Hazelnut Chocolate Spread Front, Ingredients and Nutritional Information Panel	14
Figure 1.7	Horlicks Front and side panels with nutrition and health claims and the mention of the study on the basis of which the claims are made	18
Figure 1.8	Nutrition Information Panel of Gowardhan Paneer	19
Figure 1.9	Aashirvaad Sugar Release Control Atta Front of the panel, back of the pack and Nutritional Information Panel	20
Figure 1.10	Nutrition Facts Panel and Health Claims on Glucon-D	21
Figure 1.11	Tata Rock Salt Front with nutrition claim and Nutritional Information Table	22
Figure 1.12	Truweight Shake-a-day Front and Nutrition Facts Panel	22
Figure 1.13	Nestle Cerelac Baby Cereal Front of the Pack, Nutrition Information Table and Nutrition Claim	23
Figure 1.14	Wellwoman 50+(supplement) Nutrition Information	24
Figure 1.15	Energy Drink with natural caffeine and vitamins	25

List of Figures

…Continued

Figure	Description	Page No.
Figure 1.16	Rice Bran Oil (contains Oryzanol that diminishes bad cholesterol)	25
Figure 1.17	Fortune Rice Bran Oil (contains Gamma Oryzanol that reduces bad cholesterol and increases good cholesterol)	26
Figure 1.18	Priyagold Biscuit (contains Kalonji, an ingredient that acts as an anti-oxidant and fights cholesterol and blood sugar)	26
Figure 1.19	Madhur Crystal Sugar (contains no sulphur content)	27
Figure 1.20	Black Box Model by Philip Kotler	42
Figure 1.21	Nicosia Model of Consumer Behaviour	44
Figure 1.22	Howard Sheth Model of Consumer Behaviour	45
Figure 1.23	Factors Influencing Food Purchase Decisions	52
Figure 3.1	Conceptual Framework	91
Figure 3.2	Steps of Research	92
Figure 3.3	Respondents for the Study	93
Figure 3.4	Sampling (Population and Sample)	96
Figure 4.1	Respondents by Age (In %)	107
Figure 4.2	Respondents by Gender (In %)	107
Figure 4.3	Respondents by Educational Qualifications	108
Figure 4.4	Respondents by Marital Status	109
Figure 4.5	Respondents by Occupation	110
Figure 4.6	Respondents by Monthly Family Income	111
Figure 4.7	Respondents by Food Preference	112
Figure 4.8	Respondents by Family Type	112
Figure 4.9	Awareness about Information on pre-packaged foods	118

List of Figures

…Continued

Figure	Description	Page No.
Figure 4.10	Information that customers look for on pre packaged food	126
Figure 4.11	Importance of Information while shopping	132
Figure 4.12	Awareness about Nutritional Information on food packages being mandatory	135
Figure 4.13	Looking out for Nutritional Information on food packages	136
Figure 4.14	Age-wise Looking for Nutrition Information on food packages	137
Figure 4.15	Gender-wise Looking for Nutrition Information on food packages	138
Figure 4.16	Educational Qualification-wise Looking for Nutrition Information on food packages	139
Figure 4.17	Marital Status-wise Looking for Nutrition Information on food packages	140
Figure 4.18	Employment Status-wise Looking for Nutrition Information on food packages	141
Figure 4.19	Monthly Family Income-wise Looking for Nutrition Information on food packages	143
Figure 4.20	Food Preference-wise Looking for Nutrition Information on food packages	144
Figure 4.21	Family Type-wise Looking for Nutrition Information on food packages	145
Figure 4.22	Nutrient Looking for on Nutrition Information Panel	146
Figure 4.23	Understanding Terminology on Nutrition Information Tables	152
Figure 4.24	Age-wise Understanding Terminology on Nutrition Information Tables	153

List of Figures

…Continued

Figure	Description	Page No.
Figure 4.25	Gender-wise Understanding Terminology on Nutrition Information Tables	154
Figure 4.26	Educational Qualification-wise Understanding Terminology on Nutrition Information Tables	155
Figure 4.27	Marital Status-wise Understanding Terminology on Nutrition Information Tables	156
Figure 4.28	Employment Status-wise Understanding Terminology on Nutrition Information Tables	158
Figure 4.29	Monthly Family Income-wise Understanding Terminology on Nutrition Information Tables	160
Figure 4.30	Food Preference-wise Understanding Terminology on Nutrition Information Tables	161
Figure 4.31	Family Type-wise Understanding Terminology on Nutrition Information Tables	162
Figure 4.32	Food Purchased for whom	163
Figure 4.33	Reason for not reading Nutritional Information	164
Figure 4.34	Factors that may lead to reading Nutrition Information	165
Figure 4.35	Additional Information on Nutrition Tables	166
Figure 4.36	Buying Decision influenced by Nutrition Information	167
Figure 4.37	Age-wise Buying Decision influenced by Nutrition Information	168
Figure 4.38	Gender-wise Buying Decision influenced by Nutrition Information	169
Figure 4.39	Educational Qualification-wise Buying Decision influenced by Nutrition Information	170
Figure 4.40	Marital Status-wise Buying Decision influenced by Nutrition Information	172

List of Figures

…Continued

Figure	Description	Page No.
Figure 4.41	Employment Status-wise Buying Decision influenced by Nutrition Information	173
Figure 4.42	Monthly Family Income-wise Buying Decision influenced by Nutrition Information	174
Figure 4.43	Food Preference-wise Buying Decision influenced by Nutrition Information	175
Figure 4.44	Family Type-wise Buying Decision influenced by Nutrition Information	176
Figure 4.45	Influence of Nutrition/Health Claims on Food Purchase Decision	177
Figure 4.46	Age-wise Influence of Nutrition/Health Claims on Food Purchase Decision	178
Figure 4.47	Gender-wise Influence of Nutrition/Health Claims on Food Purchase Decision	179
Figure 4.48	Education Qualification-wise Influence of Nutrition/Health Claims on Food Purchase Decision	180
Figure 4.49	Marital Status-wise Influence of Nutrition/Health Claims on Food Purchase Decision	182
Figure 4.50	Employment Status-wise Influence of Nutrition/Health Claims on Food Purchase Decision	183
Figure 4.51	Monthly Family Income-wise Influence of Nutrition/Health Claims on Food Purchase Decision	185
Figure 4.52	Food Preference-wise Influence of Nutrition/Health Claims on Food Purchase Decision	186
Figure 4.53	Family Type-wise Influence of Nutrition/Health Claims on Food Purchase Decision	187
Figure 4.54	Checking Genuineness of Claims	188
Figure 4.55	Food purchased by	189

List of Figures

…Continued

Figure	Description	Page No.
Figure 4.56	Food purchased from	190
Figure 4.57	Health Profile of Self and Family	191
Figure 4.58	Consumer Awareness about nutrient relationship with health condition	192
Figure 4.59	Nutrient – Health Risk Mapping for Overweight/Obesity	193
Figure 4.60	Nutrient – Health Risk Mapping for Diabetes	193
Figure 4.61	Nutrient – Health Risk Mapping for High Blood Pressure/Hypertension	194
Figure 4.62	Nutrient – Health Risk Mapping for High Blood Cholesterol/Heart Blockage	195
Figure 4.63	Nutrient – Health Risk Mapping for Allergy/Intolerance	195
Figure 4.64	Consumer Perception of health risks related to specific nutrients: Energy/Calories	196
Figure 4.65	Consumer Perception of health risks related to specific nutrients: Carbohydrates/Sugars	197
Figure 4.66	Consumer Perception of health risks related to specific nutrients: Fats	197
Figure 4.67	Consumer Perception of health risks related to specific nutrients:: Fiber	198
Figure 4.68	Consumer Perception of health risks related to specific nutrients: Cholesterol	199
Figure 4.69	Consumer Perception of health risks related to specific nutrients: Salt	199
Figure 4.70	Consumer Perception of health risks related to specific nutrients: Additives	200
Figure 4.71	Consumer Perception of health risks related to specific nutrients: Allergens	201

Chapter 1: Introduction

The chapter provides an overview of the research theme of the study, its objectives and the associated topics. The study focuses on the concept of nutrition, nutrition information, nutrition claims and health claims, pre-packaged foods, lifestyle-related health risks and diseases, consumer behaviour, purchase decisions along with other pertinent topics.

1.1 Research Theme

Consumers rely on various resources to collect information about the foods they buy. These resources include their own experiences, family members, friends, media and advertisements that help them in deciding which food products to purchase. Another source especially for pre packaged food items is the information provided on the pack about the ingredients and the nutritional values of various components present in the food item. Prepackaged food is the food packaged before being offered to consumer, is enclosed wholly or partly and cannot be altered without opening or changing the package. With processing technology on the rise, various pre packaged food products are there on offer. The task of educating the customer regarding nutrients available in the food item now lies with the food package also. The nutritional information provided along with various nutrition or health claims is one of the many important factors influencing the customers' purchase decision.

An important aim of nutritional information provided on pre packaged food products is to help consumers take informed decisions. Consumers must be empowered and what can be more empowering than the power of information. The Nutritional Information Panel on the pre-packaged foods is a mechanism to educate consumers with the nutritional values contained in the food products. At the national level, Food Safety and Standards Authority of India (FSSAI) under the Ministry of Health and Family Welfare is the regulatory authority regarding the content on Nutritional Information Panel and nutrition and health claims on food products.

Nutritional Information Panel (NIP) also referred to as Nutrition Facts Panel (NFP) and Nutrition Label is a table listing average quantities of key components of food

given per serving and per 100 grams (g) or milliliters (ml). These panels can be used to compare foods, allowing consumers to choose healthier and more suitable foods based on their individual requirements. Although the components for which information on the panel is mandatory are energy, protein, carbohydrate and fats, the other components whose quantities are usually present on the panel besides these four are saturated fats, trans fats, sugars, sodium and total dietary fiber. In addition to these the name and average quantity of any other nutrient must also be declared for which a nutrition or health claim is made.

Consumer awareness regarding nutritional information, their comprehension levels about the information on the panel and the use of this information affecting consumers' food purchase decisions are predominantly pertinent questions especially in times when various lifestyle-related health risk factors are claiming lives. Overweight and obesity, high blood pressure, high blood cholesterol, diabetes and cardio vascular diseases demand careful and diligent selection of food. A survey conducted by an oil and fortified foods company, Saffola in the year 2011 emphasized on the alarming increase in the epidemic of obesity by putting 70% of the urban population of India in the overweight or obese category **(Malathy, 2011)**. The survey also attributed this threatening trend to the habit of eating unhealthy food by affluent urban population.

The epidemic of obesity not only has its victims in adults. It is almost equally prevalent among children as well, especially in the urban settings. Obesity is seen as one of the most serious public health problems of the 21st century. According to a longitudinal study conducted by Dr.Anuradha Waman Khadilkar, Jehangir hospital, Pune and her researchers in 2018, conducted on children from five major cities in India for five years, there is a fall in dietary protein and micronutrients mainly in the age group of 10-11 years and that leads to lower heights and more weight in pubertal girls and boys. The lack of these nutrients is found due to poor dietary habits and not lack of resources as the children in the study belonged to families with good income **(Dharwadkar, 2018)**. The increasing incidence of obesity among children is an outcome of urban affluence with sedentary lifestyles, eating more and unhealthy food.

The need to be informed consumers is even more pressing as parents, as they want to make sure that what they are giving their children is nutritious.

According to the statistics of World Health Organization (WHO) of 2008 estimates, 27% of total deaths in India are attributed to cardiovascular diseases and 3% to diabetes. There are 4% people in the age group of 18 and above who fall in the category of obese and 2% adolescents in the age group of 10-18 years are found to have health risks due to obesity in India **(WHO, 2018).**The figures for raised blood pressure and raised blood glucose levels are as high as 24% and 8% respectively in Indian adults. These numbers are not encouraging at all. All these health conditions are related to our diet and the nutrients that we take knowingly or unknowingly. Cardiovascular diseases are related to the intake of calories, fat and cholesterol, high blood pressure to salt intake, overweight and obesity to fat and overall calorie intake and high cholesterol to the intake of saturated fats and trans fats. There is an urgent need to pay heed to what we eat and take informed decisions while buying food products.

Buying food products as per nutritional information is even more important for people who experience food allergies. Food allergies are usually caused by dairy products (milk, cheese, yogurt, etc.) chocolate, egg white, gluten (wheat), flavour enhancers, etc. The most effective solution to the problems related to such food intolerance after diagnosis is eliminating the particular specific allergen from the diet completely **(Better Health Channel, 2017)** . It can be achieved when the presence of specific allergens mentioned in the Nutritional Information Panels is considered before making purchase decisions.

A nutrition claim is a declaration that stipulates nutritional properties that food items have. These include claims such as “high in fiber,” “low fat,” “doesn’t make you sick,” “good source of calcium,” etc. Further, a health claim is any depiction in labeling or advertising that declares, suggests or denotes that consumption of a food item or an ingredient in it has the potential to impact a consumer's health. It is important for health claims to be supported by a reliable and sufficient body of scientific evidence to authenticate them. Nutrition and health claims that companies

make to promote their products, yield an influence on consumers. These claims are more often than not pure exaggerations. For instance, in 2012, the Food Safety and Standards Authority of India scrutinized several food products over distorted claims and illusive advertisements **(Sharma, 2012).** It is important for consumers to be observant and alert to avoid mishaps on account of false information.

It has also been seen that consumer behaviour is subject to other factors which may depend upon the concerned products or services being considered for a decision. Studies on food products have shown that consumers feel more positive about healthy food products. Consumers also steer clear of trusting health claims made by companies blindly. This is more so as consumers find it easier to understand nutrition claims than the nutrition information provided on food packets **(Angela Tarabella, 2012)**.

The 2014 Food and Health Survey: Consumer Attitudes towards Food Safety, Nutrition and Health by the International Food Information Council Foundation revealed that a whopping 65% Americans use Nutritional Information Panel while purchasing pre-packaged food products **(FoodInsight, 2014).**

Consumers nowadays are more conscious about healthy ways of living. Nutrition figures as a key factor to lead a healthy and energetic life for them. This study aims to understand in detail consumer awareness about contents present on the Nutritional Information Panel and nutrition and health claims by food companies of pre-packaged food items. The study is also focused on evaluating how consumers understand and use such information and the impact it has on their purchase decisions.

1.2 Nutrition

Nutrition may be defined as intake of food, considered in relation to the body's nutritional needs **(MedlinePlus, 2019)**. Good nutrition is a sufficient, well-balanced diet along with regular physical activity, which is a foundation of good health. Consequences of poor nutrition include lowered immunity, increased vulnerability to diseases such as overweight and obesity, heart disease and stroke, Type 2 diabetes,

Cancer and deficits in brain function **(National Center for Chronic Disease Prevention and Health Promotion , 2020).**

The major components of food that provide nutrition are broadly categorized in macro and micro nutrients. Marco nutrients are those that make the major portion of our diet and provide us energy from our food intake. They are further classified as carbohydrates, proteins and fats. Carbohydrates are one of the main sources of energy for us and their major sources are sugars and starch. They provide calories to the food but not as high as fats. Fats are one of the most important sources of calories in our diet. Fats provide almost twice the number of calories than what we get from the same amount of carbohydrates or proteins. Proteins are made up of amino acids and their major function is the growth and repair of the body.

Micronutrients are required in lesser quantities by our bodies. They provide essential components that are required for metabolism. They also help in improving immunity, repair of damaged cells and other essential functions of the body. They are vitamins and minerals such as iron, calcium, zinc, sodium and the others.

1.2.1 Nutrition- Suggestions and Implications

According to WHO, nutrition is in essence, nothing but a healthy and balanced diet, which is followed on a regular basis. The concept of healthy diet has constantly been in a state of discussion, analysis and research. Higher level of awareness and interest in healthy lifestyle and diverse interpretation of what constitutes a nutritious and balanced diet has resulted in more focus on research in this field from the point of view of consumers.

It’s a known fact that following a healthy diet for lifetime keeps malnutrition, several forms of non-communicable diseases (NCDs) and related conditions at bay. However, increase in consumption of processed food, rapid urbanisation and inactive lifestyle in today’s age has changed dietary patterns to a large extent. People are consuming less dietary fiber as their consumption of fruits, vegetables and whole grains is lesser.

They now prefer food products that have high energy, fats, salt, sodium and sugars instead.

The concept and requirements of a healthy and balanced diet for individuals vary as they depend on specific parameters such as age, gender, lifestyle, extent of physical activity, etc. Factors like cultural context, locally available foods and dietary customs are also to be considered in this context. However, the concept of a healthy diet, as per the World Health Organization, is still the same **(WHO, 2020)**.

When it comes to the relationship between diet and health and the current crisis of lifestyle-related health problems across the world, World Health Organization has stipulated the following particulars:

- A diet that is deficient in adequate amounts of essential nutrients is the chief cause of malnutrition among children as well as adults. People who follow a healthy and nutritious diet show greater resistance to non-communicable diseases (NCDs) such as coronary heart disease, stroke, hypertension, diabetes and others.
- Diet lacking in fiber present in fruits and vegetables but high on fats and carbohydrates in processed form has the potential to cause numerous diseases. The problem is further aggravated if there is little or no physical activity. Being overweight and obese are common among individuals who have no physical activity and follow unhealthy diet, especially with less fiber. Such unhealthy conditions have the potential to cause heart disease, stroke and even cancer.
- Food habits and diet followed at young age, including during childhood exert an influence on the later years in an individual's life. For instance, those individuals who could have breast milk as infants show better growth and are at lesser risk of being overweight or obese. Those also show better resistance to NCDs as their immune system is better.
- Attaining ideal or near-perfect weight is possible if energy intake or consumption is in balance with energy burning or consumption. In fact, individuals who consume more calories but are physically active are healthier

and fitter. The amount of fats constituting the diet must not exceed 30% of the total energy consumption. Further, it is to be noted that since fats have condensed calories, lesser amount of their consumption tends to result in more energy intake.

- It is to be noted that fats are of different varieties; saturated fats and trans fats, for example, especially those created artificially or in factory are those which should be avoided. Ideally, saturated fat intake should not be more than 10% of the total calorie intake. Similarly, trans-fats must also not exceed 1% of the total intake. It is important to be aware of which foods are rich in trans-fats and saturated fats so that they are consumed in lesser quantity if not avoided altogether.
- Consumption of lesser amount of free sugars has also been earnestly recommended by WHO. Free sugars are the one which are added externally by a person, manufacturer or the consumer to food, and not that which is present naturally in most fruits. Food items full of sugar such as fruit juices, honey or syrups are also categorized as free sugars. Also, eating whole fruits is considered healthier than consuming them in the form of as juice as the latter leads to concentration of sugar and decrease in fiber content. Up to 10% of total calorie intake may be ingested for free sugars, though it should ideally be lesser.
- Higher salt intake is known to result in high blood pressure, coronary heart disease and stroke. Consumption of salt (sodium) should be limited; ideally salt intake must not be more than 5 grams daily (equal to 2 grams of sodium intake daily).
- Governments of various countries that are WHO members have been earnestly encouraging reduction in intake of salt, free sugars and fats and creating awareness among people. They are also endeavouring spreading awareness about what constitutes healthy diet which can reduce conditions like being overweight obesity, hypertension, heart disease and other lifestyle and nutrition-related non- communicable diseases in their countries.

1.2.2 Dietary Facts and Information

Nutrition Information (also referred to as Nutrition Facts Panel, Nutrition Facts Table and Nutrition Information Table) is a table that provides details about nutrients present (or not present) in prepackaged food items. This aspect is a mandatory factor for most pre-packed food items in most nations although they have their own government bodies that legalize the presence, contents and genuineness of the Nutrition Facts Tables. In India the regulatory body for the Nutrition Information is Foods Safety and Standards Authority of India (FSSAI) which is under the Ministry of Health and Family Welfare. Guidelines about various labeling requirements, of which nutrition information is one, are stipulated by the FSSAI in India.

Before the Foods Safety and Standards Act, 2006 and later FSSAI in August 2011 were introduced, multiple laws related to food security in India were in effect, which resulted in uncertainty for manufacturers as well as consumers. The Food Safety and Standards Act was a merger of several acts such as Prevention of Food Adulteration Act - 1954, Fruit Products Order - 1955, Vegetable Oil Products (Control) Order – 1947, Solvent Extracted Oil, De-oiled Meal and Edible Flour (Control) Order -1967, Edible Oils Packaging (Regulation) Order – 1988, Meat Food Products Order – 1973, Milk and Milk Products Order – 1992 and any other order under Essential Commodities Act of 1955 devised for food. The Act has equal and uniform application in the whole country. All the states have the power to issue registration and state license with FSSAI as the chief hub for the entire nation. The Food Authority regularly introduces various regulations of which Food Safety and Standards (Packaging and Labelling) Regulations, 2011 deals with the Nutrition Information Panel **(FSSAI, 2006)**.

The part of the FSSAI regulations concerned with labelling of pre-packaged foods stipulates guidelines for the following elements:

1. Name of food item
2. Nutritional information
3. List of ingredients
4. Pronouncement about food being vegetarian or non-vegetarian

5. Declaration concerning food additives
6. Net quantity
7. Lot/ Code/ Batch Identification
8. Name and complete address of manufacturer
9. Date of manufacture or packing
10. Best before and use by date
11. Instructions for use
12. Country of origin for imported foods

Recently in 2019 , Food Safety and Standards Authority of India has come up with a draft notification for review of packaging and labeling regulations (2011). FSSAI has made review recommendations for colour codes on packaged foods to help consumers understand the type of ingredients present in the food specially those that are high in fat, sugar or salt content **(Little, 2019).** The stakeholders specially packaged food companies have raised speculations on the move and have communicated their concerns to the authority.

1.2.3 Nutrition Information Panels

The Nutrition Facts Table is an important part of a label as it provides information about crucial elements like energy in Kilocalories, amount of carbohydrate (with separate amount coming from sugar), amount of protein, amount of fat in grams and the quantity of any other nutrient for which nutrition or health claim has been made.
In case there is a claim made for the type of fatty acids or cholesterol, the amount of saturated fatty acids, monounsaturated fatty acids(MUFA), polyunsaturated fatty acids (PUFA) and trans fatty acids in grams and cholesterol in milligrams has to be declared.
Numerical information on Vitamins and Minerals should be provided in metric units.
If nutritional declaration is made per serving, the amount in grams/ milligrams or milliliters should be given alongside the serving measure.
Detailed explanation with graphic examples is given to understand Nutrition Information Panel in different food products in a better way.

The examples below are given for the purpose of explaining the objective of nutritional information to consumers.

Cadbury's Dairy Milk Silk – Miniatures

Figure 1.1 is the image of Cadbury's Dairy Milk Silk Miniatures. The nutritional information given diverges with the variants here.

Figure 1.1 Back of the package labeling of Cadbury's Dairy Milk Silk Miniatures and its Nutritional Information Panel



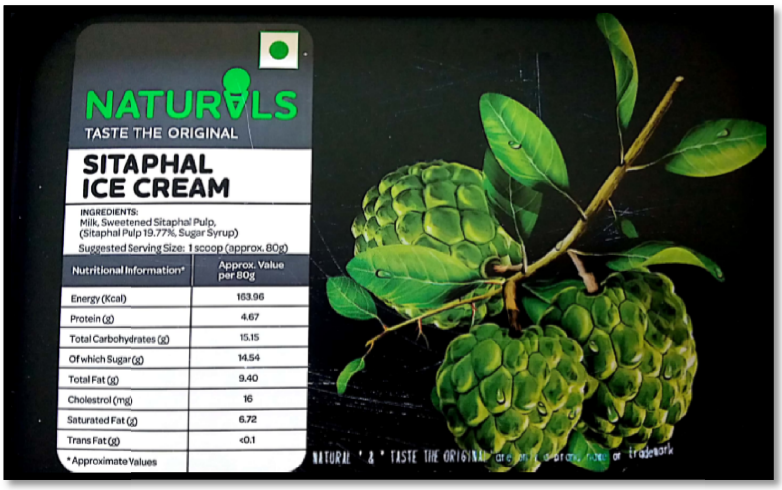
Nutritional Information*				
	Classic Chocolate	Sea Salt Variant	Butterscotch Variant	Almond Variant
	Per 100 g	Per 100 g	Per 100 g	Per 100 g
Energy kcal	534	535	527	547
Protein g	7.8	7.7	7.1	9.4
Carbohydrate g	58.5	57.6	61.2	53.6
(of which Sugars) g	55.5	54.7	58.5	49.5
Fat g	31.1	31.6	29.3	34.0
(of which Saturated Fat) g	19.0	19.3	18.0	17.8
Trans Fat g	0.2	0.2	0.2	0.1
Dietary Fiber g	2.0	2.0	1.8	2.9
Sodium mg	151	343	167	133

*Approximate Values

Natural's Ice Cream

The Nutrition Information Table for Natural's ice cream furnishes information about Energy, Protein, Total Carbohydrates, Sugars, Total Fat, Cholesterol, Saturated Fat and Trans fat (Figure 1.2). These values are for single serving as the serving size of one scoop is nearly 80 grams.

Figure 1.2 Nutritional Information Panel on Naturals Ice Cream 500 g pack



Mapro Kokum Crush

This drink is available in concentrated form and consumed by adding water to it. The nutritional information provided on its package is about Energy, Sugar, Carbohydrate, Protein and Fat. Given below, the table shows that the amount of trans fat does not exceed 0%, and that of saturated fat is not over 0.14% by weight (Figure 1.3).

Figure 1.3 Nutrition Information on Mapro Kokum Crush



Small Sachets -McDonald's Tomato Ketchup and Surabhi Mixed Pickle

Small sachets of tomato ketchup at McDonald's outlets and pickles at Surabhi along with many snacks display nutritional information in a format other than a table (Figure 1.4a and 1.4b). Values of energy, protein, total carbohydrate, sugars and total fat are provided by these companies. Even though total fat is 0 g, presence of no trans fat and saturated fat appears on packages of both the companies.

Figure 1.4 a. McDonalds Tomato Ketchup Sachet b. Surabhi Mixed Pickle Sachet



Nutella Ferrero vs Jindal Choco Spreads

Of all the chocolate spreads Nutella Farrero is a market leader and the most popular, especially among children. Nutella Farrero contains a high level of calories, palm oil and saturated fats which are not healthy (Figure 1.5).

Figure 1.5 Nutella Farrero ChocoSpread Ingredients and Nutritional Information Panel

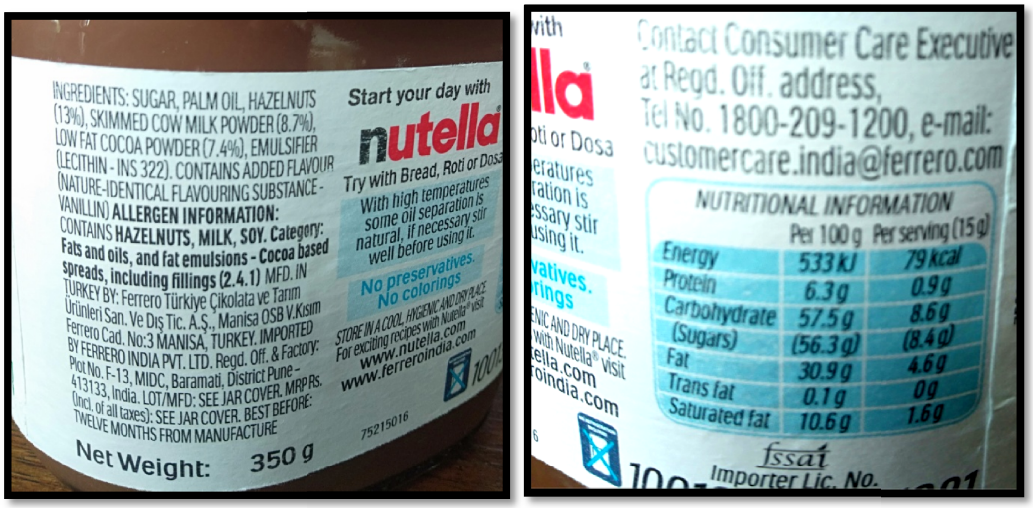


Figure 1.6 Jindal Cocoa Hazelnut Chocolate Spread Front, Ingredients and Nutritional Information Panel



However, Jindal Choco Spread does not contain palm oil but has groundnut oil as its base(Figure 1.6). The amount of saturated fats in Jindal Choco is lesser (5.82%) than in Nutella (10.6%). It is also worth mentioning that Jindal Choco spread is an indigenous product.

Thus, with the help of nutritional information and the list of ingredients consumers can make an informed decision.

1.2.4 Nutritional Claims

Nutritional claim is an expression or statement that states or suggests that a particular food article contains a specific nutritional property that benefits one's health. The benefit may be due to presence, increase or reduction in amount or absence of energy values. It could also be due to some specific nutrient's presence, increase in amount, reduction or its deficiency. Nutrition claims act as a reflection of the amount of a particular nutrient in a food item, such as fiber or fat. Although nutrition claims are

voluntary, they must be in compliance with government regulations before being put up on a package. Regulations related to advertising and claims are available in the Gazette Notification through a Press Release in 2018 by FSSAI for reference. It specifies that nutrition claims can be nutrient content claim or nutrient comparative claim. Nutrient content claim states the presence/ increase/ reduction/ absence of a substance/ nutrient that benefits consumers of a food item. Nutrient comparative claim refers to a declaration or phrase that compares the content of a food article with that of another one.

Some specimens of common claims are as follows:

Source of Fiber

'Source of fiber' indicates that a particular food item contains at least 2 grams of fiber per 100 grams of food specified in the Nutrition Facts Table. 'High source of fiber' connotes presence of at least 4 grams of fiber, and 'Very high source of fiber' indicates at least 6 grams of fiber in food per 100grams.

Low Fat

The claim 'Low fat' indicates that a food product has no more than 3 grams of fat per 100 grams of solid or 1.5 grams of fat per 100 ml for liquids in the quantity of food specified in the Nutrition Facts Table.

Cholesterol-free

'Cholesterol-free' claim means that a food item contains very small amount (less than 2 mg) of cholesterol in the amount of food specified in the Nutrition Facts Table and also has low saturated fat and trans fat.

Sodium-free

'Sodium-free' indicates the amount of food specified in the Nutrition Facts Table has less than 5 mg sodium per 100 grams of food product .

Reduced in Calories

'Reduced in Calories' means at least 25% less energy (calories) than the food it's being compared to in most cases, and is being compared to regular version of that food item.

Light

'Light' is a term that is permitted for use only for food articles that are either 'reduced in fat' or 'reduced in energy' (calories). The term can also be used to describe physical characteristics of a food item, for instance, light coloured or light tasting.

Regulations also mention non-addition claims, which include no addition of sugar, salt or additives. If naturally occurring sugars are present in food, the same has to be mentioned.

1.2.5 Health Claims by Food Companies

Health claims present on food labels and in food marketing are claims manufacturers of food products make to the effect that their food product can reduce developing of diseases or conditions.

A health claim is a statement about a food and its effect on individuals' health as part of a healthy diet. Foods that have health claims have the potential to reduce the risk of some maladies like cancer, strokes, heart diseases and osteoporosis. Consuming foods with health claims can provide considerable relief from these diseases if a healthy and well-balanced diet is followed. Health claims are different from nutrition claims.

"Nutrition claim is any claim which states, suggests or implies that a food has particular beneficial nutritional properties due to the presence, absence, increased or reduced levels of energy or of a particular nutrient or other substance, and includes claims such as "source of calcium", "low fat", "high fiber" and "reduced salt". This is the definition by the Department of Health, UK **(DoH, UK, 2011)**. It defines a health claim as "any claim that states, suggests or implies that a relationship exists between a food category, a food or one of its constituents and health. This would include claims

such as “calcium helps maintain normal bones”. More general claims such as “good for you” may also be health claims, and the Regulation takes these into account.”
Health claims on some food articles are made on the basis of the following factors:

- A diet having foods with low sodium and high amount of potassium can reduce the risk of high blood pressure, which poses risk in stroke and heart diseases.
- Abundance of vegetables and fruit in diets can reduce the risk of some types of cancer.
- Low amount of saturated and trans fat in diets can lower the risk of heart disease.
- A diet having sufficient amount of calcium and Vitamin D, when combined with regular physical activity, strengthens bones and has the potential to reduce risk of osteoporosis.
- Plant sterols help lower cholesterol.

All foods furnishing health claims must fulfill the applicable criteria stipulated by the government authorities. This measure ensures that all the health claims that companies make are accurate and genuine. There is a possibility that there may be some foods without a health claim despite meeting the desired criteria. It could be because these food products are not pre-packaged or because some companies do not intend to use health claims. Reading the Nutrition Facts Table and following guidelines issued by the government authorities are very important and help consumers make right decisions about which foods to buy.

A wide range of prepackaged foods promoted with nutritional claims or health claims exist.
Typical examples are as shown below:

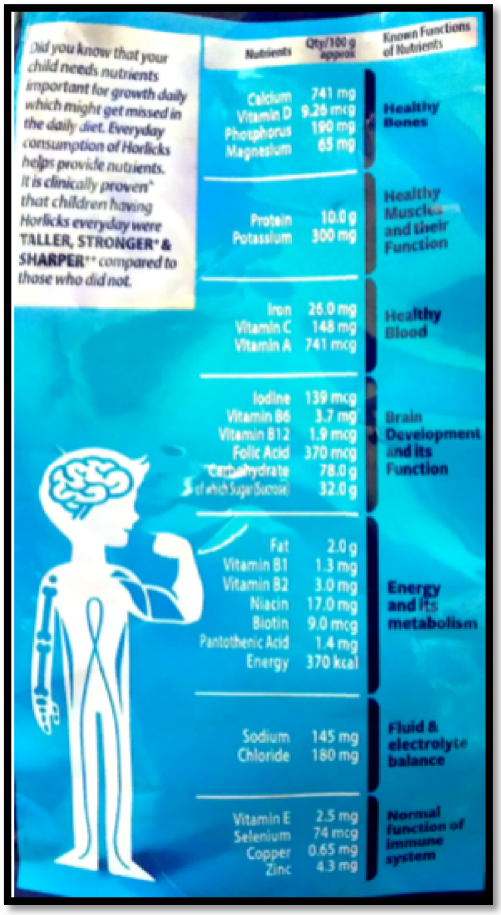
Horlicks- Chocolate Variant

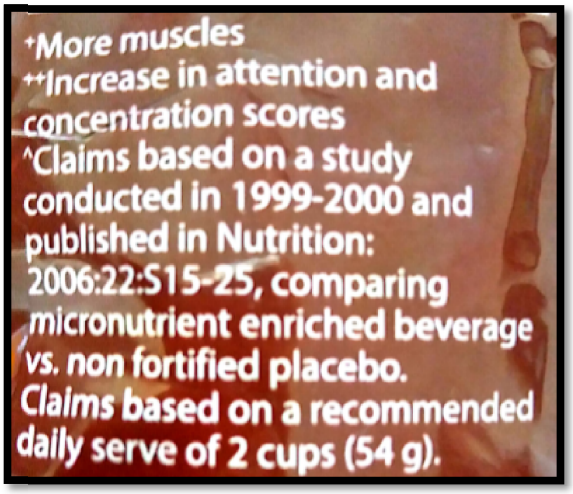
Detailed display of Nutritional Information of Horlicks stands out as it occupies more percentage on the pack than most other food packs normally do(Figure 1.7). The company has made a health claim to the effect that a child who drinks Horlicks becomes taller, stronger and sharper. This distinctive claim is highlighted by nutritional information provided as well. Information about the function of each

nutrient present in the health drink is also provided. The study on which the claim 'taller, stronger and sharper' is based, is also shown here.

Figure 1.7 Horlicks Front and side panels with nutrition and health claims and the mention of the study on the basis of which the claims are made







A study titled ‘Effect of micronutrient supplement on health and nutritional status of schoolchildren: biochemical status’ was conducted by B Sivakumar et al. of National Institute of Nutrition at Hyderabad **(Battiprolu Sivakumar, 2006)**. The source of the study is provided at the pack as well (Nutrition:2006:22:S15-25). When a claim is made, it is compulsory to provide the proof on the basis of which the said claim is made. It may be noted that the pack also mentions ‘Clinically Proven’ very clearly.

Gowardhan Paneer

The pack of Gowardhan Paneer has a claim that states that it is a source of calcium and protein. This is a Nutritional Claim as it states only the nutrients present in it.

Figure 1.8 Nutrition Information Panel(on the right of the image) of Gowardhan Paneer



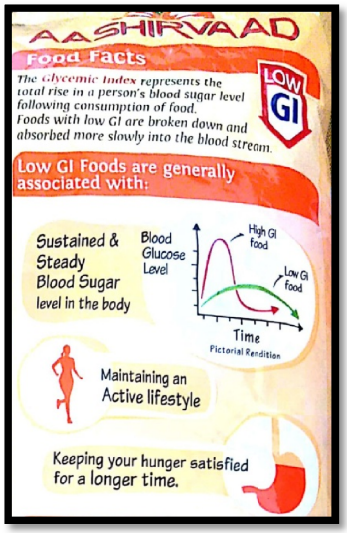
It must also be noted that below the nutrition facts table it is mentioned-‘Note a significant source of Dietary Fiber, Sugars, Vitamin C and Iron’ although source of protein and Calcium is highlighted.

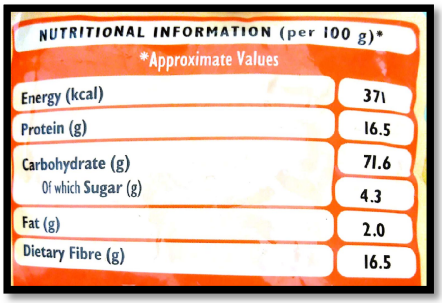
Aashirvaad Sugar Release Control Atta

Aashirvaad Sugar Release Control Atta claims to be beneficial for diabetics. The image below(Figure 1.9) represents claims that this atta has low GI (Glycemic Index) which aids in controlling release of sugar, which makes it wholesome and healthy for people suffering from diabetes. The dietary fiber details are also given in its nutritional information.

Figure 1.9 Aashirvaad Sugar Release Control Atta Front of the panel, back of the pack and Nutritional Information Panel







Glucon-D

Glucon D is a popular energy level boosting drink as it contains carbohydrates chiefly in the form of sucrose. It also contains minerals like phosphorus, calcium and Vitamin C.

Figure 1.10 Nutrition Facts Panel and Health Claims on Glucon-D



The pack of Glucon-D carries a health claim that it provides instant energy (from glucose), enhances bone health (calcium and phosphorus) and increases mental attentiveness (Vitamin C). It is shown in the form of comparison between one glass of water and a glass of Glucon-D(Figure 1.10). The claim is authenticated through nutritional information also.

Tata Rock Salt

While salt is rich in sodium, rock salt also contains natural trace elements(Figure 1.11). It is declared on the nutritional panel, which appears as under:

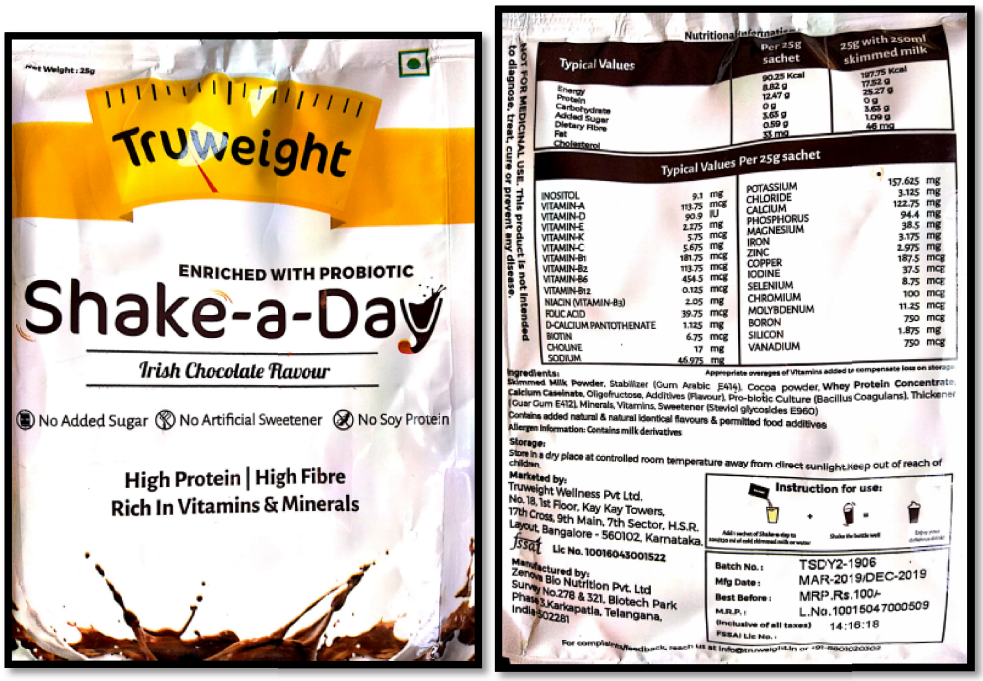
Figure 1.11 Tata Rock Salt Front with nutrition claim and Nutritional Information Table



Truweight Shake a Day

Truweight Shake a Day is a supplement used with milk to create a shake. It primarily aims to keep weight under control. Its nutritional information shows that numerous micronutrients such as vitamins and minerals exist in it(Figure 1.12). Providing details is necessary here as the pack claims to contain 'high fiber', 'high protein' and high quantity of vitamins and minerals.

Figure 1.12 Truweight Shake-a-day Front and Nutrition Facts Panel



Nestle Cerelac Baby Cereal

Cerelac, a popular baby cereal product, has made claims of providing good amount of iron along with vitamins and other minerals. It is validated with nutritional information given at the side of the packet(Figure 1.13).

Figure 1.13 Nestle Cerelac Baby Cereal Front of the Pack, Nutrition Information Table and Nutrition Claim



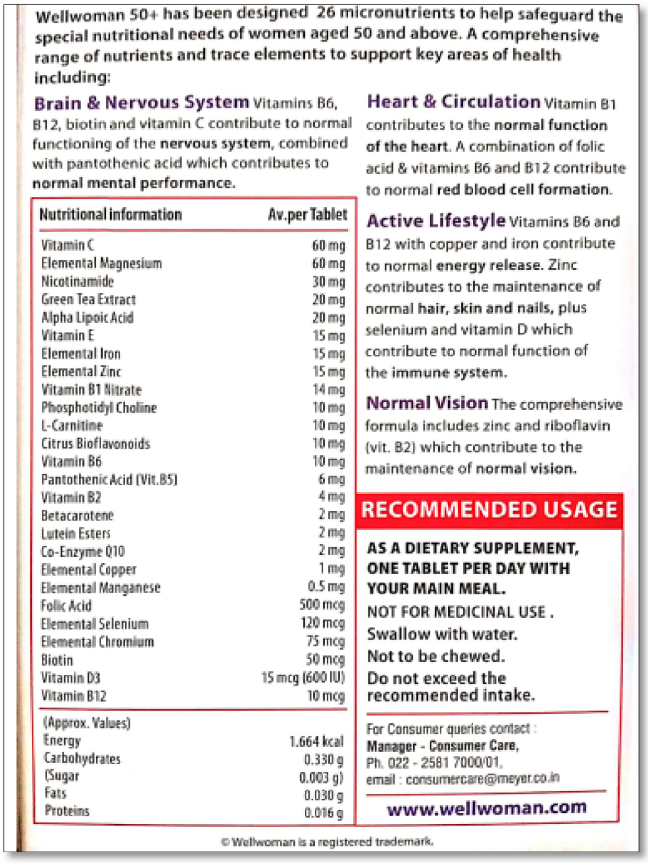
Information provided at the back of the pack as well as in front also restates that a good amount of nutrients are present in the food product. For instance, the amount of

iron is emphasised on the Nutritional Information Table, stated as a nutrition claim on the front of the carton.

Wellwoman 50+

Wellwoman 50+ is a multi-vitamin and mineral supplement formula for women above fifty years of age. It claims to make up the deficiency of lost nutrients in women especially those who have hit menopause. Nutritional information and benefits of all the nutrients in the supplement are provided on the package(Figure 1.14). Wellwoman 50+ is thus not a food article but a supplement.

Figure 1.14 Wellwoman 50+(supplement) Nutrition Information



Wellwoman 50+ has been designed 26 micronutrients to help safeguard the special nutritional needs of women aged 50 and above. A comprehensive range of nutrients and trace elements to support key areas of health including:

Brain & Nervous System Vitamins B6, B12, biotin and vitamin C contribute to normal functioning of the **nervous system**, combined with pantothenic acid which contributes to **normal mental performance.**

Nutritional information	Av.per Tablet
Vitamin C	60 mg
Elemental Magnesium	60 mg
Nicotinamide	30 mg
Green Tea Extract	20 mg
Alpha Lipoic Acid	20 mg
Vitamin E	15 mg
Elemental Iron	15 mg
Elemental Zinc	15 mg
Vitamin B1 Nitrate	14 mg
Phosphotidyl Choline	10 mg
L-Carnitine	10 mg
Citrus Bioflavonoids	10 mg
Vitamin B6	10 mg
Pantothenic Acid (Vit.B5)	6 mg
Vitamin B2	4 mg
Betacarotene	2 mg
Lutein Esters	2 mg
Co-Enzyme Q10	2 mg
Elemental Copper	1 mg
Elemental Manganese	0.5 mg
Folic Acid	500 mcg
Elemental Selenium	120 mcg
Elemental Chromium	75 mcg
Biotin	50 mcg
Vitamin D3	15 mcg (600 IU)
Vitamin B12	10 mcg
(Approx. Values)	
Energy	1.664 kcal
Carbohydrates	0.330 g
(Sugar	0.003 g)
Fats	0.030 g
Proteins	0.016 g

Heart & Circulation Vitamin B1 contributes to the **normal function of the heart**. A combination of folic acid & vitamins B6 and B12 contribute to normal **red blood cell formation**.

Active Lifestyle Vitamins B6 and B12 with copper and iron contribute to normal **energy release**. Zinc contributes to the maintenance of normal **hair, skin and nails**, plus selenium and vitamin D which contribute to normal function of the **immune system**.

Normal Vision The comprehensive formula includes zinc and riboflavin (vit. B2) which contribute to the maintenance of **normal vision.**

RECOMMENDED USAGE

AS A DIETARY SUPPLEMENT, ONE TABLET PER DAY WITH YOUR MAIN MEAL.

NOT FOR MEDICINAL USE .
Swallow with water.
Not to be chewed.
Do not exceed the recommended intake.

For Consumer queries contact :
Manager - Consumer Care,
Ph. 022 - 2581 7000/01,
email : consumercare@meyer.co.in

www.wellwoman.com

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Given below are some more examples of nutrition and health claims:

Water (infused with natural flavours and electrolytes)

Figure 1.15: Energy Drink with natural caffeine and vitamins



Figure 1.16: Rice Bran Oil (contains Oryzanol that diminishes bad cholesterol)



Figure 1.17: Fortune Rice Bran Oil (contains Gamma Oryzanol that reduces bad cholesterol and increases good cholesterol)



Figure 1.18 Priyagold Biscuit (contains Kalonji, an ingredient that acts as an anti-oxidant and fights cholesterol and blood sugar)



Figure 1.19 Madhur Crystal Sugar (contains no sulphur content)



1.3 Pre-Packaged Food

In today's age, consumers prefer food articles that come pre-packaged as they are more hygienic, safer and convenient to use. Branded products have become very popular now-a-days, which is a reflection of rise in popularity of pre-packaged food.

1.3.1 Meaning of Pre-Packaged food

Pre-packaged food is food that comes packed in durable packaging like a box or container and delivered to consumers in the same condition. FSSAI describes pre-packaged food as "food, which is placed in a package of any

nature, in such a manner that the contents cannot be changed without tampering it and which is ready for sale to the consumer"

1.3.2 Pre-Packaged Snacks

Foods may be available in pre packed forms or can be bought loose. Branded foods are available mostly in prepackaged form. Snacks are food items that are consumed between breakfast and meals chiefly for indulgence or for a quick increase in energy levels.

Packaged snacks are not only tempting but also convenient to eat as they are ready-made and don't have to be cooked. They also seem tastier and more appealing, due to which there is a huge market for them. Today's fast-paced, competitive corporate world gives very little time for professionals to take lunch customarily. They have no option but to settle for a quick bite, which has resulted in creation of a flourishing market segment for packaged food.

Further, new trends like eating while doing work or being engaged in leisurely activities are also advancing this sector. Sellers of these food articles are promoting and advertising their products keeping the same premise, which is contributing to growth of this segment.

1.3.3 Pre-packaged Food Industry in India

Although the Indian food market is still at an early stage, the food packaging industry is India's fifth largest sector with the worth of nearly $40 billion **(FnBNews, 2018).** In India more than 80 % of the total demand for packaged foods comes from the urban settings. With a tremendous increase in the urban population the packaged food sector is bound to rise.

There are certain categories of food items that are more prone to be available as packaged foods. These include bakery products, ready-to-eat and ready-to-

cook meals, canned products, diet foods, frozen foods and processed dairy food products.

With an increase in the purchasing power of urban Indians the market for readily available food products is on the rise. The urban customers also are on the look out for premium products in foods too and these premium products are always pre packed.

Another report suggesting high growth in the Indian food market from the Ministry of Food Processing Industries provides a very optimistic view of the rise. In the report that came in the year 2017, about high growth segments of Indian food and beverage industry, the major segments with promising growth are breakfast cereals, savoury snacks, ready meals, confectionery and bakery among few others **(Ministry of Food Processing Industries, 2017).** The sale of packaged food is the highest in Northern India(38%) and the least in North East India(21%). It is also found that consumers are ready to pay more when there are labels such as 'High in Fiber', 'All Natural' ,'More Protein' and other such claims. The report also suggests that the market for prepackaged ready meals is seeing a tremendous growth globally and that is reflected in India too.

For packaged foods one big challenge is the quality of packing that has a direct influence on the cost of the product. There is also lack of packaging and labeling related regulatory clarity. Customers are not much aware about the regulations related to information that the firms are supposed to put on the packages.
The market for snack food items in India is pegged at Rs. 10,000 crore.12,000 tons of snacks are consumed every year now, which was just 1,000 tons a decade ago **(Shrivastava, 2012).**

Further, the organised salty snacks market in India is between Rs. 3000 crore to Rs. 4000 crore (nearly 30% to 40% by value). Traditional 'namkeens' and western salty snacks like chips, wafers, etc. have a 70 and 30 % share

respectively in India **(Edelweiss Professional Investor Research, 2019)**. Potato chips, snack nuts, flavorful snacks, popcorn, French fries are some examples of popular snack food items. The organised market for chips is around 6500 tons with a value of INR 2 billion. Consumption of branded chips has been increasing rapidly at a pace of around 20% to 25% annually.

The consumption of pre-packaged snacks has increased significantly in recent times. The market sector of this food product has also witnessed an exponential growth on account of a host of factors such as changing lifestyle, lack of time for traditional system of lunch and aggressive marketing by sellers of packaged snacks.

Global snack sales are on an increase of over 2% year after year. The type of snacks consumed vary with the country of the consumer as there are huge differences in the ingredients and the preference of consumers staying in different regions **(Neilson, 2014).**

Consumers are becoming more aware about their health and they do check the health benefits before buying food products **(Santra, 2018).** With the growth of malls and better storage and display facilities, consumers' trust in the packaged foods has increased. The increase is also due to the promotion of healthier options in the pre packaged food category.

1.4 Lifestyle-Related Health Risks and their relationship with Diet

Lifestyle defined in the Merriam Webster dictionary is the typical way of life of an individual, group or culture. According to the Cambridge dictionary, lifestyle is someone's way of living; the things that a person or particular group of people usually do.

It has been a common observation that the way we live has a direct consequence on our health. It is also true that what we eat is also influenced by our lifestyle. People who live a very busy life are more prone to consuming

ready to eat convenience foods than those who have more time to prepare and are not always on the go.

A report prepared by the Institute for Health Metrics and Evaluation (IHME Study) threw light on a conspicuous observation **(Institute of Health Metrics and Evaluation, 2019).** It stated that nutrition and diet are closely linked to diseases, and that one's diet has a direct influence on one's health.

Following are some diseases that arise due to unhealthy lifestyles being followed:

a. Overweight/Obesity
b. Diabetes
c. Heart ailments
d. Hypertension
e. Allergies

The report prepared by Institute for Health Metrics and Evaluation (IHME) states that poor diet has been causing 10.9 million deaths or 22% of deaths among adults globally. Furthermore, 255 million disability-adjusted-life-years (DALYs) – which equal the sum of life years lost and years lived with disability - were because of poor diet. It was said that unhealthy diet is more dangerous than tobacco or blood pressure (**IHME**, **2019**).

1.4.1: Nutrition and Overweight and Obesity

Obesity is a major diet-related disorder with which parallels may be drawn between a majority of people opting for higher energy-rich, unhealthy dietary routines and forsaking traditional diet that offered more nutrition. The role of nutrition in preventing and limiting obesity is being regarded keenly by public health authorities. Before embarking upon the relation between obesity and the food that a person takes one must understand who is considered obese. Having body weight more than what is considered normal is obesity in layman's parlance. It is a condition in which the body accumulates more body fat that required and that has adverse effects on one's health. There are quite accurate

definitions of overweight and obesity provided by health care professionals and authorities. World Health Organization (WHO) defines obesity and overweight as a non communicable disease in which there is an excessive accumulation of body fat that leads to health risks. The measure that is commonly used to find out if a person is overweight or obese or normal is BMI or the Body Mass Index. By definition Body Mass Index is calculated as the ratio of person's weight (in kilograms) to the square of his/her height (in meters). BMI is used to find out if a person is overweight or obese. There is a comparison table that helps one to know whether one is below normal in weight, normally weighted, overweight or obese. WHO terms someone with BMI between 25 and 30 to be overweight and equal to or more than 30 to be obese. Obesity is also categorized as Class I (BMI >=30 and <35), Class II(BMI >= 35 and <40) and Class III or Severe(BMI >= 40). These values vary for children and adolescents. It must be known that BMI is only used as a screening tool and not as a diagnostic tool to find out about the effects that overweight may have on a person's body.

There are a number of adverse effects that obesity is known to have on a person's health. The quality of life deteriorates besides becoming more vulnerable to other diseases such as high blood pressure, diabetes, heart problems, sleep apnea etc. People who are overweight or obese have reduced lung capacity and so also may suffer from respiratory problems. A wide range of cancers are believed to be associated with obesity. Problems related to bones and joints damage also are found to coexist with more weight than normal.

Obesity is found to be a function of physical activity and nutritional intake. With sedentary lifestyles and thus lack of movement and physical activities the onus lies more on the kind of diet that one takes. According to a survey conducted by the Ministry of Health and Family Welfare leading to a report by National Family Health Survey in the year 2017, the number of obese Indians has doubled than what it was between 2000 and 2010 **(Goswami, 2017)**. Among many other reasons such as lack of physical activity and genetic and

endocrinal reasons, availability, rather excess of readily available food specially in the urban settings, dependence on ready-to-eat and ready-to-cook food with high amounts of fat, salt, sugar and preservatives; in short, bad nutritional understanding is a cause of such a fast shift in the physical structure of the population of India.

Physical activity and dietary intake are known to be the most important factors associated with obesity and overweight. When more calories are consumed than utilized, it is bound to lead to overweight and obesity. Energy is the main constituent in the nutritional information panels usually given in kcal or kJ per 100 g and that is believed to be directly related to overweight. The more important issue here is to see whether people actually look out for this information on the nutrition panels before making their purchase. It is also of importance whether in general, people are aware of the amount of calories suitable for intake as per their requirements. The calorie requirements for males and females are different and also for people belonging to different age groups and different lifestyles. It is generally recommended for an average mature Indian female with sedentary lifestyle to have daily intake of 1800 calories and for the one with active lifestyle to be 2200 calories. Similarly, for a sedentary mature Indian male the caloric intake of 2200 is recommended whereas for an active mature Indian male the values are 2800 calories per day.

It must also be mentioned that there are certain foods that are associated with obesity such as foods that are high in fat content, sugar and carbohydrate. In general people who face the problem of overweight are required to keep their calorie input less than the expense of energy by means of physical activity and the metabolic activities. Usage of the information on the nutritional information panel can be of help in deciding the appropriate food for them.

The relationship of diet with obesity is so strong that there have been a number of fad diets that have become popular in recent years. Dr. Atkin’s diet is a low carbohydrate diet that limits the amount for carbohydrates per day to 20 g only for a few days. It however does not put any restriction in the amount of

proteins or fats taken in the diet **(Spritzler, 2018).** Another diet is the South Beach diet which is inspired by Dr. Atkin's diet but differs from it in restricting the amount of fat too. The South Beach diet is a low carbohydrate, low fat but high protein diet. It also claims to reduce the risk of heart problems because of lesser fat recommendations. Another diet is the Vegan diet that gained lots of popularity in recent times. The vegan diet is basically a diet without any form of animal food. This diet is appreciated more also because according to many it promotes a healthy way of living that is ethical too. This diet has been shown to be beneficial both for short and long term. Another diet that is often termed as a fad diet is the ketogenic diet. It requires a person to keep the carbohydrate levels to less than 50 grams a day (preferably less than 30 g). Due to excessive shortage of carbohydrates to convert to energy, the body starts utilizing ketones that are compounds made from fats. This diet helps to reduce weight and fat from the abdominal area. Intermittent fasting in which a person fasts for almost 14 to 16 hours a day followed by a period of eating is also being followed by many complemented with dry fasting(extremely restricted intake of fluids). Similarly many other extreme diets have been popularized and used by people who look for faster ways of getting rid of the problem called obesity. Thus obesity has been associated with diet and there is a need to find out if people really use the information provided on the pre packaged foods to be better in control of their diets.

1.4.2 Nutrition and High Blood Pressure

There are foods associated with High Blood Pressure also - foods that are good to eat for patients of hypertension and more important, the ones those are better to avoid when one suffers from high blood pressure. It is a well researched fact that high sodium intake is not preferred for hypertension patients. To reduce the intake of sodium in diet there are a few points to consider as per an article titled High Blood Pressure diet by WebMD **(Webmd Medical Reference, 2018).** One should try to keep the intake of sodium to be less than 2300 mg a day which comes up to be around 1 teaspoonful of table salt(Sodium Chloride). Nutritional facts panels may help a lot to restrict the amount of sodium in the diet. It is advised to select such food items that

display less than 5% of the daily sodium requirement and to totally avoid any food that has more than 20% of the daily sodium recommendation. It is also recommended to avoid all canned, processed and fast foods as they are known to have high sodium content. There are nutrients that are considered beneficial for hypertension patients. The micronutrients Potassium and Magnesium that are abundant in many fruits are known to have positive effect on hypertension patients. Dietary fiber must also be increased in the diet and fruits are rich in fiber too. As far as the pre packaged foods are concerned one must look for foods with restricted amount of sodium and with less of processing done.

1.4.3 Nutrition and High Blood Cholesterol/Heart disease

Heart ailments are connected with high levels of lipids in the diet known as Hyperlipidemia. Fats are lipids. These fats may be in the form of cholesterol or triglycerides. One type of Hyperlipidemia is Hypercholesterolemia. Cholesterol is also called by the name lipoproteins. Actually lipoproteins are particles that help cholesterol to travel in the bloodstream **(University of Michigan, University Health Service, 2020).** There is LDL Cholesterol (bad cholesterol) and HDL cholesterol (called good cholesterol). This is because Low Density Lipoproteins- LDL deliver Cholesterol to the blood stream so are considered bad cholesterol. High Density Lipoproteins (HDL) Cholesterol is called good cholesterol because it helps to remove cholesterol from the blood stream. HDL Cholesterol must be more as it helps in balancing the levels in the blood. Cholesterol is found to be detrimental to heart health as it is a wax like substance that leads to blockage of arteries and thus heart attacks. According to heart.org from the nutrition perspective to reduce the levels of LDL Cholesterol one must restrict the intake of trans fats and saturated fats **(American Heart Association, 2017).**

The restrictions in diet are possible only when the person having heart ailment is aware of what to take and what not to take in diet. Also if one knows what needs to be avoided one must be aware of the amount permissible. It is recommended that one must not have more than 200 mg of cholesterol per day. Similarly the intake of saturated fats should not exceed 7% of the daily

intake of calories and this makes up for 15 to 20 g only per day. Saturated fats are found in high fat dairy products such as whole milk, cream and cheese, fatty red meat, and certain oils such as coconut oil and palm oil. It is still a matter of research whether some amount of saturated fats must be a part of diet or it should be totally avoided. Trans fats should be completely avoided in the daily diet. Although there are restrictions and people also are now more aware about the linkage of trans fats with heart disease there are still foods that have trans fats such as certain bakery products. In many pre packaged foods the claim of 'No Cholesterol' or 'Cholesterol free' is there. In fact the source of cholesterol in diet can only be from animal food. Any vegetable based oil is always cholesterol free. It is also suggested that one must increase the intake of dietary fiber which is considered heart friendly.

1.4.4 Nutrition and High Blood Sugar/ Diabetes

In Maharashtra 8.4% men and 7.3% women had diabetes in the year 2015-16 according to the data provided by Indian Council of Medical Research **(ICMR, 2017).** Also for Mumbai Suburban district the figures were 6.7% for men and 9.9% for women according to the same source. Taking the data of the Mumbai city district the figures are alarming with 20.6% for and 15.7% for women.

Type 2 Diabetes is a health condition that results in high amount of sugar in the bloodstream as the production of insulin (a hormone) from pancreas is reduced or stopped. Insulin helps in transferring sugar from blood into the cells of the body. In the absence of insulin, the amount of sugar that remains in the blood becomes more than optimal and this may lead to a number of complications such as kidney dysfunction, nerve damage and adverse effect on various organs. For those suffering from diabetes it is very important to restrict the intake of sugar. Carbohydrates increase the levels of sugar whereas proteins and fats do not increase the blood sugar levels. With carbohydrates too foods that are rich in fiber will not increase sugar levels fast. One index that helps to know how fast a particular food may increase the levels of sugar in the bloodstream is the Glycemic Index(GI). Foods that have high GI are not

good for diabetics as they release glucose fast and so the levels of sugar in the blood increase. Mostly foods with high fiber content are low on GI index and so are good for those suffering from diabetes. Whole grains are known to have low GI.

In general for people with diabetes, the contents on the nutritional panels to look out for are different names for Sugar, such as cane sugar, sucrose, raw sugar, maple syrup, honey, jiggery, molasses etc. Although they are different types of sugar but their impact on raising blood sugar levels is the same. Food items may have naturally occurring sugar or may have added sugar. It is recommended that instead of searching for various different types of sugars on the nutritional panels of pre packaged food, it is better to look out for total carbohydrates. The amount of total carbohydrates should not exceed 45% of the total calories that the body requires. To come out with approximately how much carbohydrates one is consuming the person needs to know the content in the food item. This is possible with the help of the information provided on the pre packaged foods. Most food packets have the 'Total Carbohydrates' column in the nutritional panel along with 'of which Sugars' value. A diabetic must look for 'Total Carbohydrates' and not only 'Sugar' values.

1.4.5 Relation between Nutrition and Allergy

According to a research by Dr. Mario Noti, food allergies are now an epidemic as almost 8% of the world population has one or the other kind of allergies associated with food **(Health and Medicine,Social Sciences, 2017).** Food allergies are a response of one's body's defense mechanism or immune system to a particular food that the body comprehends as an invader or an attacker although it may be a food in all general terms. The response may be in the form of itching, hives, digestive issues or even respiratory problems. An individual's response to a particular food whenever exposed repeatedly is to be noted by the individual only so that he/she may avoid the particular food item.

Since many years allergies have been associated with heredity but with a sharp increase in the number of cases worldwide it seems unlikely to be having only

genetic roots. Researchers have found allergies to be associated with the modern lifestyles too. The microbes present in our gut have a different intake to work on and thus immunity system of the body is finding it difficult to cope up with certain foods. This may have led to a rise in the allergies in the recent past.

A person suffering from allergies to specific food groups or particular food ingredient must look for its presence in a food before its intake. Even the presence in very small quantities may trigger an allergic reaction. Sometimes the presence of a particular food ingredient causing allergy may not be direct and in such cases also one needs to take the help of the nutritional panel. These nutritional tables on the food packets provide information about common allergens such as dairy products, wheat, nuts etc. If a person is allergic to something that in general is not an allergen, the person needs to be careful and must try to look for its presence in whatever he/she eats.

Many of the additives, preservatives, food colours added in processed food as well as the presence of pesticides may also lead to allergies. The presence of additives, preservatives and artificial colours and taste enhancers is often mentioned in the nutritional information. This can be of help to those allergic to such artificial ingredients that are quite commonly used in processed foods.

1.5 Consumer Behaviour

The study of consumer behaviour is chiefly concerned with the way individuals take decisions about using their resources (time, money, energy) for consumable things such as products, services travel and tourism, etc.

1.5.1 Consumer

Consumer is an individual who purchases products and services from a seller. Although a customer and a consumer are different but in the present context where we are mainly focused on the purchase and use of food products the two words-consumer and customer may be used interchangeably.

1.5.2 Consumer buying decision

It is important for marketers to estimate how consumers make purchase or buying decisions. If they can identify who buys which products and/ or services including prepackaged foods articles and why, then the likelihood of successfully influencing the demand becomes greater. If organisations are able to understand customer behaviour and meet customer expectations, they can achieve their goal of delivering customer satisfaction.

To understand what makes the consumers buy a product, one must first know the purchase situations. Understanding the purchase situation means whether it is a habitual purchase that the consumer is going for or is it something that the consumer buys only once in a while. It is also to be seen what kind of buying role does the consumer have in that particular situation. Buying a food product is a family decision, rather the decision for the family and so there may be many influencers in the family of the person who is buying the product. The customer who is buying the product may not actually be the decider. Someone else may be the decider in the family. So basically what role does the customer who is buying the product have is also to be known before understanding consumer decision process.

The consumer buying decisions may depend upon different types of consumer behaviour. There can be routine response behaviour, limited problem solving behaviour or extensive problem solving behaviour. Routine response behaviour is also known as habitual behaviour. It is applicable to products which are not of high value and so there is less of involvement by the customer. The decision to buy the product is taken when there is depletion of stock of this product. Many of the food items fall under this category. Customers are quite aware of the characteristics of the product and do not actively apply much of evaluation criteria. For such products easily

availability becomes one of the major factors. Another characteristic of such products is that the possibility of brand switching by the customer is more.

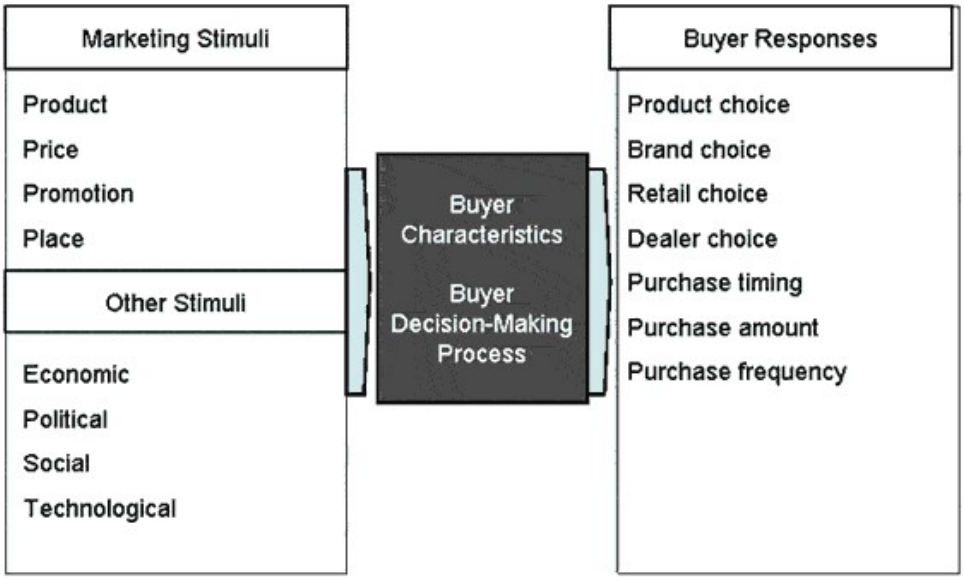
In the limited problem solving behaviour the evaluation and effort put up by the customer is more than for the routine response behaviour. This type of behaviour is more pronounced in case of such products where the class of products is known but the customer is not much aware about the brand specifics. In such a case the customer tries to gain more information about the brand and also tries to judge whether the brand fulfills his/her evaluation criteria. For example, when Vivo by Fortune brand was launched, it caught attention of the consumer as it claimed that it was antidiabetic. Some years back, when Saffola was introduced it claimed to be cholesterol free. At that time the consumers tried to gain information about how oil can be cholesterol free. Now, it is quite a well known fact that all vegetable oils are cholesterol free. Vivo being diabetic friendly was a new concept so consumers tried to gain information about how an oil can be good for diabetics. So when the consumer tries to buy a product and is quite clear about the class of product but when something new comes his/her way that leads to more active search by the consumer about the product features. A number of food products and their purchases are a result of the limited problem solving behaviour of the consumer.

In case of extensive decision making or complex buying behaviour there is high involvement of the customer. The customer spends a huge amount of time and sometimes money to buy a product which is not a very routine product. Most of the food products do not fall in this category. In the case of a person who has just been diagnosed with the lifestyle disorder, when he tries to buy the food recommended by a doctor he may search for a wide variety of food products spending a good amount of time and energy in understanding what will be good for him. But mostly such products are not very expensive although the involvement may be huge as it may be decided what the consumer will be buying for the coming few months, few years or may be the rest of his life.

Another kind of behaviour that is very commonly seen is the impulse buying behaviour of consumers. It is also called the 'Spur of the moment' buying. It is very commonly seen in the shopping malls in urban areas. Impulse buying basically means buying a product without giving much thought to it. There are a number of products which are kept near the cash counters in the malls. These are the products found to be bought by the customers without even needing them. In the case of food products in which impulse buying comes into play, customers are only concerned with the taste, the look and most importantly the price or discounts on the product.

An important consumer buying behaviour model is the one proposed by Philip Kotler. It is popularly known as the black box model **(Kotler, 2004).** The model is basically a three stage model with first stage being the input, the second being the process and third - the output. The input stage is also known as the stimuli, the processing part is the Black Box, and the output is the decision taken by the consumer. The first box of the model is the one in which the consumer is receiving the stimuli. The stimuli can be in the form of the marketing stimuli which comprises the product, price, promotion and place. The other stimuli can be demographic, situational, social and economic factors related to the customer. The second box is of the information processing stage. This is made up of two parts-one part consists of the Internal influencing factors for decision making which are basically the consumer's characteristics. The other part consists of the first three stages of decision making process. These stages are that of need recognition, information search and finally evaluation of alternatives. All these three stages of decision making process are also influenced by the internal influencing factors which are the individual characteristics of the consumer. These include the perception, motivation, attitude, lifestyle and personality of the consumer. The third box is the response or the output box. This consists of the purchase and post purchase behaviour.

Figure 1.20 Black Box Model by Philip Kotler



Source:(https://frameworkaddict.wordpress.com/2012/05/06/framework-14-aida-marketing-model/)

Consumer behaviour models are classified as traditional and contemporary behaviour models. Traditional models have largely been influenced by economists' point of view. These models are primarily divided into micro and macroeconomic models of consumer behaviour. Micro economic approach was propounded by Alfred Marshall **(Emmanuel Selase Asamoah, 2011).** As per this model the consumers have their own preference which is not influenced by external factors and this preference is mostly consistent. The model also says that consumers are restricted by their income and so choose such products which will lead to maximum utility. The model also assumes that the customers are totally aware of the utility of the product and how much satisfaction that product will give to them. Price is the only determinant in such models. The model also assumes that the customers are fully rational at

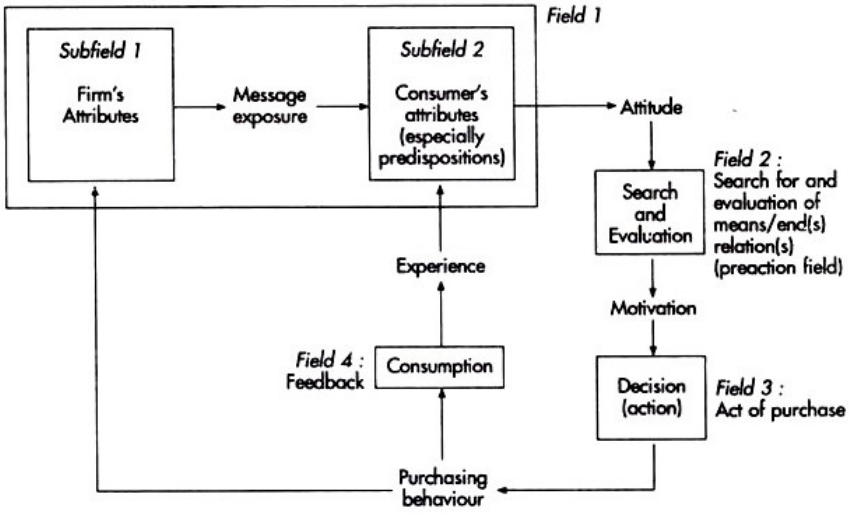
the time of making a decision to purchase the product and they evaluate each product on the basis of its utility to them.

Consumer behaviour models were also influenced by the macro-economic views. The macro-economic view suggests that people's consumption levels are governed by the company that they keep, in short with their peers and the social groups and not only on their absolute income levels. This was known as the relative income hypothesis given by James Duesenberry in the year 1949. According to another model known as the permanent income hypothesis which was proposed by Milton Friedman, consumption of a family or an individual depends upon what they consider as their normal income and not actually upon real income they have. Their incomes may vary over time but they try to keep their standard of living stable and their consumption depends on their standard of living **(Jisana, 2014).**It is quite evident that the theories or the models of consumer behaviour that were dependent on the micro and macro-economic perspectives laid a lot of emphasis on the income of the consumer and the price of a product. Then came many other models of consumer behaviour that considered many other factors also to be quite important in determining the behaviour of a consumer and the purchase decisions taken by the consumer. The economic models lacked the psychological aspects of consumer behaviour.

Of the contemporary models of consumer behaviour, one of the most popular is the Nicosia model. This model consists of four fields. The first field consists of the firm's attributes which influence consumer's dispositional attributes and traits based on the consumer's exposure to the marketer's communication. Field two is the pre-action field in which the customer searches for information and tries to evaluate alternatives. It is influenced by the customer's attitudes formed for the product as promoted by the firm. Then comes Field 3 which is the action field and this takes care of the decision taken by the customer. It is influenced by the motivational parameters that drive the customer towards a particular decision for purchase of a product. It leads to the purchase of the product. Field 4 relates to post purchase phase and

the feedback stage. In this stage, the customer uses or consumes the product and on the basis of the experience with the product the consumer's attitude towards the product is again influenced linking the process to the first field. Thus, Nicosia model of consumer behaviour unlike the economic models, also includes the formation of attitude towards a particular product by the customer based on the influences that the firm puts on the customer's mind by way of various promotion strategies.

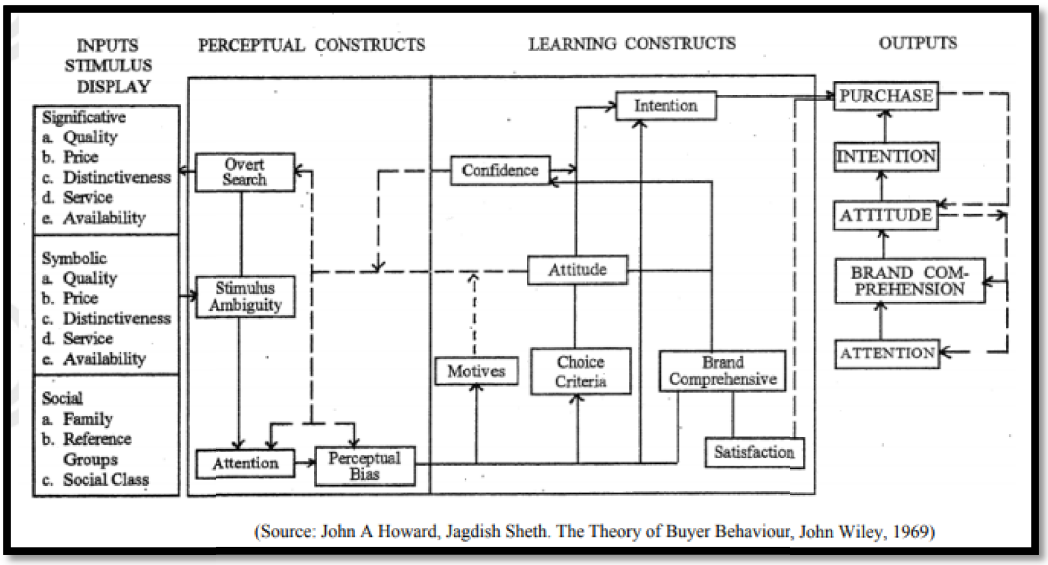
Figure 1.21: Nicosia Model of Consumer Behaviour



Source: (https://www.businessmanagementideas.com/project-report/consumer-behaviour-project-report/project-report-on-consumer-behaviour-marketing/8216)

Another consumer behaviour model that must be mentioned here is the Howard Sheth Model of consumer behaviour. This model takes into account the social, psychological and environmental variables influencing consumer behaviour. The model emphasizes on consumer behaviour being influenced by input variables in the form of environmental factors making the decision taken by the consumer to be a rational process leading to the outcomes **(Citeman, 2011).** The inputs are in the form of stimuli that result in the various outputs that end with purchase. What follows the input and precedes the output are various influencers that are instrumental in determining perception and learning of the consumer.

Figure 1.22: Howard Sheth Model of Consumer Behaviour



Source: (https://theintactone.com/2018/12/14/cb-u4-topic-6-howard-sheth-model/)

The model mainly considers four components – stimulus inputs, hypothetical constructs pertaining to learning and perception, outputs in the form of responses and exogenous variables. The input variables may be emanating from the characteristics of the product itself or from symbolic activities such as the promotional strategies used by the firm the product belongs to. Another input stimulus is the personal source of the consumer in the form of social environment of the consumer. The hypothetical constructs are in the form of perceptual and learning constructs. The perceptual constructs deal with how the consumer perceives the information that he receives from the input stimuli. Which information receives attention of the consumer and which one is left unattended, leads to stimulus ambiguity. This further may get distorted due to the manner in which the consumer perceives the input leading to perceptual bias. The learning constructs further are the stages consumers go through starting from the motive up to the satisfaction in buying the product. The output variables consist of responses starting from attention finally to

purchase. The model also takes into consideration various exogenous variables that are not defined and are taken as constants. These may impact the purchase decision but are not defined in the model. An example of an exogenous variable may be the importance that the consumer gives to the purchase, presence of other customers at the time of purchase etc. The model has had its followers as well as critiques.

A number of models and theories developed by management experts for customer behaviour share some common features. They are largely based on input – output responses of buyers. A study conducted by Nair S R et al(2013) dealt with understanding consumer behaviour in the choice of food and branding **(Suja Ravindra Nair, 2014)**. In their study they explored various models that described the factors affecting food choices and then discussed the impact that branding may have on the choice of food purchased by the consumer.

Common characteristics of different models are as under:

- Buying stimulations in the form of advertisements comprising health benefits, nutritional information, nutritional claims, health claims, etc.
- Personal discussions or information from new sources, advertising and promotion.
- Individual and socio-cultural factors in the context of buying behaviour-related driving forces, prospects and needs.
- External factors like place of shopping, ambience, packaging and convenience
- Limitations such as cost and time
- Comments, review posts, product images and feedback on social media sites.
- Stimulus likely to result in product buying with prevalent use of smartphones and the Internet giving rise to information sharing on social media platforms

1.6 Significance of the Study

Reviewing the scope of consumer awareness about Nutritional Information Panel gives valuable insight into what can help companies to educate consumers about nutritional content and the value of this information to identify what customers should ideally buy and what is to be avoided. Since lifestyle and diet-related health problems, particularly among urban population, have increased, companies that sell pre-packaged food products have begun to highlight the healthier options they sell. Most companies invest a considerable amount of money on advertising various nutrition and health claims of their food products. However, the effectiveness of such measures is not fully known in entirety. Further, providing Nutritional Information Panels on all pre-packaged food products has been made compulsory, which is being observed duly by companies.

This research aims to provide a better understanding of the use of Nutritional Information Panels and nutrition/ health claims by consumers in their purchase decisions. Knowing what consumers seek for nutrition information will enable companies and nutrition experts to achieve their goals effectively.

Overall, this study would help understand the importance of nutrition and nutritional information in the context of consumer behaviour and their purchase decisions.

1.7 Statement of the Problem

The purpose of this study is to comprehend how consumer awareness about nutritional information and nutrition claims present on pre-packaged food impacts the purchase decisions of customers.

1.7.1 Need for the Study

Consistent with literature review, it was observed that there have been researches conducted on the impact of nutritional information on purchase

decisions of consumers but most of the researches have their geographical constraints. Such researches have been common in other countries but in India specially for the city of Mumbai, definite research on consumer awareness about nutritional information and nutrition claims on pre-packaged food and its impact on their purchase decisions is limited and extensive research in this field is required. This research endeavour is an attempt to bridge this gap.

1.8 Research Questions

The present study is an attempt to answer the following questions:

i. Are the consumers of pre packaged food products aware about the presence of nutrition related information on the food packets?
ii. Are the consumers able to comprehend the nutrition information on food labels?
iii. Do the consumers use the nutrition information or nutrition and health claims by companies to take decision related to buying the food product?
iv. Does the presence of a lifestyle and nutrition related health risk factor (obesity, hypertension, heart blockages, high blood sugar and allergies) in the family of the customer make a customer more prone to use nutrition information or claims made on the food package?

1.9 Objectives of the Study

The following are the objectives of the present study:

i. To assess awareness and understanding of consumers regarding the contents present on Nutritional Information Panels of pre packaged food products.
ii. To indicate if there exists a relationship between various health risk factors (overweight and obesity, high blood pressure, high blood cholesterol, diabetes, allergic conditions) and the use of nutritional information panels by consumers.

iii. To determine whether Nutritional Information Panel, nutrition claims and/or health claims influence purchase decision.

1.10 Hypotheses of the Study

For a thorough study to find out solutions to the problems specified under the objectives of the research, a number of tentative assumptions are made that are tested in the course of the research. Presented below are the null and alternative hypothesis that are tested in the course of the study. These hypotheses are as follows:

H_o1: The consumers don't vary in terms of their awareness about the presence of nutritional information available on pre-packaged food products.
H_a1: The consumers vary in terms of their awareness about the presence of nutritional information available on pre-packaged food products.

$H_0 2$: There is no association between consumers understanding nutritional information and their health status.
H_a2: There is an association between consumers understanding nutritional information and their health status.

$H_0 3$: There is no significant association between the health status of consumers in terms of healthy and unhealthy and their usage of nutrition information on food packages.
H_a3: There is a significant association between the health status of consumers in terms of healthy and unhealthy and their usage of nutrition information on food packages.

$H_0 3.1$: There is no significant association between the health status of consumers in terms of obesity/overweight and their usage of nutrition information on food packages.

H_a3.1: There is a significant association between the health status of consumers in terms of obesity/overweight and their usage of nutrition information on food packages.

$H_0$3.2: There is no significant association between the health status of consumers in terms of high blood pressure and their usage of nutrition information on food packages.

H_a3.2: There is a significant association between the health status of consumers in terms of high blood pressure and their usage of nutrition information on food packages.

$H_0$3.3: There is an association between the health status of consumers in terms of high blood cholesterol and their usage of nutrition information on food packages.

H_a3.3: There is a significant association between the health status of consumers in terms of high blood cholesterol and their usage of nutrition information on food packages.

$H_0$3.4: There is no significant association between the health status of consumers in terms of diabetes and their usage of nutrition information on food packages.

H_a3.4: There is a significant association between the health status of consumers in terms of diabetes and their usage of nutrition information on food packages.

$H_0$3.5: There is no significant association between the health status of consumers in terms of allergies and their usage of nutrition information on food packages.

H_a3.5: There is a significant association between the health status of consumers in terms of allergies and their usage of nutrition information on food packages.

H_o4: There is no significant association between the health status of consumers and the influence of nutrition information on food purchase decision.

Ha4: There is a significant association between the health status of consumers and the influence of nutrition information on food purchase decision.

Ho5: There is no significant association between the health status of consumers and the influence of nutrition/health claims on food purchase decision.

Ha5: There is a significant association between the health status of consumers and the influence of nutrition/health claims on food purchase decision.

1.11 Scope of the Study

The study is applicable geographically to the western suburbs of Mumbai (from Andheri to Dahisar). Population from whom responses are collected through the questionnaire in order to consummate the study are people who are the residents of a section of the city's western suburbs that is the area from Andheri to Dahisar.

1.12 Limitations of the Study

Key limitations of this study are as follows:

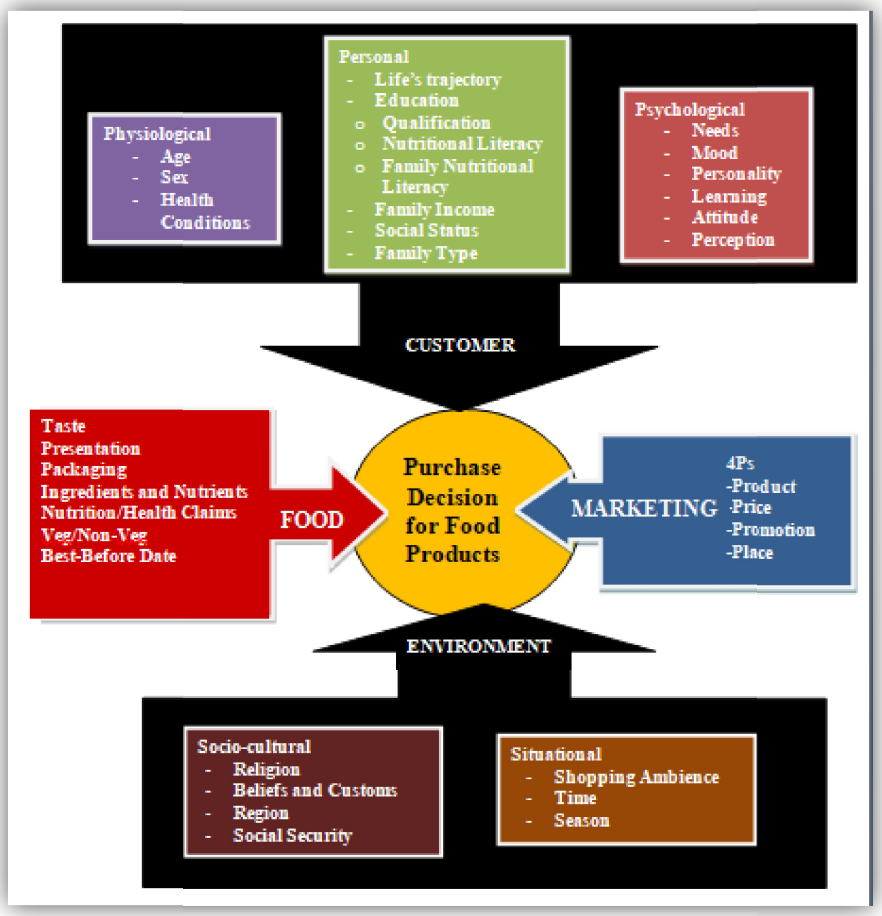
- The study is based on limited geographical area of the western suburbs of Mumbai with the defined scope of Andheri to Dahisar.
- The study is conducted only for pre-packaged foods.
- The study analyses views and opinions of the respondents based on responses to questionnaire as provided by consumers of packaged foods. The findings are based on the information provided by them which may not be entirely true.
- Sampling technique used is convenient sampling.

- Findings are based on the responses of sample with 65% of the sample in the age group of 18 to 35 years. Getting responses from the other age groups was found to be difficult.

1.13 Factors Influencing the Purchase of food products

There have been many researchers and authors who have come up with various factors affecting the purchase decisions of consumers for various products. Thoroughly studying various models has helped the researcher to present various determinants of food purchase decision as given below.

Figure 1.23 Factors Influencing Food Purchase Decisions



Factors Influencing Purchase of a Food Product

There are numerous consumer behaviour models that explain the factors that impact the final decision taken by the consumer to buy or not to buy a product. The present study deals with prepackaged food items as the category of product for which there may a number of factors into play while deciding on the purchase by the customer.

The researcher has come out with broadly four categories of determinants that lead to a customer taking purchase decision. Further the researcher has tried to explain through Food Purchase Decision Filter Model that not all factors may be important for a particular individual and for a particular product in a particular situation. There may be interplay of various factors in varying degrees of importance that lead to the food purchase decision by the customer. The four broad categories of factors influencing purchase decision for food products are:

1. Customer Related
2. Food Product Related
3. Marketing Related
4. Environment Related

1. Customer Related

The customer related factors are all those that are specific to the customer who is the purchaser. These factors can further be categorized into three components that are specific to the customer. These are:

a. Physiological/Biological
b. Personal
c. Psychological

A. Physiological Factors

The physiological or biological factors are the ones that relate to the customer's physical aspects such as the age, sex and the health conditions (pre existence of a disease).

i. **Age**: Age of the customer, to a large extent determines the stage of his/her life cycle, dependence on others for taking any decision and also the kind of food liked or giving importance to.

ii. **Sex**: The gender indirectly may influence the kind of food liked by a person specially in the context of the importance of the impact of the nutrients contained in the food on one's health.

iii. **Health Conditions**: The health condition refers to the existence or non existence of any disease in the customer. This factor can have a dominating influence on the kind of food that a person may consume and thus purchase. There may be such health risk factors that have a direct association with a particular nutrient. A person who is overweight must consume foods with lesser calories and a person with high blood pressure must restrict the amount of salt in the diet.

B. Personal Factors

Personal factors include those aspects that are very specific to a person and will differ with each individual. These include factors such as life's trajectory, educational qualification, nutritional literacy, family nutritional literacy, family income, social status and family type.

i. **Life's Trajectory**: Trajectory refers to the course or the path taken by one's life in the entire lifespan of an individual. There may be certain crucial junctures in life that may impact one's food habits/ food intake to a great extent. It may be something adverse such as diagnosis of a lifestyle related health condition that may change one's outlook towards food and nutrition or it may be getting a good job thus leading to a sudden change in one's standard of living and the amount of money spent on one's food. Life's trajectory also involves a smooth change from one stage of life to another. This can be starting to eat more at home as one enters married life or moving to a hostel and thus depending more on food from outside or hostel having minimal say in food intake.

ii. **Education**: Education as a factor that may influence one's food habits consists of the educational qualifications, level of nutritional literacy which refers to how much a person is aware of the nutritional content in various food items or awareness regarding balanced diet or daily recommended allowances for various food groups. This component also includes the nutritional awareness or nutritional literacy of not only the

individual but also of his/her family members as their awareness levels may influence the customer's understanding of food and nutrition.

iii. **Family Income:** The purchasing power of an individual greatly influences the purchase decisions related to various products and food products are no exception to it.

iv. **Social Status:** There are a number of exotic food products that are quite expensive and thus are considered a status symbol by most. There were a number of cereals such as jowar, ragi etc. that were a few decades back were considered the poor man's staple. Now the same cereals are considered preferred cereals by the health conscious.

v. **Family Type:** Here family type refers to joint family or nuclear family. Family type has a definite influence on the food intake but mainly through indirect ways. Number of members in a family influence the per capita expenditure on food, preferred food items in the presence of people of all age groups, traditional and home cooked food items liked more than in case of a small nuclear family. The difference is more pronounced in case of a nuclear family in which both parents are working and there is more dependence on ready to eat or convenience or outside food.

C. Psychological Factors

Psychological factors refer to those factors that relate to what drives an individual to behave in a particular way. These include needs, mood, personality, learning, attitude and perception.

i. **Needs**: The felt need leads an individual towards a particular food product. It is a very important factor as it decides a broad category of products from which an individual may choose the preferred food item to buy. It is in fact the starting point of the process that leads to the purchase of a particular food item by an individual.

ii. **Mood**: Mood refers to the transient response to a situation. It is non-specific i.e. it does not direct towards a particular subject. It may affect a person's response in a particular situation but is specific to an individual. The mood possessed by an individual impacts the decision taken as the individual may not analyse the product well or may overlook details.

iii. **Personality**: Personality is a set of patterns of feelings, thoughts and behaviour that remain relatively stable and lead to how a person reacts to situations or deals with the environment. There are a number of theories that try to explain personality. It plays an important role in any kind of decision taken by an individual. If a person is not open to experience anything new (which is a very much a trait of one's personality), it may restrict the number of choices that the customer will consider in the first place. A person who has an external locus of control may feel that choosing healthy food over his preferred junk food will not make any difference to his health. Whatever he does has no impact on the consequences. So he continues to be less or not at all conscious of his diet.

iv. **Learning**: The change in the person's thought process and behaviour as a result of experience is what is learning. Such a change may alter the decisions that an individual makes. In case of food when in the past a customer has had positive experiences with respect to a particular brand or a particular set of nutrients it influences the purchase decision of the individual.

v. **Attitude:** A customer's attitude towards particular brand, nutrients, information provided by a company or healthy living in general may impact the decision taken by him/her while purchasing any food product. Formation of attitude towards any particular object, a person or an event may be due to a number of factors. Past experience with the product, information about the product's intrinsic qualities or general liking or disliking with the product may lead to formation of positive or negative attitude towards the product.

vi. **Perception:** The meaning that an individual forms with all the stimuli received is called perception. How the information about a food product is communicated to the consumer influences the perception that the customer forms for the product. At the same time a number of factors specific to the customer and the situation will also influence the perception about the product which in turn will influence the purchase decision.

2. Food Product Related

The food product for which the buying decision is to be taken itself is a big factor on which depends the customer's decision to buy or not to buy. Factors that form a part

of food product related aspects are taste, packaging, presentation, nutrients, nutrition/health claims, veg/non-veg category and best before date.

i. **Taste**: In various studies conducted on factors that consumers take into account while purchasing food items, taste or the sensory satisfaction that the food provides is found to be one of the deciding factors. It justifies the ever increasing demand for junk products by people.

ii. **Presentation and Packaging:** The manner in which a product is presented before a customer by way of packaging and the promotion tactics is a part of marketing component but at times a customer is very particular about the safety, hygiene and the packaging requirements of the product and attaches the aspect of quality with presentation and packaging of the product. The customer views a product along with its packaging and presentation.

iii. **Ingredients, Nutrients and Nutrition Claims:** Ingredients are all the contents that are used to make the food product. Ingredients are mostly what customers look for specially when they wish to know about any allergens. Nutrients and ingredients are different. Food has a functional value of providing nutrients to the consumer. It is one of the basic reasons for which it is consumed. The nutrition provided by the food is communicated to the consumer with the help of the nutritional information panel provided on the food packets. The nutrition and health claims provided by the company may also impact the purchase decision of a customer.

iv. **Veg/Non-Veg Mark**: The food being vegetarian or non –vegetarian is an important factor for many customers. Cultural and religious preferences of customers make this factor quite important for many as non vegetarian food may not be permitted in many communities. Those who are pure vegetarians consider the food being totally vegetarian to be a very important consideration before buying.

v. **Best Before Date:** The Expiry date and the Best-Before date are an important part of the label on a food package. The importance of this information varies with the type of food product. In case of perishable goods such as breads, the Best- Before or Use-By date usually finds more importance. It also depends on individual customer as some customers may be more specific about the date

and attach a lot of importance to this aspect as it relates to the quality of the product.

3. Marketing Related

Companies make numerous efforts to make the customer understand the value of their products. The marketing mix clubbed as the 4 Ps –product, price, promotion and place do make an impact on the customer's purchase decision.

i. **Product**: The food item, its intrinsic value, the ingredients with which it is made and the nutrients it provides - all are instrumental in influencing the customer's choice.

ii. **Price**: The price that the customer needs to pay to own the product is a definite influencer in purchase decisions. The comparison of price is often made and the customer compares the value that the food product provides to the price that one has to pay before making any purchase.

iii. **Promotion**: Various promotional strategies seem to impact the purchase decisions of the customers and food items are no exception. Tempting images, claims about the nutritional value the product has, bundling offers, various advertising tools constantly bombarding the customers communicating to them what the company desires mould the minds of the customers.

iv. **Place**: Availability of the food product is an important determinant when it comes to actually buying the product or not. Convenience is what the customer feels is of a lot of importance and thus making the product available without any hassles is a big way of gaining customer loyalty. Online delivery of products at just one click with huge variety to look out from has made the customer decide on most conveniently available food items.

4. Environment Related

Environmental factors that influence food choices are categorized as Socio-cultural and Situational. Socio-cultural factors include religion, beliefs and customs, region and social security whereas situational factors are the ones

that lead to sudden change of opinion because of the elements present during the time of purchase.

A. Socio-cultural Factors

i. **Religion**: Religion followed by an individual plays a major role in determining what the person eats and what is prohibited from the list of eatables. There are restrictions in the intake of various foods in different religions thus making the choices very clear to the customers.

ii. **Beliefs and customs**: Besides religion, food has a good influence of customs followed by and the belief systems of an individual. The festivals celebrated, the value one gives to specific traditions, how conservative or liberal one may be in what is generally followed by those around him/her may impact food choices in big way. What one has been fond of and has been a part of the customary ceremonies since his/her childhood has a strong bearing on the person's likings and disliking.

iii. **Region:** The region where a person resides affects the availability of food as well as the preference to particular food items. Certain foods are endemic to certain areas and this directly and indirectly impact the taste, price and availability and thus the purchase decision of the customer.

iv. **Social Security:** Whenever there is social insecurity because of any reason be it the prevalence of an epidemic, economic instability, riots and wars people tend to overlook the other aspects of food and start to give importance to looking at food as the basic ingredient for survival. Insecurity for future urges man to hoard or keep in abundance whatever is felt needed to survive. Food is viewed as one of the first and foremost commodity to continue survival. The decision about what to buy is influenced by the durability of a food item under such circumstances.

B. Situational Factors

i. **Shopping Ambience:** Sometimes a customer plans well about what to buy and prepares a shopping list before entering a shop but ends up with an entirely different list on the bill. What happens in the shop changes the purchase decision of the customer. It may be the manner in which the shopkeeper dealt with the customer, the arrangement of the products, presence of other customers or even the temperature or a peculiar smell in the shop. The shopping ambience here does not only pertain to the physical shop. It is also applicable to online shopping. In that case the factors may be the unsolicited pop ups, suspicion about the security of the website or slow internet connection.

ii. **Time:** Time here pertains to the amount of time the customer has at his/her discretion while making the purchase. Being in a hurry results in a sudden change in decision for sometimes unexplained reasons. Sometimes the time of the day indirectly influences the purchase decision as it may influence the mood of the customer.

iii. **Season:** Season influences the availability of certain food items. It also impacts the price and the utility of a particular food. There are certain food items that may not be considered suitable to be taken during a particular season.

Thus the chapter on introduction to the topic concludes with a thorough understanding of the factors influencing purchase behaviour of consumers with respect to pre packaged food.

Chapter 2: Review of Literature

The study on 'Nutritional Information and Nutrition Claims: Consumer awareness and impact on purchase decisions' has a tremendous scope of looking out for existing literature. This literature review does not include every article or every piece of knowledge here but efforts have been made to gather data related to the field to an extent that has made the researcher clear about the existing body of knowledge available in the area of interest.

There have been a number of research studies done to understand the awareness levels of consumers about food labels, nutrition information tables and nutrition claims made on pre packaged foods. The importance of food labels has been growing since the last two decades as consumers have got health conscious. One of the reasons for the growing importance of nutritional information on food packets has also been the compliance by packaged food companies to the regulations related to food labels by the governments of different countries. The labels are meant to be used by consumers so that they may take informed decisions while purchasing food products but are they really making use of the information provided to them, is an area that needs to be pondered upon.

The sudden increase in the urban population and the change in their lifestyles has also led to lifestyle related diseases. These health conditions are also related to the nutritional intake of the consumers. That is another area to be looked into.
The content of the review has been categorized in three broad areas:

a. Consumer behaviour for food products
b. Consumer awareness and usage of food labels and Nutrition Information
c. Nutrition and lifestyle related diseases

A meticulous review of a range of books, journals and magazines, research reports, newspapers, etc. was conducted for the purpose of this research. Some selected literature reviewed during the study is being discussed below.

2.1 Consumer behaviour for food products

A research was carried out in Bangladesh which studied the impulse buying behaviour of consumers **(Tinne, W. S.** (2011, January-June). In the study it was found that females are more impulsive when it comes to buying than males. Younger people in the age group of 26 to 45 were found to be the most impulsive buyers. It was also found that price can prove to be a major influencer in case of impulse buying. A reduction in price may lead to impulse buying.

A study on buying behaviour of consumers for food products in an emerging economy was conducted (**Jabir Ali,** S. K. (2009, Oct 29) in which it was found that there is a clear preference for freshness/cleanliness of food products leading to purchase. The other factors influencing the purchase decision of consumers with adequate purchasing power include price of the product, its quality, packaging and availability during off season period of the year.

A study was carried out on social determinants of food purchasing practices, about who chooses price-before-health, taste-before-price or organic foods in Australia **(Ward, 2012).** The data collection was done through a survey in which questionnaires were given to a number of respondents and the final analysis was done on more than 1100 responses from a randomly selected sample of house holders. In the survey more than 88% of the respondents were convinced that they were ready to pay more in case the food is tasty. Almost half of the respondents were of the opinion that they laid more emphasis to price than to nutrition and health. Those having full time employment were seen to be more interested in organic food than the ones having part time employment. Economic status could be one of the reasons. The study also revealed that health and thus nutrition provided by the food was considered before price by certain section of people that included women, educated people and older people. For men, younger individuals and less educated ones price came before health and nutrition. It was found that men were more sensitive to price but were still ready to pay more for health rather than taste. More educated and higher income individuals were more willing to pay higher for healthy products but men, younger individuals and less educated were more concerned about price than health.

A study conducted in the Kunnur district of Kerela state presents a number of interesting facts about the way product packaging influences consumer behavior **(Suraj Kushe Shekhar, 2013**). For the study, the characteristics of chocolate packaging were considered and the respondents were students. The study found that consumers were more convinced with information content on the labels rather than the visual characteristics of packaging.

A research on consumer behavior on instant food products was conducted in Hyderabad, Andhra Pradesh that studied the sample of 180 consumers (**M Bala Swamy, 2012)**. In ready products almost all respondents were aware of pickles and Sambhar Masala being available but only 57% respondents had an idea of the availability of idli/dosa mix. Higher income was one of the factors that was seen to be related to buying instant foods. Easy availability and saving on time to prepare were the other reasons that led to increase in the demand of instant food products.

A research conducted in the year 2012 studied the purchasing behavior towards ready to eat and ready to cook products by consumers who were considered health conscious in four big cities of Southern India **(Vijayabaskar M, 2012)**. The survey was conducted online. It was found that the major reasons for purchasing healthy ready to eat or cook products was health and for that the consumers took into account the content or the ingredients of the food products.

2.2 Consumer awareness about and usage of food labels and Nutrition Information

Vemula S R et al (2014) conducted a cross sectional study on 1832 educated consumers of varied age groups at supermarket sites in two cities- New Delhi and Hyderabad **(Sudershan R Vemula, 2014)**. It was found that majority of the subjects (81%) read the food labels only to look for the expiry date and manufacturing date. The labels are read by almost 90% of the respondents. The ingredients and the nutrition information on the labels is checked by only about 30% people. Usage of nutrition information is found to be more among females concerned about consumption of fat and sugar. Most people found the labels on pre packaged food incomprehensible. Many people also lacked knowledge about nutrition to be able to

understand the nutrition labels. They found the information to be too technical to be understood by all. It was also found that those with higher educational qualifications were seen using the information on food labels.

A study reviewed research conducted on use and understanding of nutrition labels among consumers and the impact of labeling on their dietary habits. The authors found the nutrition label to be a credible source of information for consumers who use this information while taking purchase decisions for pre packaged foods (**Campos S, 2011)**. They found that those who use nutrition information follow a healthier diet. According to the study the usage is found to be lesser among children, adolescents and older adults specially the ones who are obese. The study also highlighted that there are challenges in the proper usage of labeling information especially as not many people understand the labels easily.

A research was conducted to analyze the labels of milk based malted health drinks used in the Indian market. The contents in the nutritional information were analyzed to check whether information related to the amount of energy, carbohydrates, proteins, fats, sugars, cholesterol, fiber, vitamins and various minerals was provided or not **(Nivi Srivastava, 2013)**. According to the segmentation, the study also found the results individually for drinks that were categorized as meant for all (regular), mothers and children. The results of the study undoubtedly indicated that nutritional information was provided clearly on the packets and that consumers also made use of the information to take informed decisions.

A study conducted on nutrition labeling in global South emphasized on the need for research on the how effective food label interventions have been in order to understand the usage of food labels among consumers across different demographics (**Jessie Mandle, 2015)**. It also reiterated the need to comprehend the long term health implications as a result of food labeling. The study found research lagging in understanding the attitudes and usage of food labeling among poor- both urban and rural. The chances of suffering from Non- communicable diseases acquired as a result of nutrition related reasons has been found to be more. There is a dire dearth of research on how labeling on prepackaged food may influence their purchase decisions

as well as their dietary intake. More research is also required to understand the food and beverage industry's response to food labeling in global South.

Socio demographic indicators such as gender, education and income have a significant impact on the use of food labeling information leading to purchase decision **(Jabir Ali, 2009)**. Certain factors such as information related to storage and production processes, quality and nutrition and elementary product information are viewed by consumers before they buy a food product. To view the nutrition provided by the product the consumers look both for the ingredients as well as the nutrition table.

A study was conducted to understand the awareness amongst consumers about food labels **(Dudhate, 2017).** It was seen that more number of businessmen looked for standard marks of products while purchasing as compared to lawyers, doctors and professors. The study also brought about the fact that almost all lawyers and doctors were aware about the expiry date on the food labels. The awareness was found to be slightly lesser in case of professors and businessmen. Also less number of businessmen were aware about the ingredients than lawyers, professors and doctors. It was also found that the nutritional information read by businessmen is more related to calories, protein, fat, sugar, vitamins and minerals. Professors on the other hand read more about carbohydrate, fiber and sodium content. Doctors were more concerned about the content of cholesterol than the other consumers. The study has been interesting as well as informative as it attempts to find out the usage of nutritional information among individuals in different professions.

The study titled 'Food Labels: Assessing Awareness and Usage Level of Indian Consumer and Influences on Food Buying Behaviour'was conducted on 373 consumers across the cities of Lucknow, Delhi and Kanpur for assessing awareness and usage level of customers related to food labels and influences on food buying behaviour **(Sushil Kumar, Food Labels: Assessing Awareness and Usage Level of Indian Consumer and Influences on Food Buying Behavior, 2011)**. The study focused on exploring the awareness of food labels and information on them and also the extent to which the information influences the purchase decision of consumers. The information collected from the respondents consisted of their views on the

information present on the labels of pre-packaged food products; Information such as the list of ingredients, nutritional table, some phrases used on the labels as nutrition claims, serving size and any additional statements related to health benefits of the food item was collected. The study came out with the findings that majority respondents attach importance to the kind of information provided on the food packages. Most find the 'ingredients' of the food item to be the most important information they look for. Around 51% of the respondents also opined in favour of the importance that the nutritional information in the form of Nutritional Panel has on the pre packaged food products. An interesting finding is that people give less priority to the information related to the serving size and the nutritional claims that are present in the label. The study also made the point that as the income increases the usage of food label information increases substantially. It is found that consumers are aware about the contents of the nutrition information on the pre packaged foods but the usage of that information for taking purchase decision is relatively low.

An interesting study was conducted to investigate the nutritive value of biscuits. The data collected was from the nutrition table provided as part of the labeling information on biscuit packets **(Saista Anjum, 2014)**. Another aspect that the study looked into was the impact that the labeling information has on the purchase decision of consumers. The study concluded that most of the consumers were aware of the presence of nutrition information on pre packaged foods but were not using the information to make purchase decisions. They were also not aware of which ones are mandatory and which ones are voluntary labeling requirements. The study also found that the companies are very well aware of the voluntary and mandatory requirements on the packages in case of pre packaged food products.

In a study titled 'Assessment of Consumer Awareness about usage of food labels and its impact on food buying behaviour' the researchers collected data from 60 respondents of higher educational institutes of Pilibhit district of Uttar Pradesh .The study brought about the fact that although high percentage of respondents read the information on the food packages, the usage of information on the nutritional panel is relatively low **(Virender Pal Kaur, 2016).** It was found that the majority of respondents give most importance to the expiry date. Nutritional information is

checked by around 56% of females and 50% of male respondents. It was also seen that brand and price are among the most important factors while buying pre packaged food. Information about directions for use and any precautions is not much read by consumers. The study examined many factors that lead to purchase of food by consumers.

For a research titled 'Knowledge and practices of using food label information among adolescents in Kolkata' the sample consisted of 297 eight standard students of public and private schools of Kolkata **(Subbarao M G, 2013).** Of the entire sample only 88% of respondents claimed to read food labels on the packages. About 75% of those who read labels checked the 'Best Before' or 'Expiry Date' and only about half of the respondents checked the ingredients. Of all the respondents only one fifth claimed to have checked the nutritional information such as fat, protein, carbohydrates etc. Questions were asked related to the awareness about the 'ISI' and 'AGMARK'. It was found that majority of adolescents could recognize the 'ISI' mark and on what product the mark is used. Majority students did not know whether 'AGMARK' is mandatory or not. The study also revealed that more than half of the respondents found food labels incomprehensible and confusing. The study calls for a change in the way labels are represented, a change from textual information to more visually descriptive ways such as colour coding or traffic light system.

A research was conducted to analyse the awareness and understanding of the food labels on various pre packaged food items and the impact of the usage or non-usage on the purchase decision **(Srivastava, 2015)**. The study consisted of sample size of 100 respondents who are the residents of Lucknow, the capital city of Uttar Pradesh. It was found that consumers take the help of food labels to assist in taking purchase decision. Those who do not read labels do so as they find it time consuming , do not feel that the labels provide reliable information and also find the information such as the nutrition table to be too technical to comprehend. It was found that 57% of the respondents were not aware of various certifications and the regulations related to food safety. It was also seen that those who suffer from a disease tend to read the nutritional information and understand it. Those who were on special diets consulted the nutrients more often. Which nutrient was looked for also was linked with the kind

of problem the respondent or a family member was suffering with. It also came to light that almost 70% of the respondents were not aware of the term RDA(Recommended Dietary Allowance). In the study females were found to be using the food labels as information source more than the males.

A study was conducted in the capital city of Botswana in which the researchers found that the awareness about nutrition is quite high among the respondents **(Godfrey Themba, 2013)**. Researchers also found that there was no significant difference in the level of awareness among various demographic categories but the difference was clearly visible in the usage of nutrition information in order to take informed decisions. Those who were not using nutrition information were either lacking knowledge about the same or lacking interest. It was also found that people look for nutrition information mainly in order to compare food products for their nutritive value or while purchasing a food product for the first time.

Azman N and Sahak S Z(2013) in their research on 'Nutrition Label and Consumer Buying Decision: A Preliminary Review' suggested that the use of nutrition labels by consumers brings about changes in the decisions that they take related to the purchase of food products. It was found that consumers choose the healthier options when they read the nutritional information **(Norhidayah Azman, 2014).** The study concluded that there is less research done on the issue and there is a need to understand the value of nutritional labels and the impact it makes on the purchase decision of consumers.

In another research conducted in Romania on consumer response to food labels, data were gathered from 428 consumers through an online survey **(Festila, 2014).** Some interesting findings were that most of the respondents did not read food labels and the awareness of food labels too was low except for the Guideline Daily Allowance(GDA) and organic food for which the awareness was better. The labels that had a clear text were understood better by the consumers.

As per the research titled 'Consumer awareness and status of food labeling in selected supermarkets of Puducherry', more than 90% of respondents are aware of the labels on food packets and more than 99 % prefer labeled foods **(Jain S, 2018) .**An

interesting find although was that less than 10% of the respondents admitted of understanding the food labels and about 76% checked the labels on every purchase. The information most checked by respondents includes cost, ingredients, expiry date, date of manufacture and instructions for use. The respondents also stated that the influencers of using food labels are related to health, obesity and overweight, presence of non communicable diseases, pregnancy and small children in the family. The respondents also suggested that clear, attractive and food labels with bigger font size will help customers use them more effectively. As per a study conducted in the Ajmer city of Rajasthan state with female respondents it was found that nutrition labels on food packets influenced the buying decisions of majority of the respondents. For most of the respondents 'taste' was not the most or the least important of the factors leading to purchase. It moderately influenced purchase decision. Surprisingly price of the food products failed to show any particular relation with purchase decision whereas nutritional information on the food labels was perceived to be an important influencer of purchase decision of consumers.

A study titled ' The science of front-of-package Food Labels' reviewed various researches in the field of consumer behaviour towards, understanding of, usage of, preference for and perception of front-of-package food labels **(Kristy L Hawley, 2013).** The study also tried to review the impact of food labels on purchase decisions of consumers. It also tried to examine the industry product reformulation in case of pre packaged food products. The findings of the study indicated that the Multiple Traffic Light system of food label displays is most understood by consumers and they are able to identify healthier options of food. There is a need to find out various display formats and their impact on usage and understanding of food labeling information.

The study titled 'Consumers' response to on-shelf nutritional labeling systems in Supermarkets: Evidence to inform policy and practice' tested the impact of the usage of different on-shelf nutrition labeling systems in the understanding of the labels by the consumers **(Erin Hobin, 2017)**. It was found in the study that the introduction of the Guiding Stars system (an on-shelf nutrition labeling system) led to consumers opting for better choices as far as nutrition is concerned. The study assessed the

consumer awareness, trust, understanding and self reported use of labeling systems. It was seen that consumers made a shift towards healthier nutritional choices although the shift varied with different food categories. The use of Guiding stars labeling systems also led to increase in the number of products purchased per transaction, price per purchase and also the total revenues. Majority of the respondents reported understanding the labeling system but a small proportion accepted its impact on purchase decision. The study provides a good insight on the use of interesting and self explanatory labeling systems to improve their understanding and usage among consumers.

Volkova E et al (2014) in their research study titled 'Effect of interpretive front-of-pack nutrition labels on food purchases: protocol for the Startlight Randomized controlled trial' made an attempt to assess the effect of interpretive food labels on the purchase decisions as against the non interpretive labels (**Ekaterina Volkova, 2014**). It was found that interpretive labels are better understood and thus impact purchase decision more towards healthier options.

In another study on 'Impact of different Front-of-pack nutrition labels on Consumer purchasing intentions' it was found that Five-Colour nutrition label was most impactful leading to healthier choices picked up by consumers **(Pauline Ducrot, 2015)**. The label was followed by multiple traffic light and the Green Tick style of food label that also affected the purchase decisions leading to healthier options. These studies bring out the fact that consumers do get affected by the nutritional information provided on the prepackaged food packets provided the information is given in the form comprehensible to them.

In another study titled 'Do nutrition labels influence healthier food choices ? Analysis of label viewing behaviour and subsequent food purchases in a labeling intervention trial', it was found that 23% of the consumers who purchased products viewed label before buying. The study also found that label viewing varies with the type of food products **(Cliona Ni Mhurchu, 2018)**. Labels were more likely viewed in case of food products such as snack foods, cereals, convenience foods, oils and confectionaries. Labels were not viewed much in case of eggs, fish, meat, sugar and

honey based products and fruits and vegetables. There was also an interesting find that the purchases that followed label viewing were found to be healthier than those in which labels were not checked. The study provided substantial evidence that reading nutritional labels leads to healthier choices at the time of food purchase.

A study was conducted on empirical determination of consumers' reaction to nutritional labeling of pre-packaged food products. A total 280 respondents were selected from ten localities of Lagos mainland on Nigeria **(Ben. E.A. Oghojafor, 2012).** The findings of the study were that more than 85% of consumers bought prepackaged food products. Almost 84% consumers were aware about the presence of nutrition information on prepackaged food products and about 81 % of the respondents also claimed that they even read nutritional information. When asked about the understanding of the information provided on the nutrition facts panel about 66% only said that they understood the information. About 20% of respondents also said that the presence of nutritional information has no influence on their purchase decision for pre packaged food whereas about 75% claimed to be influenced by the information on pre packaged food related to nutrition and almost 74% respondents consciously searched for nutrition information before they purchased any food product. Nutrition information on food labels was considered to be authentic by almost 65%. Thus the study concluded that nutrition information on food packets has a strong influence on their purchase decision.

'Study of consumer awareness on food labeling and use of pack information for purchase of pre packaged food products' was conducted in the city of Anand in Gujarat state. The study assessed the awareness of consumers about the food label and the importance they give to the information provided **(Samit Dutta, 2017)**. The study revealed that a whopping 86.7 % of consumers look for label information before making the purchase. This high percentage however did not translate to making the purchase decision keeping the information in view. Only one third of the respondents were found to have awareness about the labeling information related to nutrients. The study also stated that the level of awareness related to food labels is directly proportional to the level of education. The awareness levels were seen to be higher among the female consumers. Around 46% of the consumers considered food labeling

information to be important and more educated consumers as well as female consumers are found to attach more importance to the nutritional information provided on the labels. It was also found that around 83% of the consumers consider price as the most important factor while purchase. Reasons for not checking the nutrient label information have been found to be being in a hurry or making routine/repeat purchases. Small font size and technical words were found to be the most important hindrances that keep consumers away from reading food labels. They need to absolutely avoid canned processed foods and should also avoid any salt based seasonings. A good care of dietary intake of salt may be a big boost to their health along with proper medication.

A study was conducted in United Arab Emirates about consumer awareness of food labeling. The study came out with interesting facts **(Sherif, 2012).** About 90% of respondents admitted that they read information present on food labels and more than half of the respondents showed their preference towards food items that had labels on them. The information that most of the respondents looked for on food labels were expiry date, ingredients list and the country of origin. It was also found in the study that females and more educated people were more likely to read food labels. It was also seen that those who had young children and the ones with age more than 50 years were more interested in reading and using the information on food labels. People in UAE feel that food labels with basic information must necessarily be provided on food packets.

A study in Iran was conducted to understand the knowledge, attitude and practice about food labeling among medical and non medical science students. It was found that almost 89% of the students felt that food labels increase nutritional awareness among consumers and 77% found food labels to be useful **(Aida Malek Mahdavi, 2012).** Almost 79% students felt that it is difficult to trust the information present on food labels.84% of the students in the age group of 18 to 25 years were of the opinion that the most important piece of information on the labels is the date of expiry and storage conditions(in case of foods having less shelf-life) but only 48% claimed to use nutrition facts table that appear on food labels and even lesser(32%) admitted to use nutrition information to decide which foods to keep in their daily diet.

A research study titled 'Nutrition Label usage: An empirical study of consumer response in India' was conducted in the capital city of Chandigarh. The study concluded that Indian consumers read nutrition tables and labeling information on pre packaged foods the same way as the consumers outside India do **(Reeva Paul, 2014)**. The most likely sought after information in the nutritional tables is the fat, cholesterol and energy. The usage of nutritional information has been found to vary with gender, income and education levels. It was also found that consumers wish to have simpler and more standardized nutrition information on the pre packaged food products.

A research with the title 'A systematic review of the prevalence of nutrition labels and completeness of nutrient declarations on prepackaged foods in China' studied around 15 surveys conducted by various researchers **(Huang, 2016)**. It was found that there was heterogeneity between the surveys about the information provided on the labels. It was seen that most pre packaged food labels had information which did not comply with the then standards of Chinese nutrition labeling. The food packages do contain information about the nutrients but what information and how much of it is shared on the labels is not complied by the companies.

Awareness of food labeling among consumers was assessed in groceries in Al-Ain, United Arab Emirates. There were 1200 consumers from whom data were collected while they were shopping. The interaction with them helped the researchers in assessing their knowledge, attitudes and practices. Around 90% of the respondents were aware of the food labels and they also knew about the kind of information that the labels have. The respondents however claimed that they do not read the entire labels but only information such as manufacturing and expiry **(Washi, 2012)**. The study also found that there is an increase in the consumption of pre packaged foods but the awareness of the label put on the packages is not increasing at the same pace. Majority of the respondents said that they would compulsorily wish to see the information such as expiry date, manufacturing date, an health warning, nutrition table and any health claims on the food packets that they use.

In a study on adolescent nutritional awareness and use of food labels it was found that the awareness about nutrition information and food labels differed significantly according to race and ethnicity (**Heyman, 2012)**. Awareness about the Food Guide pyramid and 5-Day Health Program was found to be the most among Non-Hispanic whites, while other Hispanics were found to be most aware about the dietary guidelines for Americans. Mexican Americans had the lowest awareness of all three programs. There were marked differences in the nutrition information usage behviour of different races and ethnic background. African Americans were seen to be least bothered to read any fat related information from the labels. Calories from fat, trans fat, saturated fats, the serving size information, and the nutrition facts label were checked mostly by Non-Hispanic white adolescents. Other Hispanics were not very keen on checking the fat content but checked sugars, fiber, and carbohydrates, sodium and the ingredient list.

A study conducted to assess the awareness and use of nutrition labels on pre-packaged foods among consumers in Accra metropolis in Ghana came up with interesting findings **(Aryee, 2013).**. The research showed that more than 80% of respondents were aware of the presence of food labels with nutrition information on them. The most looked for information out of the content of food labels was found to be the expiry date and nutritional information. Although the respondents were aware of the presence of food labels almost 25% of them said that they never looked for nutrition information. Those who looked for nutrition information were more interested in the amount of fats, sugars and cholesterol. Another very interesting find from the study was that there was no relation established between pre-existence of any special diet with the usage of nutritional information for buying the food products

A research on nutrition labeling compliance of branded processed packaged foods with Indian food laws (FSSAI. 2011 regulations) was conducted in the city of Vadodara. Information was collected from supermarkets and grocery stores. The researchers took data of 1020 branded and labeled food products **(Meenu Singh, 2013)**. The study was an eye opener as it showed that only 8.4% of Nutrition Facts Panels had informative and easy to understand information. More than 60% of the products gave nutrition values per 100g with no reference point such as Daily Value

or Recommended Dietary Allowance (RDA)to compare. The study also showed that the compliance for five mandatory nutrients as per FSSAI which are energy, carbohydrates, sugar, protein and fat and ingredients list was not properly provided in various products. Symbols for vegetarian and non vegetarian food were found in all the products. The study thus concluded that Government must ensure that manufactures must provided correct and easy to understand information on their food packets as regulated by FSSAI to ensure that compliance to the guidelines made mandatory by FSSAI is there which in turn may help consumers to take informed decisions for their health.

A study conducted on awareness and use of food labeling information among consumers in Bhubaneswar city showed that the consumers were aware of the presence of food labels and also about the content present on the food labels **(Priyadarshini, 2014)**. It was found that the consumers mostly look for price and expiry date and are not much concerned to find out the nutrition related information on the packets. The study emphasized on the need to increase the awareness levels towards nutrition information, health advisories and various health claims and usage of such information to take decisions before buying a food product.

Consumers' behaviors related to important information on the labels and their reasons for use and non-use was studied in a research conducted in Tehran **(Amiri, 2015)** . Results showed that young, educated and females had more awareness about nutritional information on food packages. More than 70% of the respondents felt convinced that taking food products within the range of expiry date ensures that the food product is good. Majority of the respondents claimed that they felt that checking the nutritional information is of no use while buying a food product and thus they never bothered to check the nutritional content. Less than 5% of the respondents claimed to use nutritional information as a criterion for food purchase. Most respondents fount the print size on the food packets to be too small thus acting as a deterrent to its usage. The others opined that the lack of interest and lack of understanding the labels are the major reasons for not reading the Nutrition Information.

In an interesting study was conducted in Malaysia to find out how beliefs, attitude, norms, intention and perceived behaviour of consumers influence their awareness towards food labels. The study was conducted on Indian consumers staying in Klang, Selangor **(Ayob, 2015).**It was found that the majority of consumers had no idea of food labels but agreed to the fact that it is important to understand food labels and use them before buying food products. Result revealed that the majority (72%) of Indian consumers was not aware of food labels and only 28 per cent of them were aware of the food labels. The results showed that most of them were aware of the importance of understanding food labels.

Consumers are bombarded nowadays with huge variety of food products. The fact gives consumers more choice to pick their product but at the same time it makes the consumer act more responsibly **(J. de Jonge, 2006).** This is more so as consumers are exposed to a lot of information and sometimes also the food risk information. Food risk information pertains to such facts that may make consumers suspecting of the benefits (or harm) that may result from the food item. There are a number of such food risk information from various sources such as internet, social media, newspapers, television and other sources that are full of news items that require further validation by the customer.

2.3 Nutrition and Lifestyle related diseases

As per the article, 'Got high cholesterol? Here are five Indian foods to eat and avoid' **(Scientific India, 2018),** there are certain foods that help to lower the levels of cholesterol in the body. These foods include fibre, eggplant, beans, rice bran oil and nuts. Junk food must be a complete no-no for heart health. Heart health has a direct connection with the type of foods consumed.

According to the Harvard Heart Letter, there are a number of different food items that help in lowering the cholesterol levels in the body **(Harvard Heart Letter, 2019)**. Lowering LDL is the best way to lower Cholesterol as LDL is the carrier for cholesterol. Foods that help in lowering cholesterol are oats, barley and other whole grains, beans, eggplant, nuts, vegetable oils, citrus fruits, foods fortified with sterols and stanols, soy, fatty fish and fiber supplements.

According to another article there are a number of foods that improve body health by lowering cholesterol levels. These are fish and omega 3 fatty acids, avocados, whey protein, oils such as canola oil and olive oil, and nuts such as almonds **(Mayo Clinic Staff, 2018).** These foods must be included in regular diet as regular consumption of such foods lowers the risk of diseases of the heart.

Another article in WebMD Medical Reference titled ' Foods to Eat and avoid for high Cholesterol' suggests that one must shop when full as one is tempted less for processed and junk food when one has full stomach **(Robinson, 2018)**.In short one must shop smart and keep fresher and more nutritious foods handy. It also recommends reading food labels carefully as mostly the first few ingredients are present in more quantity in pre packaged foods. Whole grains are better for keeping Cholesterol in check. The author also suggests adding more colourful produce to the diet in the form of fruits and vegetables.

In an article by Heart UK –The Cholesterol Charity, 'Eating for Lower Cholesterol', a number of recommendations have been provided to keep the diet with lower levels of cholesterol. The organization suggests a variety of foods to be included in the diet **(Heart UK- The Cholesterol Charity).** One must include lots of fresh fruits and vegetables- at least five portions a day, low fat dairy products, whole grains and unsaturated fats that are in a melted form at room temperature. Choice of such foods helps in the process of digestion.

In a study on 'Diet and risk of ischemic heart disease in India' the authors addressed the relationship of diet to ischemic heart disease that is found to be one of the most frequent causes of fatality in India **(Tanuja Rastogi, 2004) .** The study was conducted in the cities of New Delhi and Bengaluru covering both northern and southern populations of the country. The study came up with interesting findings showing a clear indication of inverse relation between the consumption of vegetables and prevalence of ischemic heart disease. The relationship was found to be even stronger in case of green leafy vegetables. Consumption of cereals was also associated with

lowering the risk. Similarly the use of mustard oil was found to be beneficial too as compared to other oils such as sunflower oil.

In an article in the Business Standard, '15% of deaths in India were due to heart diseases in 1990; now up to 28%' it was specified that the number of people who died due to cardiac arrests has almost doubled in the span of 25 years and this surely is not a positive trend **(Rashid, 2018)** . It was mentioned that Cardiac ailments killed more Indians in 2016 (28%) than any other non-communicable disease which is double as compared to the year 1990 in which it was 15%. Deaths due to cardiovascular diseases in India increased from 1.3 million in 1990 to 2.8 million in 2016 in which more than half of the deaths were in persons less than 70 years of age. This is indeed an alarming trend that requires an urgent attention by individuals and the government too as poses a huge threat to the health of people. The author recommends an urgent attention to the trend and considering it as a public health concern.

Agarwal A et al studied the High Trans fatty Acid content in common Indian Fast Foods. They studied the TFA content of 200 Indian sweets and snacks and concluded that most of the Indian sweets are energy dense **(Agrawal, 2008).** High amount of TFA in foods is not healthy and may lead to a number of non communicable nutrition related diseases.

In an article titled 'Lack of an association or an inverse association between low-density-lipoprotein cholesterol and mortality in the elderly: a systematic review', the authors expressed that with increasing age the risk of cholesterol normally is more but they found that it becomes less risky or completely non risky due to low-density lipoprotein cholesterol (LDL-C) **(Uffe Ravnskov1, 2015)**. They also found that LDL- C is associated with mortality among elderly people. It is also concluded that High LDL-C is inversely associated with mortality in most people over 60 years.

It has been found that many times studies are conducted and are published. Later other studies may refute the results of the previously conducted studies. Thus there is a need to get to the core of any study before believing in the results especially when they are very different from the other studies conducted **(Heart Matters, 2016)**. The

previous article looked at 19 existing studies which considered the relationship between 'bad' LDL cholesterol levels and the overall risk of death in people aged over 60. They concluded that 92 percent of people with high cholesterol level lived longer mainly because of statin treatment, a treatment where drugs are prescribed by doctors to lower cholesterol levels in blood, by lowering the levels, heart attacks and stroke can be prevented almost by 25% to 30%. The study was considered controversial by many as it was found that the research was not very reliable due to the study methods used being biased.

According to an article published by the Indian Heart and Stroke Association, 'Cholesterol and South Asians', South Asians have a higher risk of heart attacks than their other Asian counterparts **(Indian Heart Association)**. They are found to have higher risk of heart attack and stroke due to sedentary lifestyle, dietary imbalances and genetic make-up. It is mentioned that diet is a major factor that may reduce or increase the risks related to heart health.

An article with the title 'India's policy needs a cholesterol check' threw light on the role of cholesterol in cardiovascular diseases. India has to make a better nutrition policy to make fresh dietary recommendations (**Dash, 2018**). In India in 2015 the death toll almost reached to 2.1 million due to cardiovascular diseases. Cardio Vascular Diseases develop approximately 10 years earlier in people when the onslaught of the heart disease is compared to countries that are home to people belonging to higher income groups. In the year 2018, FSSAI launched the Eat Right India mission and it promoted the reduction of sugar, salt and fat in the diet. But it has not provided any recommendations of reduction in cholesterol.

Another research, 'Awareness and Trends of Blood Cholesterol and Susceptibility to Develop Heart Disease' evaluated the awareness among participants about cholesterol and the complications associated with it (**Hari OS, 2015)**. It was found that in general around 29% of the participants were aware about cholesterol however there was a huge discrepancy in the awareness levels of educated (54%) and the uneducated (4%) participants. The authors also emphasized on the need for intervention in cases with borderline high triglycerides. The crux of the study was the association of education with awareness about cholesterol and the complications thereof**.**

According to an article published in the Medical News Today titled 'Foods with high Cholesterol to avoid and include', the much dreaded Cholesterol is actually an essential compound that helps in producing many hormones and many such substances that are of help in digestion of fats **(Wexler, 2018).** It is also an essential element for the production of Vitamin D. In spite of it being so essential for the body it is problematic as the body produces more than the required quantity. Its excess is detrimental to the health of a person. The best way to keep it at a lower side in our bodies it is a good idea to keep saturated and trans fats away from diet. More of unsaturated fats may be included in the diet instead. Trans fats are found to be the worst of all fats as they lower good cholesterol levels while increasing bad cholesterol in the body. It has been found that that the incidence of cardio vascular diseases has declined at the places where use of trans fats is banned. It is also mentioned that the diet should not be totally devoid of fats as that can also be detrimental to health. Thus a balanced diet is must in order to remain healthy.

According to a research under the title 'Emerging risks for Cardio Vascular Diseases: Indian Context', the researches alerted that there is an urgent need to understand the risk factors for heart diseases specially in countries like India as Cardio Vascular Diseases are considered as one of the most prevalent causes of mortality (80%) in low or middle income countries **(Sushil Gupta, 2013).** The fact that most of the people suffering from heart ailments in India are in their productive age which makes the situation worse and more critical to be taken seriously. The authors listed down the existing modifiable risk factors for heart ailments as high blood pressure, high blood cholesterol, obesity, diabetes, use of tobacco in any form, sedentary lifestyle and unhealthy eating habits with more dependence on junk foods.

A study titled 'Food Consumption and its impact on Cardiovascular Disease: Importance of solutions focused on the globalized food system' emphasized on how there has been a sea change in the way people eat specially in the Low and Middle income countries **(Sonia S. Anand, 2015)**. Eating outside their homes, more dependence on junk food, more of snacking, more use of processed and high calorie based foods and increase in the frequency of consuming food at restaurants has become very common in low and middle income countries. A lot of changes have been found to be a result of the food system in a country as in more production of vegetable oil rather than animal fat. In urban areas the use of processed food and less of whole grains with more of refined carbohydrate consumption has tremendously been on the rise. Another big change in recent years has been an increase in the consumption of meat products globally. This has resulted due to increase in the production of crops for animal feed. A noticeable amplification in the use of pre packaged food grains has been found all over the globe. More use of sugar and sweeteners has also been found especially in low and middle income countries. All these trends compel the government to intervene and citizens to be more proactive in their approach towards healthy lifestyle.

The article published in The Lancet Global Health Journal threw light on the increasing number of people in India, suffering from cardiovascular diseases **(The Global Health Journal, 2018)**. The article has presented a detailed analysis of how the patterns of cardiovascular diseases and major risk factors have changed across the states of India between 1990 and 2016. They analysed the prevalence of disability-adjusted life-years (DALYs) due to cardiovascular diseases. Overall the burden from the leading cardiovascular diseases in India—ischemic heart disease and stroke—varies widely between the states. Their increasing prevalence and that of several major risk factors in every part of India indicates the need for urgent policy and health system response appropriate for the situation in each state.

Another article provided an overview of the prevalence of Cardiovascular Diseases(CVD) in India and worldwide **(Shokeen & T, 2015)**. CVD is one of the leading causes of deaths in India. Risk factors for cardiovascular disease are now significant in all populations. At least one-third of all CVD is attributable to five risk factors: tobacco use, alcohol use, high blood pressure, high cholesterol and obesity. Non-communicable diseases in general and cardiovascular diseases (CVD) in particular are a big cause of concern worldwide especially in fast growing economy like India. The outcome of this study showed an increase in the prevalence of cardiovascular risk factors in India as compared to other developing and developed countries with recent trends showing incidence in younger age group. It affected almost all sections of the society from young to old and most affluent to least affluent. High blood pressure, high cholesterol, diabetes, tobacco and alcohol use, as well as low vegetable and fruit intake, already figure among the top risk factors. Overall, the prevalence of risk factors associated with CVD has increased and will keep on increasing in India as indicated by studies in the last decade and as predicted by the projections for future estimates. Cardiovascular diseases (CVD) are growing contributors to global disease burdens, with epidemics of CVD advancing across many regions of the world which are experiencing a rapid health transition **(K Srinath Reddy)**. Diet and nutrition have been extensively investigated as risk factors for major cardiovascular diseases like coronary heart disease (CHD) and stroke and are also linked to other cardiovascular risk factors like diabetes, high blood pressure and obesity. Adequate evidence is available, from studies conducted within and across populations, to link several nutrients, minerals, food groups and dietary patterns with an increased or decreased risk of CVD. Dietary fats associated with an increased risk of CHD include trans-fats and saturated fats, while polyunsaturated fats are known to be protective. Dietary sodium is associated with elevation of blood pressure, while dietary potassium lowers the risk of hypertension and stroke. Regular frequent intake of fruits and vegetables is protective against hypertension, CHD and stroke. Sufficient knowledge exists to recommend nutritional interventions, at both population and individual levels, to reduce cardiovascular risk. That knowledge should now be translated into policies which promote healthy diets and discourage unhealthy diets. This requires coordinated action at the level of governments, international organizations, civil society and responsible sections of the food industry.

A study conducted in the year 2013 shows a clear relationship between junk food consumption and heart ailment. The presence of saturated fats in junk foods is found to be the main culprit that leads to obesity, high blood sugar and higher amounts of lipids in the body. The presence of high amount of salt in these foods leads to high blood pressure. **(Rashid A. B., 2013)**. Worldwide consumption of junk food has been on the rise not only in the developed countries but also in developing countries of Asia and Africa. The rise has not even been gradual; in fact, there has been a dramatic exponential increase in the number of junk food outlets universally. A surprising and problematic finding has also been that the number of junk food outlets is found to be more in areas where people with low income reside. There is also need for policy making and implementation related to limiting the number of such outlets specially in certain areas in particular near schools. There has been an alarming increase in the number of soft drink outlets specially and that requires an urgent call. There is also a need to seriously ban fizzy drinks as their consumption has been found to be directly related to deteriorating oral health.

According to a Dutch study the likelihood of developing heart diseases increases with proximity to fast food restaurants or outlets **(Cardio Smart News, 2018)**. In the study the researchers tracked more than 2.5 million adults and found out their health status specially related to heart. They also tracked their residences and the presence of fast food outlets in the neighbourhood. The study concluded that heart ailments were found more in those who lived near fast food outlets than those who did not have easy access to fast foods.

In a cohort study that was undertaken in order understand any association between ultra processed foods and heart diseases **(Bernard Srour, 2019)**. The study concluded that processing leading to changes in nutritive content, additives and contact materials may be responsible for the association with coronary heart disease. The need is there for further research in the area.

In western countries the prevalence of consuming fried foods is quite high but there have been very less studies on finding out if there exists any association of having fried foods with the risk of having heart failure and associated health conditions **(Luc Djoussé, 2015)**. The authors conducted a cohort study that continued for around four years from 1997 to 2001 in which they studied the dietary pattern of the individuals

under study with special notice for fried foods. Intake of fried foods was considered both at home or away from home. The study was conducted on physicians. The study concluded that there exists a positive relationship between the consumption of fried foods and incidence of heart failure. Thus food intake is surely associated with heart related issues.

There are a number of websites that provide detailed advice from reliable resources related to what to eat and what to avoid in case of people suffering from diseases specially lifestyle related health issues. A similar article provides a detailed account of foods to consume and avoid for those suffering from heart ailments **(WebMD Medical Reference, 2019)**.The site has mentioned that for those with heart ailments diet is must to be taken care of. Even one has been suffering from heart disease, with healthy dietary habits, heart issues can be prevented and even the already occurred damage can be reversed. It is advised to have more of vegetables, whole grains, legumes and fruits as part of daily diet. The type fat that is consumed makes a e difference. Saturated fats and trans fats are a big no with monounsaturated or polyunsaturated fats only to be taken when required. Protein rich foods with variety and the carbohydrates of specific type should only be included in daily diet. There must be an effort to reduce the amount of cholesterol and also of excessive salt in the diet. Eat small portions and that too regularly to regulate metabolism. It is also advised to keep small portion in size for the main meals and also to keep oneself hydrated.

As per the article by Mayo Clinic Staff titled ‘Menus for heart-healthy eating: Cut the fat and salt’ it is very important to keep the amount of fat and salt in the diet to be minimal in order to ensure better heart health **(Mayo Clinic Staff, 2019). T**he article explains that mostly people dread the thought of preparing diets according to the health conditions one is suffering from but heart-healthy eating doesn't have to be difficult. The article provides a list of menus for diets that are heart friendly. It emphasizes on preparing a daily meal plan and sticking to it. The meals must have more of fruits, vegetables and whole grains and less of fats and salt (which is present in processed foods more).

As per a report by the working group on Addressing Consumption of Foods High in Fat, Salt and Sugar (HFSS) and Promotion of Healthy Snacks in Schools of India, the sale of all HFSS in school canteens must be banned. It also recommended that near the vicinity of schools the non-standardized proprietary foods can be sold with colour coding specifying different colours for foods that are healthy and the ones that are not so healthy. Our country is facing the problems of over nutrition (excess intake of calories), under nutrition (deficit in the intake of calories) and micronutrient deficiencies are all prevalent at the same time (**Working Group, 2015)**. Nutritional problems start right from the childhood years and thus steps need to be taken in order to ensure that schools should not become a part of fostering wrong nutritional habits among children. In urban settings specially childhood obesity is emerging as one of the major health concerns. Children who are obese or are overweight are seen to be more likely to suffer from non-communicable diseases in their adulthood including diabetes, cardiovascular disease and hypertension. Timely action must be taken so that children do not fall prey to the problem of obesity. As it cannot be dealt with only at home but schools are equally responsible for a child's growing years policies must be framed and implemented for schools.

According to Mayo Clinic Staff food labels can be an essential tool for diabetes meal planning. When someone has diabetes eating right becomes as much important as taking medicines **(Mayo Clinic Staff, 2019).** The article discusses how a diabetic patient can decide which foods may be good or bad for him/her. Food labels can be of immense value in such a case. The article emphasises on the need to find out ingredients in the food labels that are good for heart. While reading the food labels not only sugars but all carbohydrates must be seen in the food labels. All carbohydrates lead to an increase in sugar levels. Another ingredient to watch out for is dietary fiber. Those foods that are high in dietary fiber are good for diabetics. Foods that are fat free may still have carbohydrates and so must be taken in check. The articles emphasized on being aware of one's daily requirements for different food ingredients and then reading the food labels to be able to plan out one's meals.

The ones who suffer from hypertension need to have special focus on their diet. Following a proper diet may also help them in reducing their portions of medicines. Many patients of hypertension and other lifestyle related non communicable diseases

are not aware of how many calories they eat of which foods contain how many calories **(WebMD Medical Reference, 2018)**. More sodium in the diet is related to hypertension. Also more consumption of alcohol has been found to have a negative impact in the condition of hypertension patients. It is important for high blood pressure patients to maintain a food diary and record their intake of food in general and that of salt (sodium) in particular. They must read the nutritional information table that lists the sodium content also. They must avoid foods with more than 20% of the Daily Value of Sodium and must take only those prepackaged foods with less than 5% of daily Value of sodium content in them. In a day they must maintain less that a teaspoon of salt intake.

In another article by WebMD Medical Reference team the need for taking special care of the diet has been emphasized upon in diabetic patients specially the ones suffering from type 1 diabetes **(WebMD Medical Reference, 2019)**. Normally patients think that diet is an important part of the medical care in case of type II diabetes but the kind of food intake that one has also has an impact although the type I patients depend on insulin shots or pump. In fact a proper diet helps them to reduce the chance of diabetes related other problems such as kidney failure, damage to nerves and heart issues. The patients must avoid unhealthy fats – (trans fats and saturated fats) and must keep a track of all carbohydrates that they consume. They must include more of fruits, vegetables and whole grains in their diet.

In a study conducted in Israel jointly by the Israel Heart Association and the Israel Dietetic Association, analysing the literature available on the relationship of nutrition with cardiovascular diseases, special emphasis was made on the level of evidence of the relationship of nutrition and CVD and providing recommendation to prevent the disease **(Sigal Eilat-Adar, 2013)**. The study came out with finding the relationship of cardiovascular diseases with three groups or sections- one with dietary pattern that included diets such as low carbohydrate diet, low-fat diet, Mediterranean diet, and the DASH diet; second with individual food items such as whole grains and dietary fiber, vegetables and fruits, nuts, soy, dairy products, alcoholic drinks, coffee and caffeine, tea, chocolate, garlic, and eggs; and the third one with supplements that included salt

and sodium, omega-3 and fish oil, phytosterols, antioxidants, vitamin D, magnesium, homocysteine-reducing agents, and coenzyme.

An article stated that certain additives have been found to be associated with obesity and diabetes **(Citroner, 2019)**. The additive called propionate which is used in bakery, dairy and meat products to keep them fresher for longer duration, interact with the hormones that are related with food metabolism. The article also pinpoints a number of additives that have already been banned in United States of America.

Additives and preservatives are found to be acting as stimulants for Asthma and certain other allergic reactions **(Brian G Wilson, 2005)**.The study emphasized on the need for further conclusive researches to be able o take definitive steps to make food products safe for consumption.

Another article was published stating an association of various additives with allergic reactions **(American Academy of Allergy, Ashma and Immunology, 2008)**.The article reported that although a number of additives are commonly added to preserve food and to enhance various qualities of the food item, the adverse effect of the presence of food additives has been rarely found. Still the reactions may be rare but are real. Additives have also found to be leading to hardening of arteries thus being associated with heart issues **(ANI, 2019)**.Another study has established a link between the use of additives in food products and high blood pressure **(Masaki Mizuno, 2016)**. Thus additives have been found to be one of the information that needs to be checked by at least those who suffer from known health issues and allergies.

2.4 Conclusion

A thorough review of good number of contents pertinent to the topic of research has provided a sound base for conducting the study. The articles have been picked up from a number of journals both national and international, including studies conducted in India and many other countries too. A good number of reports from various agencies related with health, nutrition and labeling regulations have also been reviewed. A scrupulous analysis of the literature has helped the researcher to conclude that there have been a number of studies related to the awareness of customers and

their usage of nutrition information on pre packaged foods but such study is not conducted in the suburbs of Mumbai. Mumbai being an exemplary cosmopolitan city with extremely busy and typically urban lifestyle is a region where there is a good dependence on pre packaged food. With the fast paced life the residents of Mumbai deal with a number of lifestyle related health conditions and very little time at their disposal to take care of their nutritional needs. It has also been seen that an apparent gap is found in research related to finding out if there exists any association between the usage of nutritional information and the prevalence of lifestyle related health risks. Thus the review has provided a definite idea about the gap which the researcher hopes to fill through this study.

Chapter 3: Research Methodology

The chapter outlines the research methodology used for conducting the present study. It describes the framework for carrying out the research on the relevant area of study. The chapter starts with conceptual framework followed by the research design that includes a detailed plan of conducting the research along with the methods and tools used for it and other information of relevance.

3.1 Conceptual Framework

The theoretical framework has been presented in the chapter on Introduction in which the researcher has included various theories and models related with consumer behaviour. A thorough understanding of the theoretical framework leads to conceptual framework that is presented here. Conceptual framework shapes the entire study. It helps to make sense of the data collected and to understand what needs to be done with the data in hand. It provides the set of variables that are a part of the study and help to find what relationships exist between different variables.

Various factors contribute to purchase decisions of people about pre-packaged food in the context of nutritional information and related aspects.
Factors considered for the study:

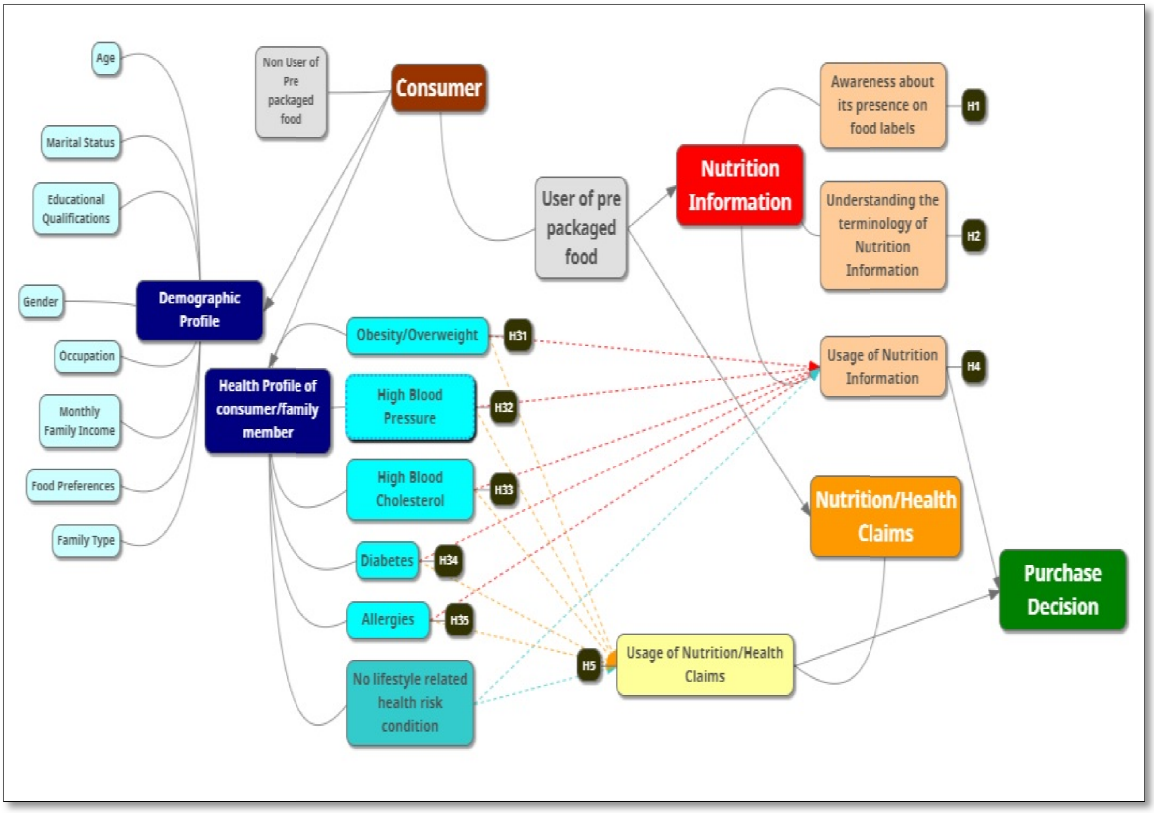
a. Demographic and Socio-Economic Factors of the respondents
    - Age
    - Gender
    - Educational Qualifications
    - Marital Status
    - Work Profile
    - Monthly Family Income
    - Food Preference
    - Type of Family

The factors listed above were finalized based upon interaction with the experts and a thorough review of literature. These demographic factors were used for the purpose of understanding the sample. The use of demographic variables has not been for testing of any hypothesis in the present study. These factors have been used in order to gain a thorough understanding of consumer profile and consumer behaviour with respect to purchase of food products.

b. Health profile of the consumer/family members : Here health profile refers to the presence or absence of any lifestyle related health risk condition in the consumer or any family member of the respondent. The health risk conditions related to both lifestyle and nutrition have been considered. These include:
    - Obesity
    - High Blood Pressure
    - High Blood Cholesterol
    - Diabetes
    - Allergies

The factors listed above are used for understanding if there exists any relationship between the presence of any of the above mentioned health issue with the awareness, understanding, usage of nutrition information, and impact of using nutrition information and nutrition/health claims on purchase decision of the consumer. The typical conceptual framework for this study is as shown in Figure 3.1.

Figure 3.1: Conceptual Framework



3.2 Research Design

Present research comes under the descriptive type of research, undertaken to investigate the awareness, understanding, usage of nutrition information, and role of nutritional information and nutrition claims as one of the factors which affect the purchasing decisions of the people about pre-packaged foods.

3.2.1 Population and Sample Size

Selection of Respondents:

Selection of respondents was based on certain conditions. These are as follows:

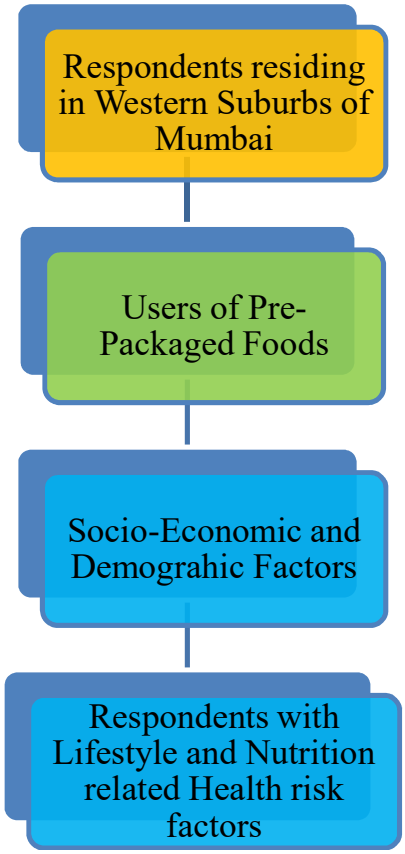
- The respondents residing in specified areas of western suburbs of Mumbai. Area of study is restricted to defined areas of western suburbs of Mumbai (from Andheri to Dahisar).
- The researcher collected information from consumers who are more than 18 years of age covering a representative population of different areas within the defined geographical scope of the study.

Figure 3.2: Steps of Research



Based on the objectives and the framed hypotheses of the study, the researcher created the first draft of the questions to be asked. The questionnaire thus created was used for conducting the pilot study. Pilot study included responses from 50 customers. The questionnaire was presented to the respondents in the form of a Google form and for the pilot study a convenient sample was taken. As a result of the pilot study 1 question was added to get a better understanding of consumer awareness about the nutritional contents and their relationship with specific health related problem.

Figure 3.3: Respondents for the Study – Respondents classified as per Socio-Economic and Demographic parameters



The respondents for the study were the residents of western suburbs of Mumbai City (Geographical limit Andheri to Dahisar). The sample included only the users of pre-packed food. Respondents belonging to various demographic profiles were included in the sample although there was no specific quota allotted to any of the demographic section. Finally the respondents included both the ones who had one or more lifestyle related health issue and the ones who did not have any such health risk factor. Here, for the study not only the respondent but any family member of the respondent with any of the five health issues were categorized separately.

Analysis of the responses from the respondents is presented in the Chapter 4 titled 'Data Analysis and Interpretation'.

Sample Size: 789 respondents

Sample size selection is based on following factors

1. **Population size:** Consumers of pre packaged food products in the specified area cannot be enumerated. Thus the population is considered infinite.
2. **Margin of error** (confidence interval) – It is taken as ± 3.5% for the study
3. **Confidence level-** 95% is taken.
4. **Population proportion-** taken as 50%.

The sample size is then decided as **(Surveysystem)** described below.

For the calculation of sample size, the following formula is used:

$$\text{Sample size} = \frac{\frac{z^2 \times p\,(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p\,(1-p)}{e^2 N}\right)}$$

Where, N = population size • e = Margin of error (percentage in decimal form) • z = z-score

The z-score for the confidence level of 95% is 1.96 as shown in figure 3.1.

Table 3.1 Z Scores for desired confidence level

Desired Confidence Level	Z-Score
80%	1.28
85%	1.44
90%	1.65
95%	1.96
99%	2.58

Size of sample is very critical when the population is very large. The population that is residing in specified areas of western suburbs of Mumbai (from Andheri to Dahisar) is significantly large. According to a report in The Times of India (2019,August 19) titled 'BMC estimates 4 lakh population rise since 2011 to plan amenities for Mumbai' citing the census data of 2011, the population of different wards of Mumbai Western Suburbs from Andheri to Dahisar are provided below (Refer https://timesofindia.indiatimes.com/city/mumbai/bmc-estimates-4-lakh-population-rise-since-2011-to-plan-amenities-for-mumbai/articleshow/70730314.cms, accessed on January 9,2020) .

Table 3.2 Population of Western Suburbs of Mumbai from Andheri to Dahisar

Ward	Location	Population as per 2011 census(in lakhs)	Estimated Projections (2011-19)
K(East)	Andheri E. Vile Parle E, Jogeshwari E	8.24	25,589
K(West)	Andheri(W) and Oshiwara	7.49	23254
P(North)	Malad	9.41	29238
P(South)	Goregaon, parts of Malad and Oshiwara	4.64	14396
R(Central)	Borivali(E) including SGNP, Gorai	5.62	17460
R(North)	Dahisar	4.31	13398
R(South)	Kandivali,Poisar	6.91	21469
Total		**46.42**	**144804**

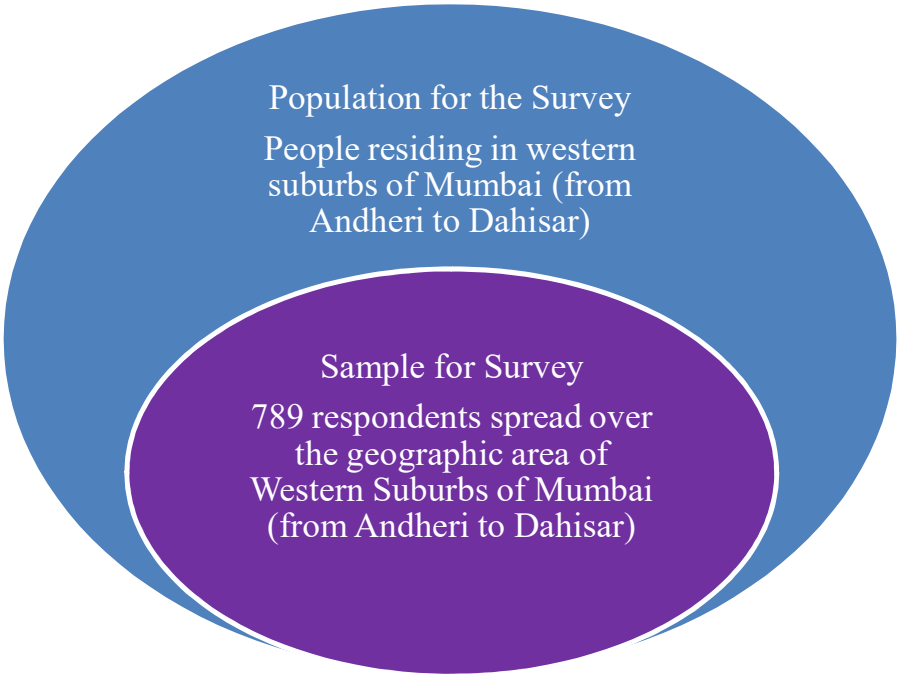
Source: TOI:2019,August 19

Table 3.2 Population of Western Suburbs of Mumbai from Andheri to Dahisar.

Referring to the table above the total estimated population of the specified area of western suburbs of Mumbai (Andheri to Dahisar) comes out to be 48.07 Lakhs. For the purpose of the present study however the population taken is as per the population of areas from Andheri to Dahisar according to census of 2011 which is 46.02 lakhs. The recommended sample size for a population of 46.02 lakhs, a confidence level of 95%, and a margin of error (degree of accuracy) of 3.5% would be 784. **(Surveymonkey)**

After evaluation of all questionnaires it was found that 789 questionnaires could be considered as valid responses and thus considered as respondents for this study. To make the sample representative, data were collected from customers at different malls which include Infiniti Mall in Andheri West, Oberoi and Hub Mall in Goregaon East, Infiniti and InOrbit mall in Malad West, Growel's 101 Mall and DMart in Kandivali East,Metro Cash and Carry Mall in Borivali East and DMart in Dahisar West.

Figure 3.4 Sampling (Population and Sample)



3.2.2 Tools for Data Collection

Primary Data Sources

Data were gathered from the respondents through survey taken with the help of questionnaires. These include people residing in western suburbs of Mumbai (from Andheri to Dahisar). Primary data was collected with the help of a structured questionnaire. The researcher planned to divide the questionnaire into different sections to collect information regarding personal attributes, awareness and understanding of the Nutritional Information Panels and usage of the acquired information by consumers to help them to take informed decisions at the time of purchase. To check the comprehensibility of the questionnaire and data reliability a pilot study was conducted with 50 respondents.

Sample size of 789 respondents is used for the survey. Sampling unit is an individual consumer.

Secondary Data Sources

The secondary data regarding the said research study was collected from various research papers, books, newspapers and websites. The collected data were used for developing the conceptual framework.

For this study, a structured questionnaire was prepared for getting inputs from respondents. The survey questionnaire is used to obtain information about different aspects in the context of buying pre-packaged foods. Table 3.3 shows the questionnaire details.

Table 3.3 Survey Questionnaire Details

Variables	Particulars
Demographic and Socio-economic Information	Name(optional), age, gender, educational qualifications, family structure, marital status, employment status, monthly family income, family structure and location of residence(for filtering responses)
Health related information of the respondent/family members	Presence of any lifestyle related disease specific to the study - obesity/overweight, high blood pressure, high blood cholesterol, high blood sugar/diabetes, allergies
Other variables	Awareness and understanding of nutrition information on pre-packaged foods, usage of nutrition information and nutrition/health claims on the packages, presence of any disease(mentioned in the previous row) and impact of the same on usage of nutritional information on buying decision and so on.

Data Collection Plan:

- Selecting the respondents on the basis of the location of their residence in western suburbs of Mumbai from Andheri to Dahisar) for collection of primary data.
- Getting response by using structured questionnaire in the context of purchase of pre-packaged foods.
- Pilot survey for data collection.
- Validation and collating the data.
- Modifications based on the Pilot survey. One question was added after the pilot study.

- Deciding on the exact research methodology and techniques depending upon the data collected.
- Use of printed questionnaires for actual survey for data collection.
- Analyzing collected data using appropriate tools and methods.
- Testing of hypothesis.
- Findings and conclusion.
- Giving suggestions.

3.2.3 Data Analysis

Data was collected through a questionnaire that was presented to respondents in printed form. The questions in the questionnaire were close ended. The questions were aimed at understanding the respondents' behaviour towards factors influencing their purchase decision of pre-packaged foods, the nutritional information and nutrition claims in particular and other pertinent details.

The collected data was tabulated and presented in the form of tables and graphs. Data was statistically analyzed. As most of the questions had responses in the form of categorical variables chi square test of association/independence is used to test and analyze the collected data.

Table 3.4 Data Analysis and Collection Tools

Tools used for the Study / Survey	**Data Collection Tool**	Structured questionnaire
	Tools for Data Analysis	Percentage Friedman test Chi square test of association Correlation Analysis
	Data Representation	Tables Figures

- It was decided to use Cronbach's Alpha for checking data reliability and validate the data collected during pilot study as well as main study.
- The collected data has been tabulated like Simple Tabulation with one variable and Cross Tabulation having two variables.
- The tabulated data has been analyzed by using appropriate software SPSS as well as MS Excel that comprises of the statistical techniques used.

Chapter 4: Data Analysis and Interpretation

The Chapter - Data Analysis and Interpretation provides answers to research questions by way of subjecting the collected data to various statistical tests for testing of hypothesis and thus being able to accomplish the objectives of the research study. Data analysis helps to break down the collected data into parts that can then be used to churn out useful and relevant information from the collected data. The focus of the chapter is on data analysis and interpretation and the results are presented in sections that are mentioned below:

4.1 Cronbach's Alpha applied to check data reliability

4.2 Survey findings that present the descriptive analysis of the entire collected data. This includes the demographic profile of the respondents along with a thorough analysis and its presentation thereof. Responses to various questions are analyzed individually for various demographic categories.

4.3 Hypotheses Testing using appropriate statistical tools.

4.4 Conclusion

4.1 Cronbach's Alpha

For this study there are datasets for all questions of the questionnaire. For these datasets Cronbach's alpha has been calculated using Anova Single Factor method

Details are presented below.

Determination of Cronbach's Alpha

Anova Single Factor Summary				
Groups	*Count*	*Sum*	*Average*	*Variance*
1. Do you use pre-packaged foods?	789	789	1.0000	0.0000
2. What information is present on the pre-packaged foods? [Brand name]	789	4513	5.7199	0.3846
2. What information is present on	789	4108	5.2066	1.1286

Anova Single Factor Summary				
the pre-packaged foods? [Calorie content]				
2. What information is present on the pre-packaged foods? [Nutrient Information]	789	4135	5.2408	1.0561
2. What information is present on the pre-packaged foods? [Food additives/Preservatives]	789	4024	5.1001	1.3770
2. What information is present on the pre-packaged foods? [Specific Ingredients]	789	4033	5.1115	1.1779
2. What information is present on the pre-packaged foods? [Nutrition/Health claims]	789	3808	4.8264	1.4787
2. What information is present on the pre-packaged foods? [Place of Manufacturing]	789	4016	5.0900	1.5515
2. What information is present on the pre-packaged foods? [Certification(Such as FSSAI,AGMARK)]	789	3939	4.9924	1.5685
2. What information is present on the pre-packaged foods? [Marketed by]	789	3934	4.9861	1.5975
2. What information is present on the pre-packaged foods? [Veg/Non Veg indication]	789	4465	5.6591	0.6387
2. What information is present on the pre-packaged foods? [Salt content]	789	3669	4.6502	2.5907
2. What information is present on the pre-packaged foods? [Best before/Expiry date]	789	4474	5.6705	0.6146
2. What information is present on the pre-packaged foods? [Manufacturing date]	789	4436	5.6223	0.8013
3. Which information do you look for primarily on the food packages? [Brand name]	789	4443	5.6312	0.6290
3. Which information do you look for primarily on the food packages? [Calorie content]	789	3851	4.8809	1.4401
3. Which information do you look for primarily on the food packages? [Nutrient Information]	789	3834	4.8593	1.9358
3. Which information do you look for primarily on the food	789	3666	4.6464	2.6806

Anova Single Factor Summary				
packages? [Food additives/Preservatives]				
3. Which information do you look for primarily on the food packages? [Specific Ingredients]	789	3902	4.9455	1.3181
3. Which information do you look for primarily on the food packages? [Nutrition/Health claims]	789	3664	4.6439	2.1763
3. Which information do you look for primarily on the food packages? [Place of Manufacturing]	789	3539	4.4854	2.3643
3. Which information do you look for primarily on the food packages? [Certification(Such as FSSAI,AGMARK)]	789	3638	4.6109	2.3725
3. Which information do you look for primarily on the food packages? [Marketed by]	789	3325	4.2142	3.1939
3. Which information do you look for primarily on the food packages? [Veg/Non Veg indication]	789	4407	5.5856	0.7430
3. Which information do you look for primarily on the food packages? [Salt content]	789	3667	4.6477	1.7742
3. Which information do you look for primarily on the food packages? [Best Before/ Expiry date]	789	4483	5.6819	0.6487
3. Which information do you look for primarily on the food packages? [Manufacturing date]	789	4321	5.4766	1.2244
4. While shopping for pre-packaged food items what do you consider important? [Taste]	789	2187	2.7719	0.1839
4. While shopping for pre-packaged food items what do you consider important? [Price]	789	1988	2.5196	0.3743
4. While shopping for pre-packaged food items what do you consider important? [Best before date]	789	2278	2.8872	0.1154
4. While shopping for pre-packaged food items what do you consider important?	789	2162	2.7402	0.2103

Anova Single Factor Summary				
[Manufacturing Date]				
4. While shopping for pre-packaged food items what do you consider important? [Calorie Content]	789	1763	2.2345	0.3752
4. While shopping for pre-packaged food items what do you consider important? [Nutritional content/Ingredients]	789	1824	2.3118	0.4712
4. While shopping for pre-packaged food items what do you consider important? [Recommendation by doctor]	789	1807	2.2902	0.4169
4. While shopping for pre-packaged food items what do you consider important? [Advertisement]	789	1631	2.0672	0.4841
4. While shopping for pre-packaged food items what do you consider important? [Nutrition/Health claims]	789	1812	2.2966	0.5185
4. While shopping for pre-packaged food items what do you consider important? [Place of Manufacturing]	789	1644	2.0837	0.5768
4. While shopping for pre-packaged food items what do you consider important? [Certifications(such as FSSAI/AGMARK)]	789	1826	2.3143	0.5584
4. While shopping for pre-packaged food items what do you consider important? [Presence of Preservatives]	789	1794	2.2738	0.5798
6. Do you look for nutritional information on food packages?	789	3082	3.9062	1.0064
7. What information in the nutritional information panels do you look for? [Energy]	771	3165	4.1051	1.0110
7. What information in the nutritional information panels do you look for? [Fats]	771	3159	4.0973	0.8957
7. What information in the nutritional information panels do you look for? [Sugars]	771	3018	3.9144	1.0784
7. What information in the nutritional information panels do	771	3181	4.1258	1.0893

Anova Single Factor Summary				
you look for? [Vitamins]				
7. What information in the nutritional information panels do you look for? [Minerals]	771	2910	3.7743	1.4711
7. What information in the nutritional information panels do you look for? [Sodium/Salt]	771	2733	3.5447	1.5912
7. What information in the nutritional information panels do you look for? [Proteins]	771	3131	4.0610	1.3898
7. What information in the nutritional information panels do you look for? [Fiber]	771	2736	3.5486	1.5934
7. What information in the nutritional information panels do you look for? [Cholesterol]	771	1465	1.9001	0.7004
8. Do you understand the terminology and the units of measure (like per serving or per 100 g or GDA/RDA) given in the nutrition panel on pre packaged foods?	771	1461	1.8949	0.5331
10. Do you find it difficult to understand the information present on the Nutrition Information Panels of pre packaged foods?	742	1497	2.0175	0.2655
14. Have you ever made your buying decision on the basis of the information on the nutrition table given on the pre packaged food items?	789	1655	2.0976	0.3724
15. While buying pre-packaged food products do you ever get influenced by the nutrition or health claims (such as 'High in Fiber', 'Iron rich', 'For stronger bones') made on the package?	789	1694	2.1470	0.4377
My Age	789	1527	1.9354	0.9666
I am a _____. [Male/Female]	789	1270	1.6096	0.2383
My educational qualifications	789	2648	3.3561	0.8438
I am [Single/Married/Divorced/Widow/er]	789	1099	1.3929	0.2464
Employment Status	789	1503	1.9049	1.6344

Anova Single Factor Summary				
My monthly family income	789	3369	4.2700	5.1872
My food preference	789	1382	1.7516	0.1869
My family Type	789	1003	1.2712	0.1979

ANOVA						
Source of Variation	*SS*	*Df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	97730.95	60	1628.85	1498.49	0.0000	1.3183
Within Groups	52002.88	47841	1.09			
Total	149733.82	47901				
Alpha	0.9993					

According to rule of thumb, an alpha of 0.7 (some say 0.6) indicates acceptable reliability and 0.8 or higher indicates good reliability. The value of alpha shown here is in the range of commonly accepted values and thus indicate acceptable data reliability.

4.2 Survey Findings

Sample Data Analysis

Note: What follows is based on analysis of data collected from the respondents. Number of respondents are 789, however for each question and the attribute within; the number of responses may vary.

Respondents Profile Summary

Table 4.1: Respondents by Age

Category of Responses	No. of Responses (N=789)	In %
18 - 35 years	514	65%
> 35 years -50 years	237	30%
> 50 years-65 years	36	5%
> 65 years	2	0%
Total	**789**	**100%**

Figure 4.1: Respondents by Age (In %)

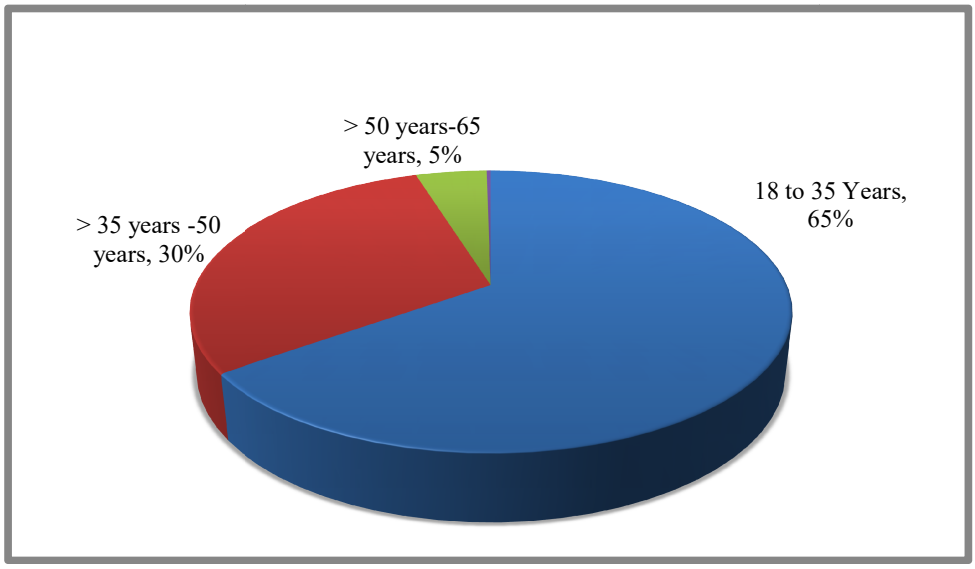


Table 4.2: Respondents by Gender

Gender of Respondents	No. of Responses (N=789)	In %
Male	308	39%
Female	481	61%
Total	**789**	**100%**

Figure 4.2: Respondents by Gender (In %)

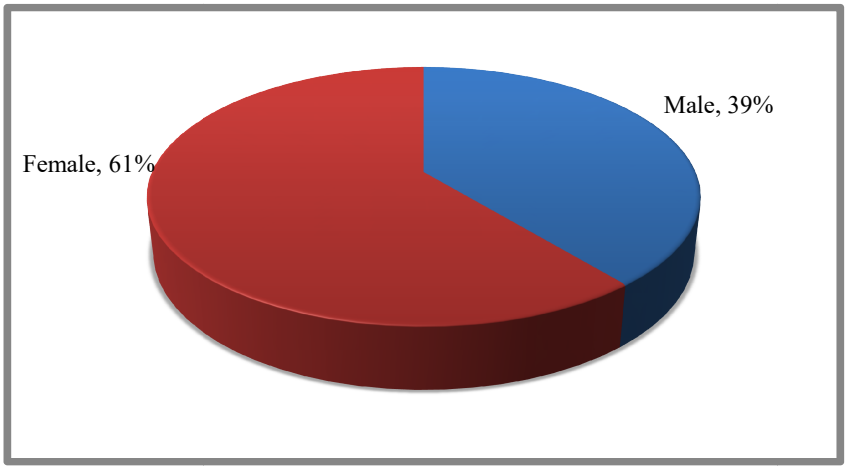


Table 4.3 Respondents by Educational Qualifications

Educational Qualification of Respondents	No. of Responses (N=789)	In %
No formal education	16	2%
Up to standard X	91	12%
Under graduate	382	48%
Graduate	197	25%
Post graduate or more	103	13%
Total	**789**	**100%**

Figure 4.3: Respondents by Educational Qualifications (In %)

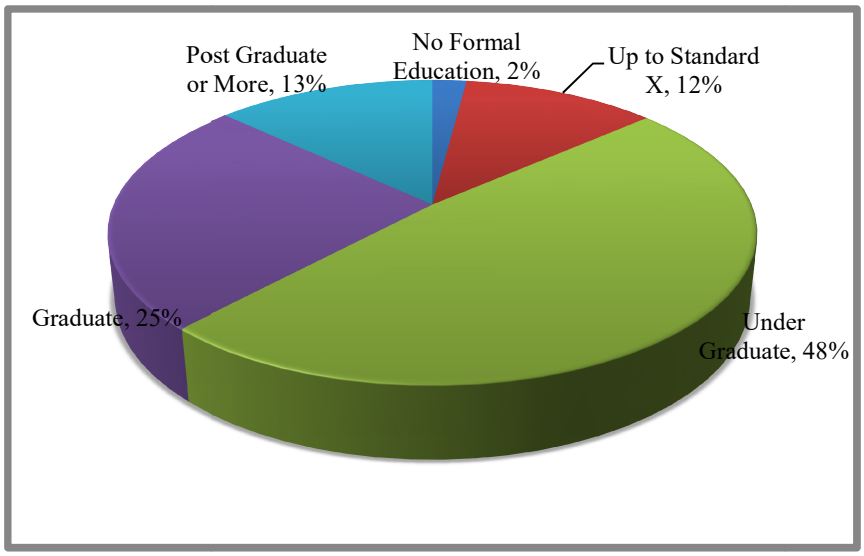


Table 4.4 Respondents by Marital Status

Marital Status of Respondents	No. of Responses (N=789)	In %
Single	482	61%
Married	304	39%
Divorcee/Separated	2	0%
Widow/Widower	1	0%
Total	**789**	**100%**

Figure 4.4 Respondents by Marital Status (In %)

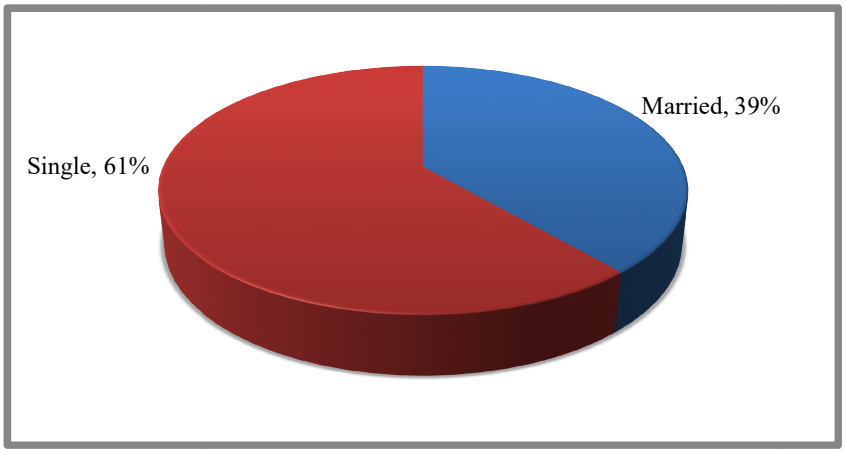


Table 4.5 Respondents by Occupation

Category of Responses	No. of Responses (N=789)	In %
Not employed	515	65%
In a job with regular income	170	22%
Self employed	100	13%
Retired	4	1%
Total	789	100%

Figure 4.5: Respondents by Occupation (In %)

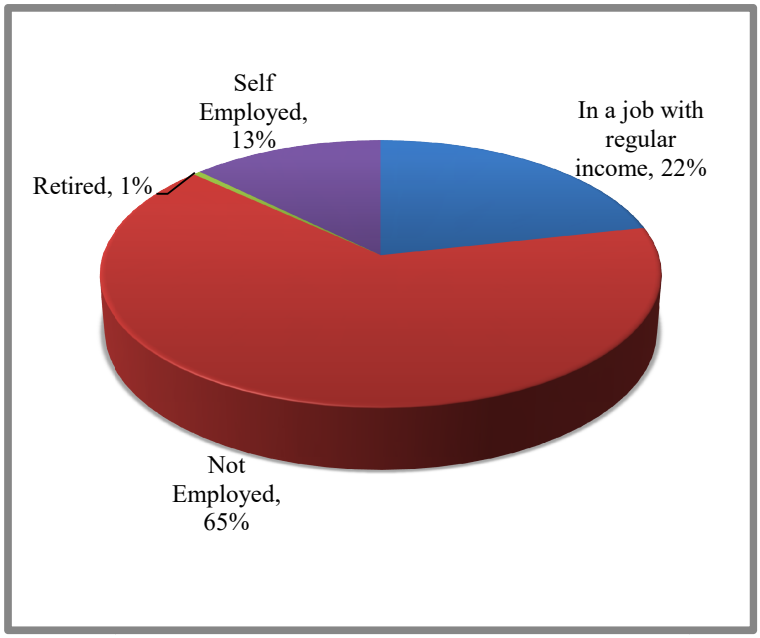


Table 4.6 Respondents by Monthly Family Income

Category of Responses	No. of Responses (N=789)	In %
Less than Rs. 10,000	78	10%
Rs. 10,000-Rs. 25,000	138	17%
Rs. 25,000-Rs.40,000	149	19%
Rs. 40,000-Rs.55,000	92	12%
Rs.55,000-Rs.70,000	63	8%
Rs.70,000-Rs.85,000	37	5%
Rs. 85,000-Rs. 1,00,000	63	8%
Rs. 1,00,000 –Rs. 3,00,000	96	12%
Rs. 3,00,000 –Rs.6,00,000	46	6%
More than Rs.6,00,000	27	3%
Total	789	100%

Figure 4.6 Respondents by Monthly Family Income (In %)

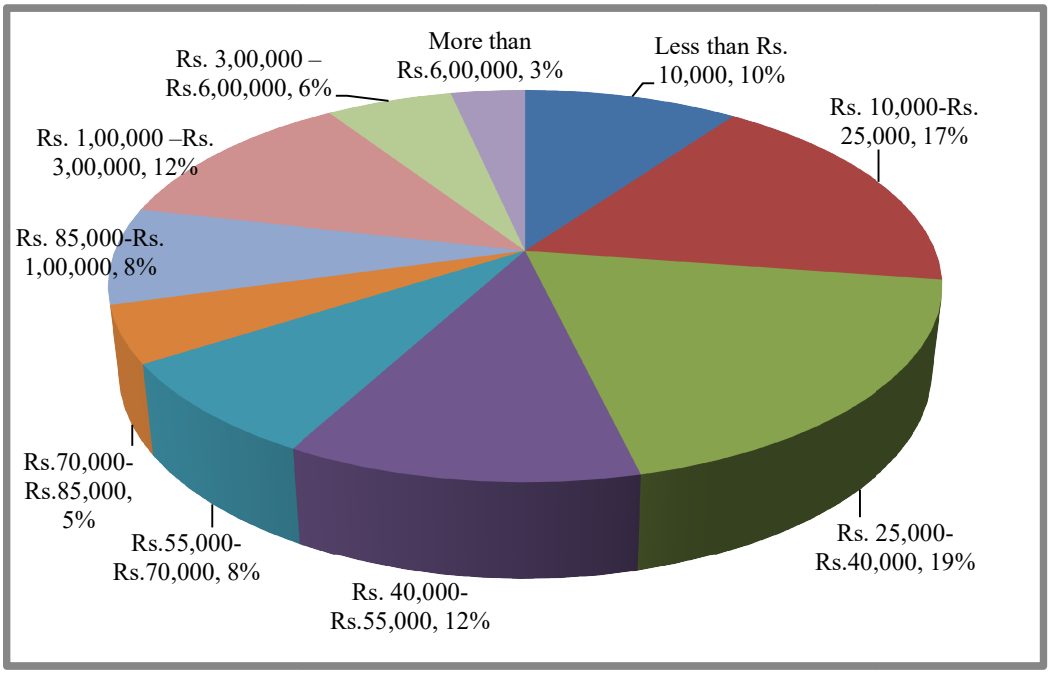


Table 4.7 Respondents by Food Preference

Category of Responses	No. of Responses (N=789)	In %
Vegetarian	593	75%
Non Vegetarian	196	25%
Total	789	100%

Figure 4.7 Respondents by Food Preference (In %)

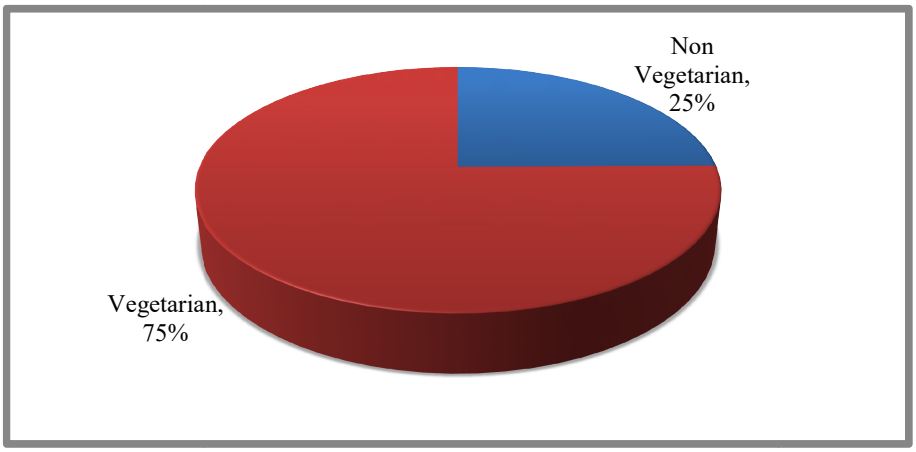
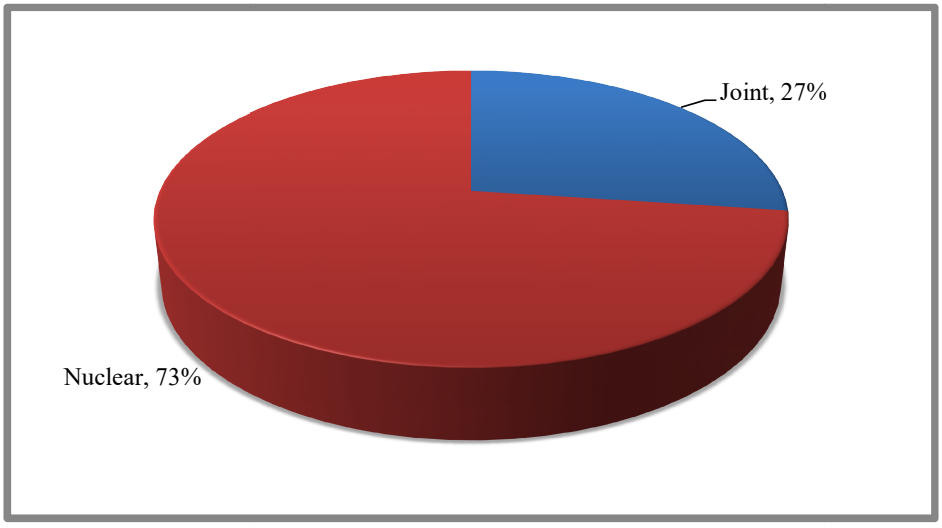


Table 4.8 Respondents by Family Type

Category of Responses	No. of Responses (N=789)	In %
Nuclear	575	73%
Joint	214	27%
Total	789	100%

Figure 4.8: Respondents by Family Type (In %)



Q2. What information is present on the pre packaged foods?

Table 4.9a Awareness about Information on pre-packaged food: Brand Name

2. What information is present on the pre-packaged foods? [Brand name]	No of Responses	In %
Always	616	78%
Mostly	141	18%
Sometimes	22	3%
Rarely	6	1%
Never	2	0%
Can't Say	2	0%
Total	789	100%

Table 4.9b Awareness about Information on pre-packaged food: Calorie Content

2. What information is present on the pre-packaged foods? [Calorie content]	No of Responses	In %
Always	421	53%
Mostly	224	28%
Sometimes	38	5%
Rarely	98	12%
Never	0	0%
Can't Say	8	1%
Total	789	100%

Table 4.9c Awareness about Information on pre-packaged food: Nutrient Information

2. What information is present on the pre-packaged foods? [Nutrient Information]	No of Responses	In %
Always	427	54%
Mostly	225	29%
Sometimes	43	5%
Rarely	89	11%
Never	1	0%
Can't Say	4	1%
Total	789	100%

Table 4.9d Awareness about Information on pre-packaged food: Food additives/Preservatives

2. What information is present on the pre-packaged foods? [Food additives/Preservatives]	No of Responses	In %
Always	398	51%
Mostly	213	27%
Sometimes	69	9%
Rarely	86	11%
Never	12	2%
Can't Say	10	1%
Total	788	100%

Table 4.9e Awareness about Information on pre-packaged food: Specific Ingredients

2. What information is present on the pre-packaged foods? [Specific Ingredients]	No of Responses	In %
Always	374	47%
Mostly	229	29%
Sometimes	115	15%
Rarely	52	7%
Never	10	1%
Can't Say	9	1%
Total	789	100%

Table 4.9f Awareness about Information on pre-packaged food: Nutrition/Health Claims

2. What information is present on the pre-packaged foods? [Nutrition/Health claims]	No of Responses	In %
Always	288	37%
Mostly	268	34%
Sometimes	76	10%
Rarely	133	17%
Never	11	1%
Can't Say	13	2%
Total	789	100%

Table 4.9g Awareness about Information on pre-packaged food: Place of Manufacturing

2. What information is present on the pre-packaged foods? [Place of Manufacturing]	No of Responses	In %
Always	426	54%
Mostly	168	21%
Sometimes	81	10%
Rarely	86	11%
Never	18	2%
Can't Say	10	1%
Total	789	100%

Table 4.9h Awareness about Information on pre-packaged food: Certifications

2. What information is present on the pre-packaged foods? [Certification(Such as FSSAI,AGMARK)]	No of Responses	In %
Always	363	46%
Mostly	226	29%
Sometimes	94	12%
Rarely	63	8%
Never	20	3%
Can't Say	23	3%
Total	789	100%

Table 4.9i Awareness about Information on pre-packaged food: Marketed by

2. What information is present on the pre-packaged foods? [Marketed by]	No of Responses	In %
Always	368	47%
Mostly	212	27%
Sometimes	112	14%
Rarely	37	5%
Never	13	2%
Can't Say	47	6%
Total	789	100%

Table 4.9j Awareness about Information on pre-packaged food: Veg/Non-Veg Indication

2. What information is present on the pre-packaged foods? [Veg/Non Veg indication]	No of Responses	In %
Always	619	78%
Mostly	114	14%
Sometimes	29	4%
Rarely	16	2%
Never	5	1%
Can't Say	6	1%
Total	789	100%

Table 4.9k Awareness about Information on pre-packaged food: Salt content

2. What information is present on the pre-packaged foods? [Salt content]	No of Responses	In %
Always	312	40%
Mostly	234	30%
Sometimes	87	11%
Rarely	52	7%
Never	85	11%
Can't Say	19	2%
Total	789	100%

Table 4.9l Awareness about Information on pre-packaged food: Best Before/Expiry Date

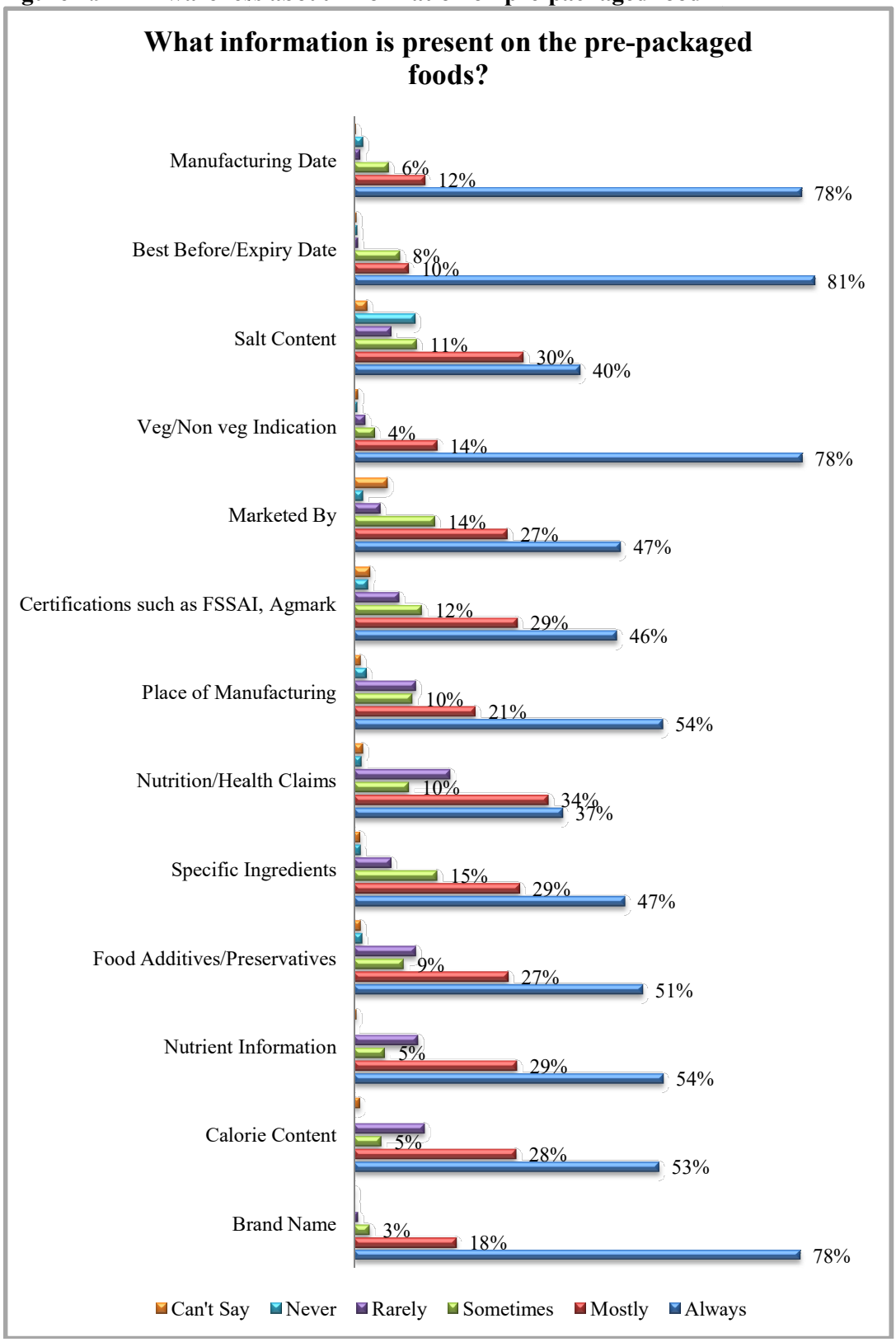
2. What information is present on the pre-packaged foods? [Best before/Expiry date]	No of Responses	In %
Always	636	81%
Mostly	75	10%
Sometimes	63	8%
Rarely	6	1%
Never	5	1%
Can't Say	4	1%
Total	789	100%

Table 4.9m Awareness about Information on pre-packaged food: Manufacturing Date

2. What information is present on the pre-packaged foods? [Manufacturing date]	No of Responses	In %
Always	618	78%
Mostly	98	12%
Sometimes	48	6%
Rarely	9	1%
Never	13	2%
Can't Say	3	0%
Total	789	100%

The summarized graph for all these parameters is as shown below.

Figure 4.9 Awareness about Information on pre-packaged food



Considering inputs for analysis of Q2 as percentage of responses (for Mostly and Always), following are the MOST significant 5 parameters:

Rank	Responses (for Mostly and Always) In %
1	Brand Name [96%]
2	Veg. / Non Veg. Indication [92%]
3	Best Before / Expiry Date [91%]
4	Manufacturing Date [90%]
5	Nutrient Information [83%]

Nutrient Information is one of the top five out of 13 options provided to the respondents.

Correlation Matrix for these parameters in Q2 is as shown below.

Correlation Matrix for Q. 2

What information is present on the pre packaged foods?	*Brand Name*	*Calorie Content*	*Nutrient Information*	*Food Additives / Preservatives*	*Specific Ingredients*	*Nutrition / Health Claims*	*Place of Manufacturing*	*Certifications (such as FSSAI,AGMARK)*	*Marketed By*	*Veg / Non Veg Indication*	*Salt Content*	*Best Before / Expiry Date*	*Manufacturing Date*
Brand Name	1												
Calorie Content	0.4347	1.0000											
Nutrient Information	0.4072	0.5292	1.0000										
Food Additives / Preservatives	0.3680	0.4815	0.5928	1.0000									
Specific Ingredients	0.2979	0.3854	0.5210	0.5825	1.0000								
Nutrition / Health Claims	0.2501	0.3642	0.4159	0.4173	0.4815	1.0000							
Place of Manufacturing	0.3372	0.4198	0.3469	0.3835	0.4607	0.4048	1.0000						
Certifications (such as FSSAI,AGMARK)	0.3053	0.3089	0.3468	0.3776	0.3461	0.3368	0.4329	1.0000					
Marketed By	0.2806	0.2847	0.2948	0.3294	0.4044	0.3272	0.5544	0.5020	1.0000				
Veg / Non Veg Indication	0.4549	0.3554	0.3376	0.3285	0.3289	0.2766	0.4087	0.3341	0.2956	1.0000			
Salt Content	0.2237	0.3495	0.3227	0.3902	0.4101	0.3634	0.4811	0.4077	0.4834	0.3802	1.0000		
Best Before / Expiry Date	0.4140	0.2801	0.3716	0.3163	0.3339	0.2294	0.3817	0.2958	0.3031	0.7443	0.3449	1.0000	
Manufacturing Date	0.4307	0.2701	0.4026	0.3359	0.3601	0.2288	0.3770	0.3061	0.3440	0.6481	0.3470	0.7889	1.0000

Note: The pairs showing good correlation coefficients (> 0.70) are: Veg. / Non Veg. Indication and Best Before / Expiry Date, Veg. / Non Veg. Indication and Manufacturing Date, Best Before / Expiry Date and Manufacturing Date.

3. Which information do you look for primarily on the food packages?

Table 4.10a Information that Customers look for on Packaged Foods: Brand Name

3. Which information do you look for primarily on the food packages? [Brand name]	No of Responses	In %
Always	587	74%
Mostly	153	19%
Sometimes	27	3%
Rarely	13	2%
Never	9	1%
Total	789	100%

Table 4.10b Information that Customers look for on Packaged Foods:Calories Content

3. Which information do you look for primarily on the food packages? [Calorie content]	No of Responses	In %
Always	309	39%
Mostly	240	30%
Sometimes	113	14%
Rarely	109	14%
Never	18	2%
Total	789	100%

Table 4.10c Information that Customers look for on Packaged Foods: Nutrient Information

3. Which information do you look for primarily on the food packages? [Nutrient Information]	No of Responses	In %
Always	361	46%
Mostly	193	24%
Sometimes	76	10%
Rarely	120	15%
Never	39	5%
Total	789	100%

Table 4.10d Information that Customers look for on Packaged Foods: Food Additives/Preservatives

3. Which information do you look for primarily on the food packages? [Food additives/Preservatives]	No of Responses	In %
Always	332	42%
Mostly	201	25%
Sometimes	87	11%
Rarely	76	10%
Never	93	12%
Total	789	100%

Table 4.10e Information that Customers look for on Packaged Foods: Specific Ingredients

3. Which information do you look for primarily on the food packages? [Specific Ingredients]	No of Responses	In %
Always	374	48%
Mostly	229	29%
Sometimes	115	15%
Rarely	52	7%
Never	10	1%
Total	780	100%

Table 4.10f Information that Customers look for on Packaged Foods: Nutrition/Health Claims

3. Which information do you look for primarily on the food packages? [Nutrition/Health claims]	No of Responses	In %
Always	309	39%
Mostly	198	25%
Sometimes	74	9%
Rarely	158	20%
Never	50	6%
Total	789	100%

Table 4.10g Information that Customers look for on Packaged Foods: Place of Manufacturing

3. Which information do you look for primarily on the food packages? [Place of Manufacturing]	No of Responses	In %
Always	261	33%
Mostly	217	28%
Sometimes	99	13%
Rarely	140	18%
Never	72	9%
Total	789	100%

Table 4.10h Information that Customers look for on Packaged Foods: Certifications

3. Which information do you look for primarily on the food packages? [Certification(Such as FSSAI,AGMARK)]	No of Responses	In %
Always	326	41%
Mostly	162	21%
Sometimes	91	12%
Rarely	149	19%
Never	61	8%
Total	789	100%

Table 4.10i Information that Customers look for on Packaged Foods: Marketed by

3. Which information do you look for primarily on the food packages? [Marketed by]	No of Responses	In %
Always	236	30%
Mostly	221	28%
Sometimes	96	12%
Rarely	92	12%
Never	144	18%
Total	789	100%

Table 4.10j Information that Customers look for on Packaged Foods: Veg/Non-Veg Indication

3. Which information do you look for primarily on the food packages? [Veg/Non Veg indication]	No of Responses	In %
Always	579	73%
Mostly	140	18%
Sometimes	45	6%
Rarely	14	2%
Never	11	1%
Total	789	100%

Table 4.10k Information that Customers look for on Packaged Foods: Salt Content

3. Which information do you look for primarily on the food packages? [Salt content]	No of Responses	In %
Always	256	32%
Mostly	211	27%
Sometimes	204	26%
Rarely	71	9%
Never	47	6%
Total	789	100%

Table 4.10l Information that Customers look for on Packaged Foods: Best Before/Expiry Date

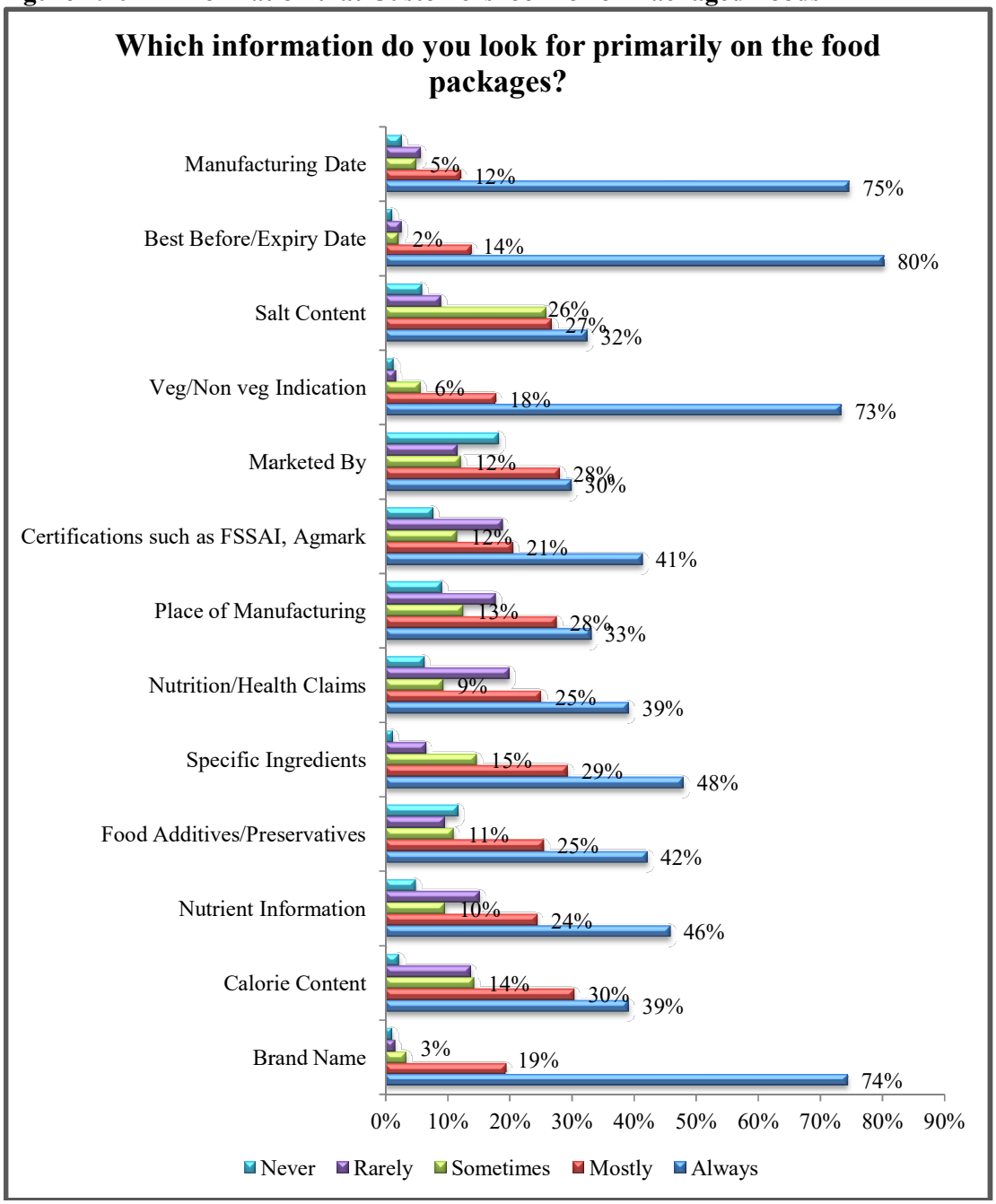
3. Which information do you look for primarily on the food packages? [Best Before/ Expiry date]	No of Responses	In %
Always	633	80%
Mostly	109	14%
Sometimes	17	2%
Rarely	21	3%
Never	9	1%
Total	789	100%

Table 4.10m Information that Customers look for on Packaged Foods: Manufacturing Date

3. Which information do you look for primarily on the food packages? [Manufacturing date]	No of Responses	In %
Always	589	75%
Mostly	95	12%
Sometimes	39	5%
Rarely	45	6%
Never	21	3%
Total	789	100%

The summarized graph for all these parameters follows.

Figure 4.10 Information that Customers look for on Packaged Foods



Considering inputs for analysis of Q3, percentage of responses (for Mostly and Always) following are the MOST significant 5 parameters:

Rank	[total of responses (for Mostly and Always) In %]
1	Best Before / Expiry Date [91%]
2	Brand Name [93%]
3	Veg. / Non Veg. Indication [91%]
4	Manufacturing Date [87%]
5	Specific Ingredients [77%]

Nutrient Information is one of the top six out of 13 options provided to the respondents with 70% of respondents claiming that they 'Always' or 'Mostly' look for Nutrient Information.

Correlation Matrix for these parameters in Q3 is as shown below.

Correlation Matrix for Q. 3

Which information do you look for primarily on the food packages?	*Brand Name*	*Calorie Content*	*Nutrient Information*	*Food Additives / Preservatives*	*Specific Ingredients*	*Nutrition / Health Claims*	*Place of Manufacturing*	*Certifications (such as FSSAI,AGMARK)*	*Marketed By*	*Veg / Non Veg Indication*	*Salt Content*	*Best Before / Expiry Date*	*Manufacturing Date*
Brand Name	1.0000												
Calorie Content	0.2684	1.0000											
Nutrient Information	0.2955	0.7354	1.0000										
Food Additives / Preservatives	0.2178	0.6754	0.7320	1.0000									
Specific Ingredients	0.2439	0.5576	0.6100	0.6697	1.0000								
Nutrition / Health Claims	0.2025	0.5999	0.6782	0.6440	0.6397	1.0000							
Place of Manufacturing	0.2444	0.5223	0.5066	0.5020	0.5805	0.5826	1.0000						
Certifications (such as FSSAI,AGMARK)	0.2250	0.4398	0.4804	0.5192	0.4834	0.5233	0.5568	1.0000					
Marketed By	0.1701	0.4762	0.4808	0.4672	0.5203	0.5596	0.7158	0.6348	1.0000				
Veg / Non Veg Indication	0.3129	0.3128	0.3155	0.3289	0.2971	0.2806	0.2798	0.3530	0.2644	1.0000			
Salt Content	0.1929	0.5425	0.5381	0.5174	0.5249	0.5121	0.5692	0.5142	0.6342	0.3335	1.0000		
Best Before / Expiry Date	0.2507	0.2223	0.2667	0.2504	0.2580	0.2218	0.1524	0.2647	0.1447	0.5839	0.2433	1.0000	
Manufacturing Date	0.3016	0.2442	0.2698	0.2734	0.3001	0.2067	0.2280	0.3139	0.2248	0.5838	0.2636	0.7576	1.0000

Note: The pairs showing good correlation coefficients (> 0.70) are: Calorie Content and Nutrient Information, Nutrient Information and Food Additives / Preservatives, Place of Manufacturing and Marketed By, Best Before / Expiry Date and Manufacturing Date.

4. While shopping for pre-packaged food items what do you consider important?

Table 4.11a Importance of Information while shopping: Taste

4. While shopping for pre-packaged food items what do you consider important? [Taste]	No of Responses	In %
Extremely Important	612	78%
Somewhat Important	174	22%
Not at all important	3	0%
Total	789	100%

Table 4.11b Importance of Information while shopping: Price

4. While shopping for pre-packaged food items what do you consider important? [Price]	No of Responses	In %
Extremely Important	459	58%
Somewhat Important	281	36%
Not at all important	49	6%
Total	789	100%

Table 4.11c Importance of Information while shopping: Best Before Date

4. While shopping for pre-packaged food items what do you consider important? [Best before date]	No of Responses	In %
Extremely Important	706	89%
Somewhat Important	77	10%
Not at all important	6	1%
Total	789	100%

Table 4.11d Importance of Information while shopping: Manufacturing Date

4. While shopping for pre-packaged food items what do you consider important? [Manufacturing Date]	No of Responses	In %
Extremely Important	591	75%
Somewhat Important	191	24%
Not at all important	7	1%
Total	789	100%

Table 4.11e Importance of Information while shopping: Calorie Content

4. While shopping for pre-packaged food items what do you consider important? [Calorie Content]	No of Responses	In %
Extremely Important	262	33%
Somewhat Important	450	57%
Not at all important	77	10%
Total	789	100%

Table 4.11f Importance of Information while shopping: Nutritional Content/Ingredients

4. While shopping for pre-packaged food items what do you consider important? [Nutritional content/Ingredients]	No of Responses	In %
Extremely Important	347	44%
Somewhat Important	341	43%
Not at all important	101	13%
Total	789	100%

Table 4.11g Importance of Information while shopping: Recommendations by Doctor

4. While shopping for pre-packaged food items what do you consider important? [Recommendation by doctor]	No of Responses	In %
Extremely Important	312	40%
Somewhat Important	394	50%
Not at all important	83	11%
Total	789	100%

Table 4.11h Importance of Information while shopping: Advertisement

4. While shopping for pre-packaged food items what do you consider important? [Advertisement]	No of Responses	In %
Extremely Important	219	28%
Somewhat Important	404	51%
Not at all important	166	21%
Total	789	100%

Table 4.11i Importance of Information while shopping: Nutrition/Health Claims

4. While shopping for pre-packaged food items what do you consider important? [Nutrition/Health claims]	No of Responses	In %
Extremely Important	356	45%
Somewhat Important	311	39%
Not at all important	122	15%
Total	789	100%

Table 4.11j Importance of Information while shopping: Place of Manufacturing

4. While shopping for pre-packaged food items what do you consider important? [Place of Manufacturing]	No of Responses	In %
Extremely Important	263	33%
Somewhat Important	329	42%
Not at all important	197	25%
Total	789	100%

Table 4.11k Importance of Information while shopping: Certifications

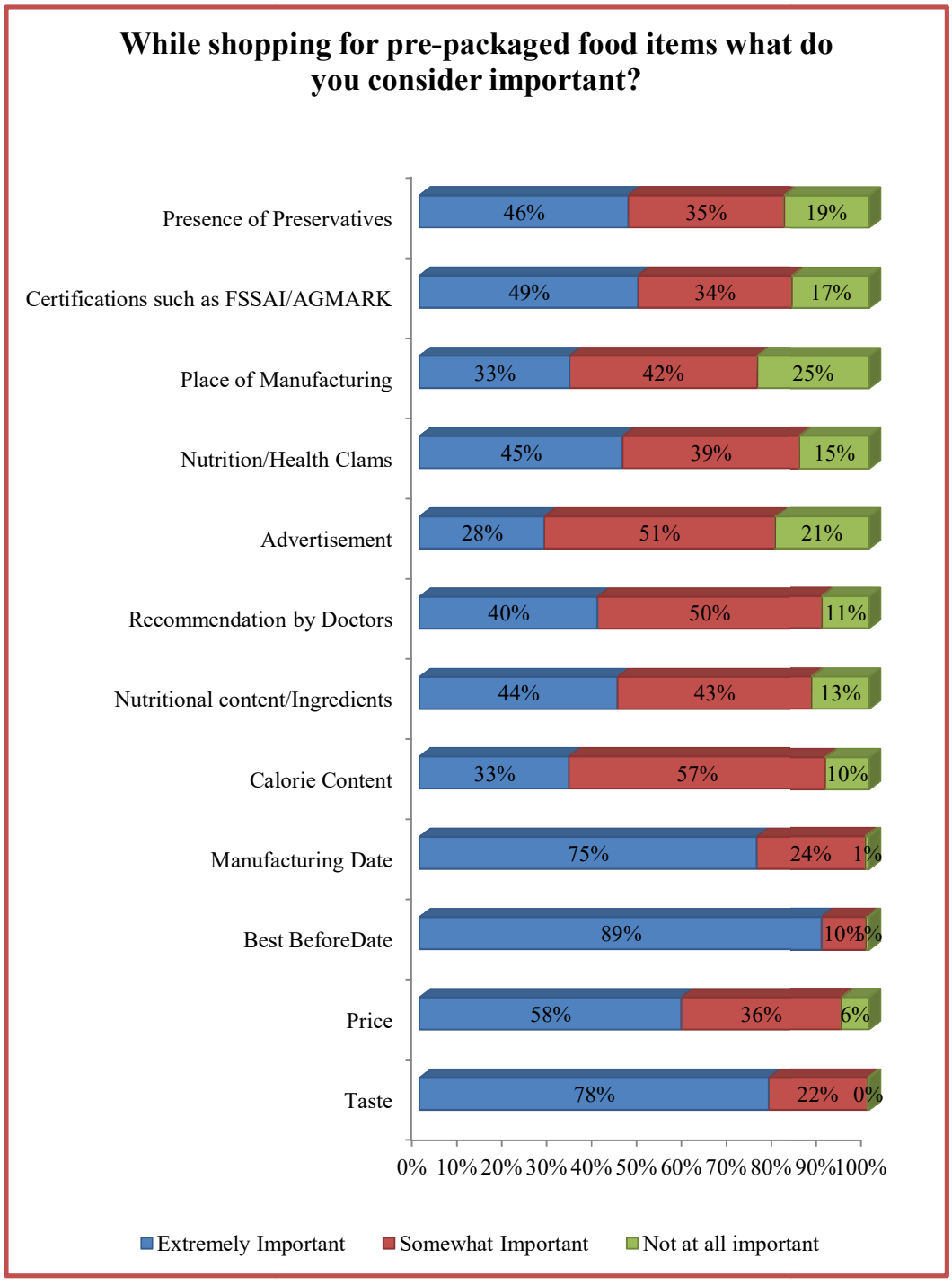
4. While shopping for pre-packaged food items what do you consider important? [Certifications(such as FSSAI/AGMARK)]	No of Responses	In %
Extremely Important	383	49%
Somewhat Important	271	34%
Not at all important	135	17%
Total	789	100%

Table 4.11l Importance of Information while shopping: Presence of Preservatives

4. While shopping for pre-packaged food items what do you consider important? [Presence of Preservatives]	No of Responses	In %
Extremely Important	366	46%
Somewhat Important	273	35%
Not at all important	150	19%
Total	789	100%

The summarized graph for all these parameters is as shown next.

Figure 4.11 Importance of Information while shopping



Considering inputs for analysis of Q4, percentage of responses for Extremely Important and Not at all Important are considered.

Rank	Responses (for Extremely Important) In %
1	Best before Date [89%]
2	Taste [78%]
3	Manufacturing Date [75%]

Rank	Responses (for Not at all Important) In %
1	Place of Manufacturing [25%]
2	Advertisement [21%]
3	Presence of Preservatives [19%]

The responses to this question provide an insight about what is considered important by consumers while buying food. An important point to note is that respondents claim that advertisement does not hold much importance to them while purchasing food items.

Correlation Matrix for these parameters in Q4 is as shown below.

Correlation Matrix for Q. 4

While shopping for pre-packaged food items what do you consider important?	*Taste*	*Price*	*Best before date*	*Manufacturing Date*	*Calorie Content*	*Nutritional content / Ingredients*	*Recommendation by doctor*	*Advertisement*	*Nutrition/Health claims*	*Place of Manufacturing*	*Certifications (such as FSSAI,AGMARK)*	*Presence of Preservatives*
Taste	1.00											
Price	0.18	1.00										
Best before date	0.29	0.16	1.00									
Manufacturing Date	0.11	0.15	0.53	1.00								
Calorie Content	0.05	0.15	0.15	0.17	1.00							
Nutritional content / Ingredients	0.02	0.12	0.22	0.34	0.52	1.00						
Recommendation by doctor	0.08	0.12	0.08	0.10	0.26	0.34	1.00					
Advertisement	0.11	0.15	0.09	0.11	0.24	0.21	0.32	1.00				
Nutrition/Health claims	0.10	0.05	0.16	0.19	0.38	0.47	0.41	0.29	1.00			
Place of Manufacturing	0.07	0.17	0.10	0.26	0.29	0.37	0.32	0.42	0.40	1.00		
Certifications (such as FSSAI,AGMARK)	0.11	0.09	0.18	0.19	0.37	0.39	0.25	0.15	0.42	0.42	1.00	
Presence of Preservatives	0.09	0.08	0.19	0.29	0.32	0.43	0.29	0.17	0.42	0.45	0.45	1.00

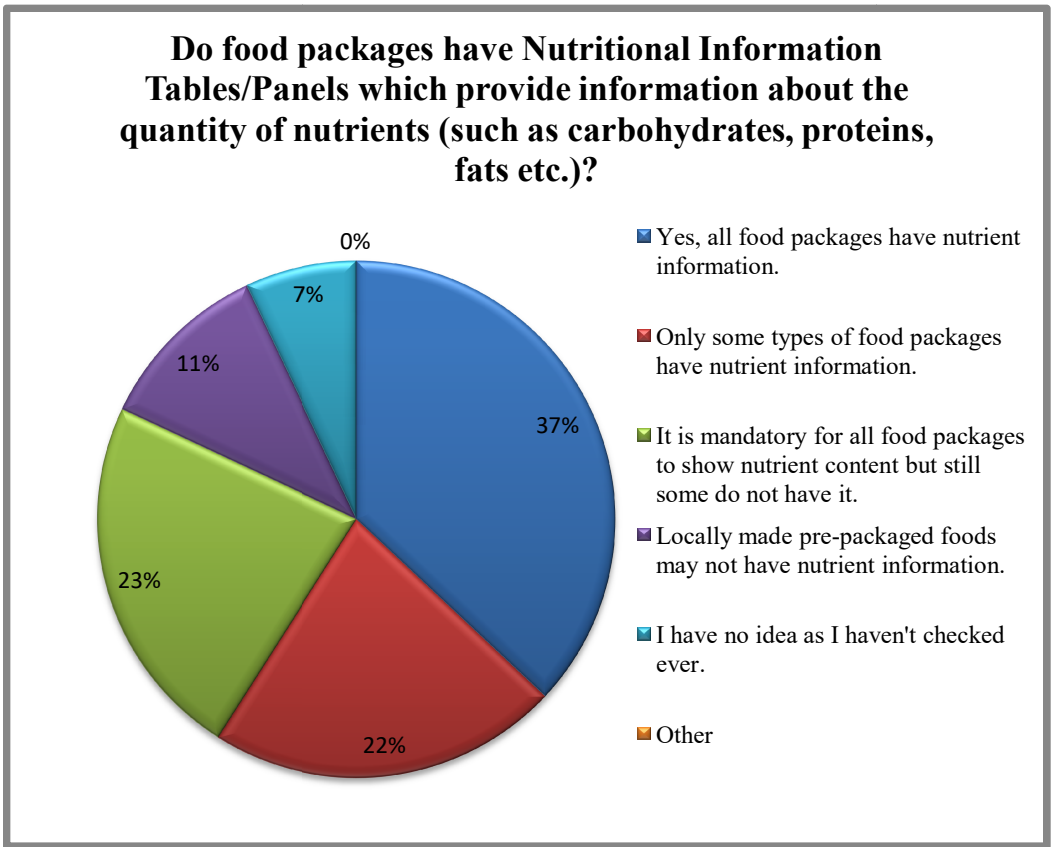
Note: The only pair showing moderate correlation coefficients (> 0.50) is: Calorie Content and Nutritional content / Ingredients.

5. Do food packages have Nutritional Information Tables/Panels which provide information about the quantity of nutrients (such as carbohydrates, proteins, fats etc.)? This is question with multiple choices. Analysis is presented below.

Table 4.12 Awareness about Nutritional Information on food packages being mandatory

Do food packages have Nutritional Information Tables/Panels which provide information about the quantity of nutrients (such as carbohydrates, proteins, fats etc.)?	No. of Responses (N=1034)	In %
Yes, all food packages have nutrient information.	377	37%
Only some types of food packages have nutrient information.	232	22%
It is mandatory for all food packages to show nutrient content but still some do not have it.	233	23%
Locally made pre-packaged foods may not have nutrient information.	115	11%
I have no idea as I haven't checked ever.	77	7%
Other	0	0%
Total	1034	100%

Figure 4.12 Awareness about Nutritional Information on food packages being mandatory



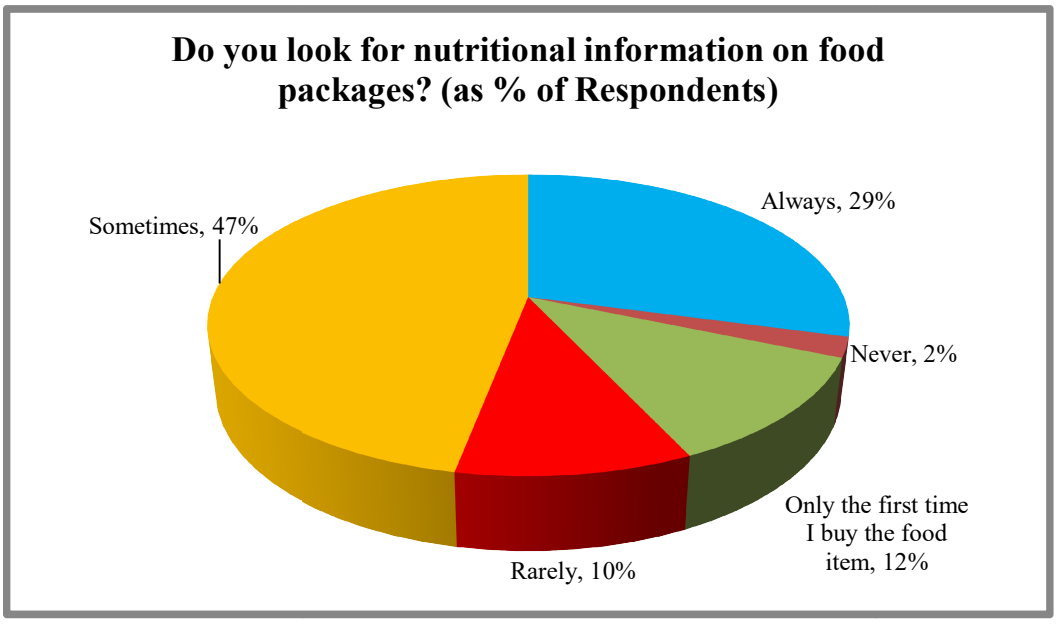
Most of the people (60%) feel that nutrition information is mandatory on all packaged foods.

6. Do you look for nutritional information on food packages?

Table 4.13 Looking out for Nutritional Information on Food Packages

Do you look for nutritional information on food packages?	No. of Responses (N=789)	In %
Always	230	29%
Sometimes	370	47%
Only when the first time I buy the food item	92	12%
Rarely	79	10%
Never	18	2%
Total	789	100%

Figure 4.13 Looking out for Nutritional Information on Food Packages



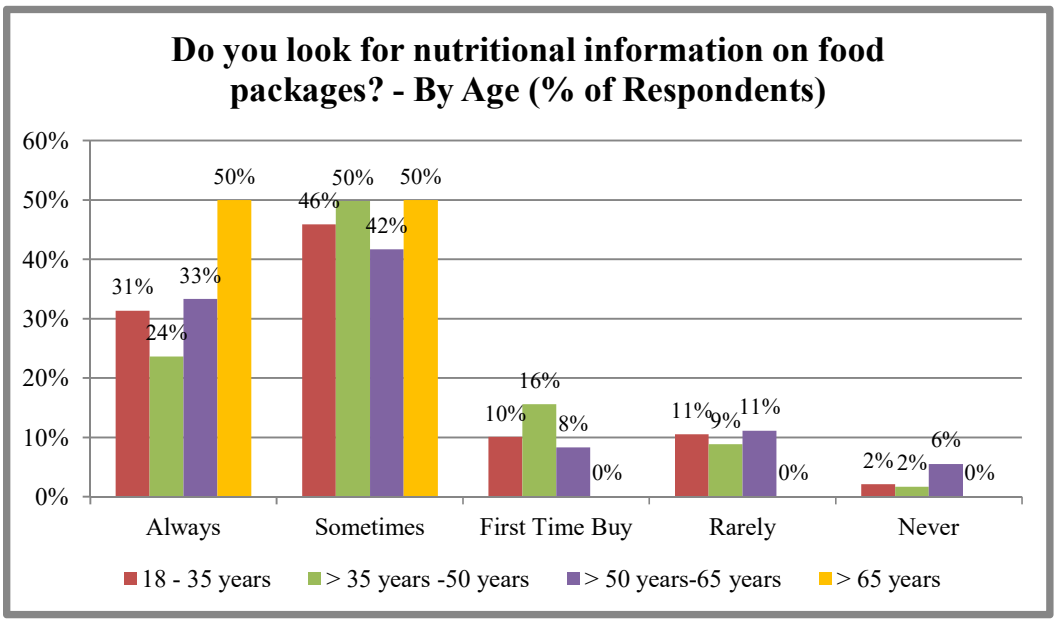
Analyses of Q.6 by using different types of demographic inputs (by respondent's profile) are presented subsequently.

Table 4.14 Age-wise Looking out for Nutritional Information on Food Packages

Responses (In Numbers)	Always	Sometimes	First Time Buy	Rarely	Never	Total
18 - 35 years	161	236	52	54	11	514
> 35 years -50 years	56	118	37	21	4	237
> 50 years-65 years	12	15	3	4	2	36
> 65 years	1	1	0	0	0	2
Total	230	370	92	79	17	789

Responses (In %)	Always	Sometimes	First Time Buy	Rarely	Never	Total
18 - 35 years	31%	46%	10%	11%	2%	65%
> 35 years -50 years	24%	50%	16%	9%	2%	30%
> 50 years-65 years	33%	42%	8%	11%	6%	5%
> 65 years	50%	50%	0%	0%	0%	0%
Total	29%	47%	12%	10%	2%	100%

Figure 4.14 Age-wise Looking for Nutritional Information on Food Packages



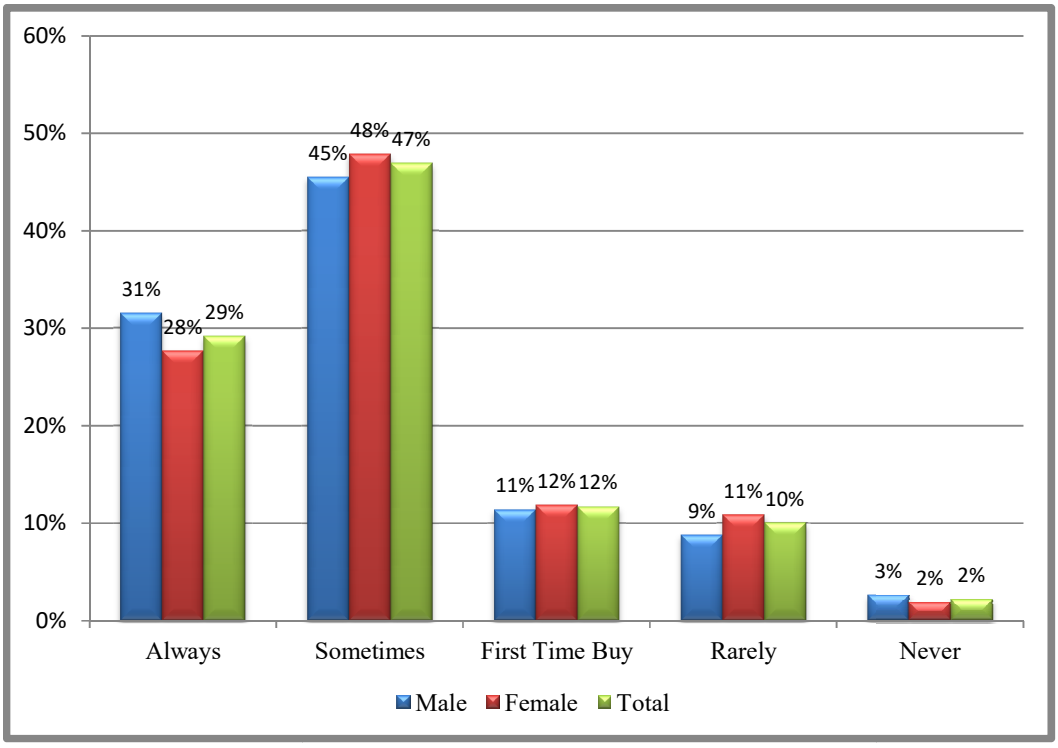
Respondents in the age group > 50 years -65 years are more concerned about nutritional information on food packages.

Table 4.15 Gender-wise Looking for Nutritional Information on Food Packages

Responses (In Numbers)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Male	97	140	35	27	8	308
Female	133	230	57	52	9	481
Total	230	370	92	79	17	789

Responses (In %)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Male	31%	45%	11%	9%	3%	39%
Female	28%	48%	12%	11%	2%	61%
Total	29%	47%	12%	10%	2%	100%

Figure 4.15 Gender-wise Looking for Nutritional Information on Food Packages



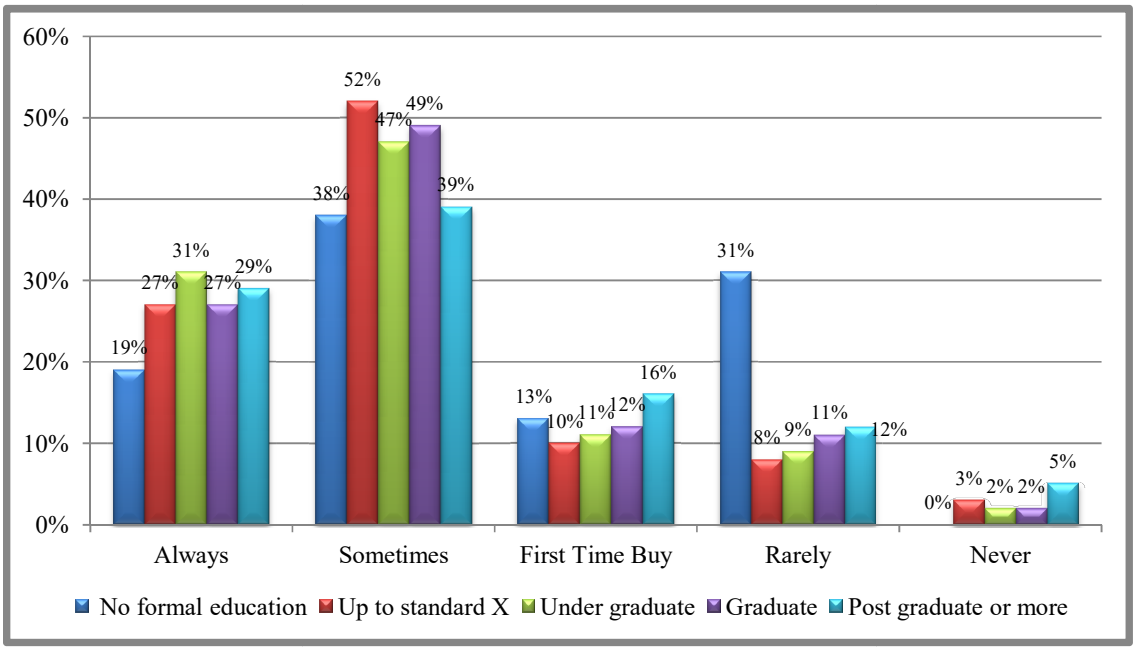
As compared to male respondents it is seen that female respondents are more concerned about nutritional information on food packages.

Table 4.16 Education Qualification-wise Looking for Nutritional Information on Food Packages

Responses (In Numbers)	Always	Sometimes	First Time Buy	Rarely	Never	Total
No formal education	3	6	2	5	0	16
Up to standard X	25	47	9	7	3	91
Under graduate	118	181	42	34	7	382
Graduate	54	96	23	21	3	197
Post graduate or more	30	40	16	12	5	103
Total	230	370	92	79	18	789

Responses (In %)	Always	Sometimes	First Time Buy	Rarely	Never	Total
No formal education	19%	38%	13%	31%	0%	2%
Up to standard X	27%	52%	10%	8%	3%	12%
Under graduate	31%	47%	11%	9%	2%	48%
Graduate	27%	49%	12%	11%	2%	25%
Post graduate or more	29%	39%	16%	12%	5%	13%
Total	29%	47%	12%	10%	2%	100%

Figure 4.16 Educational Qualification-wise Looking for Nutritional Information on Food Packages



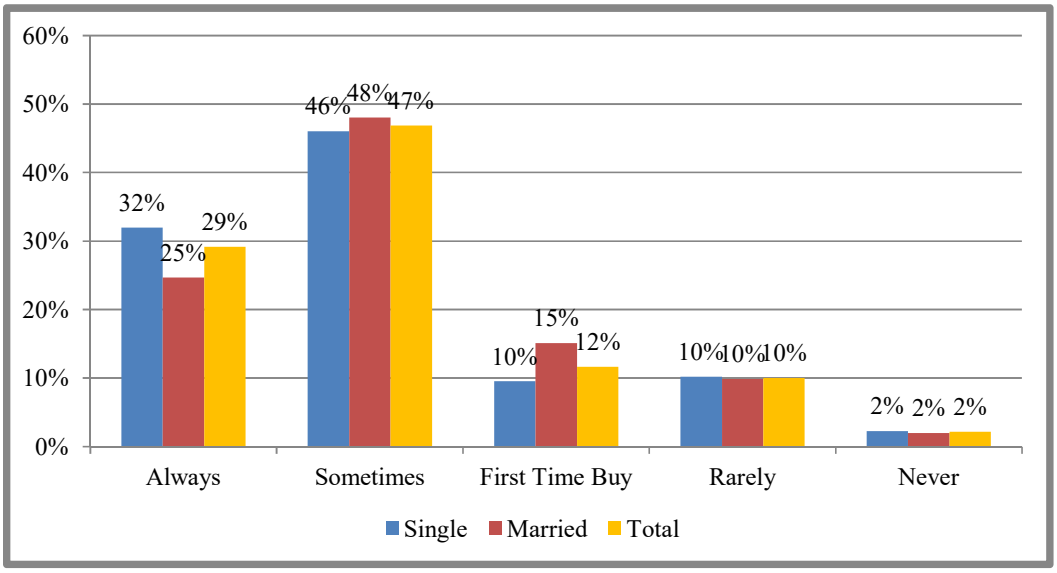
There is no difference in looking for nutritional information on food packages according to educational qualifications. Although it is seen that respondents with no formal education are not more concerned about the nutritional information on food packages as nearly one third of them are rarely seeing it.

Table 4.17 Marital Status-wise Looking for Nutritional Information on Food Packages

Responses (In Numbers)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Single	155	223	46	47	11	482
Married	75	146	46	31	6	304
Divorced	0	1	0	1	0	2
Widow/Widower	0	0	0	0	1	1
Total	230	370	92	79	18	789

Responses (In %)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Single	32%	46%	10%	10%	2%	61%
Married	25%	48%	15%	10%	2%	39%
Divorced	0%	0%	0%	0%	0%	0%
Widow/Widower	0%	0%	0%	0%	0%	0%
Total	29%	47%	12%	10%	2%	100%

Figure 4.17 Marital Status-wise Looking for Nutritional Information on Food Packages



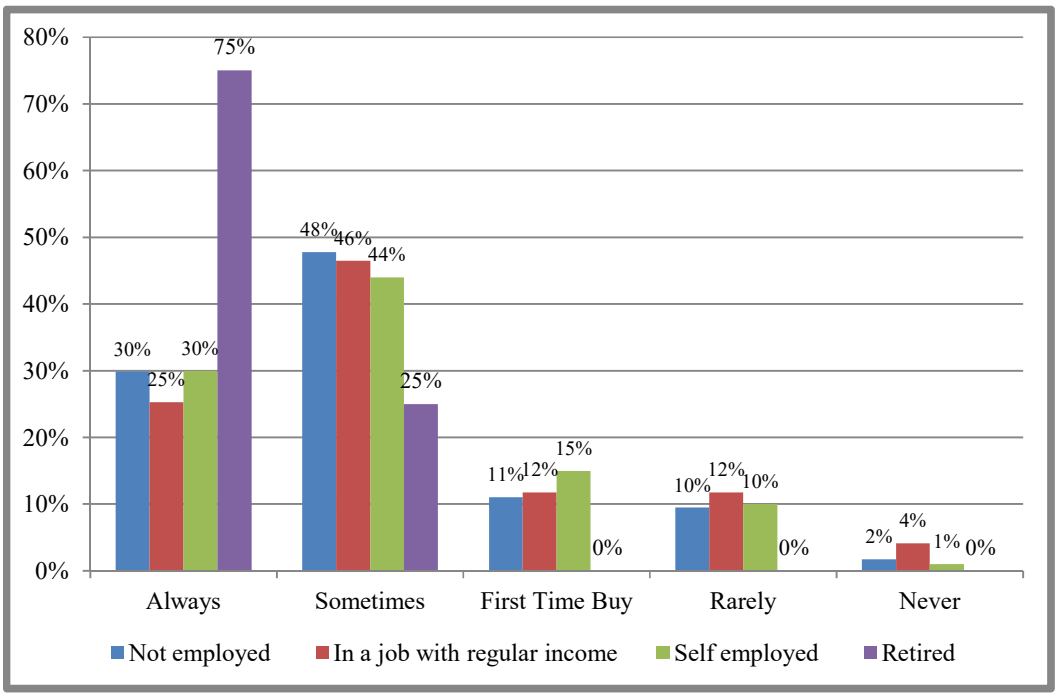
There is no difference in looking for nutritional information on food packages according to marital status.

Table 4.18 Employment Status-wise Looking for Nutritional Information on Food Packages

Responses (In Numbers)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Not employed	154	246	57	49	9	515
In a job with regular income	43	79	20	20	7	170
Self employed	30	44	15	10	1	100
Retired	3	1	0	0	0	4
Total	230	370	92	79	17	789

Responses (In %)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Not employed	30%	48%	11%	10%	2%	65%
In a job with regular income	25%	46%	12%	12%	4%	22%
Self employed	30%	44%	15%	10%	1%	13%
Retired	75%	25%	0%	0%	0%	1%
Total	29%	47%	12%	10%	2%	100%

Figure 4.18 Employment Status-wise Looking for Nutritional Information on Food Packages



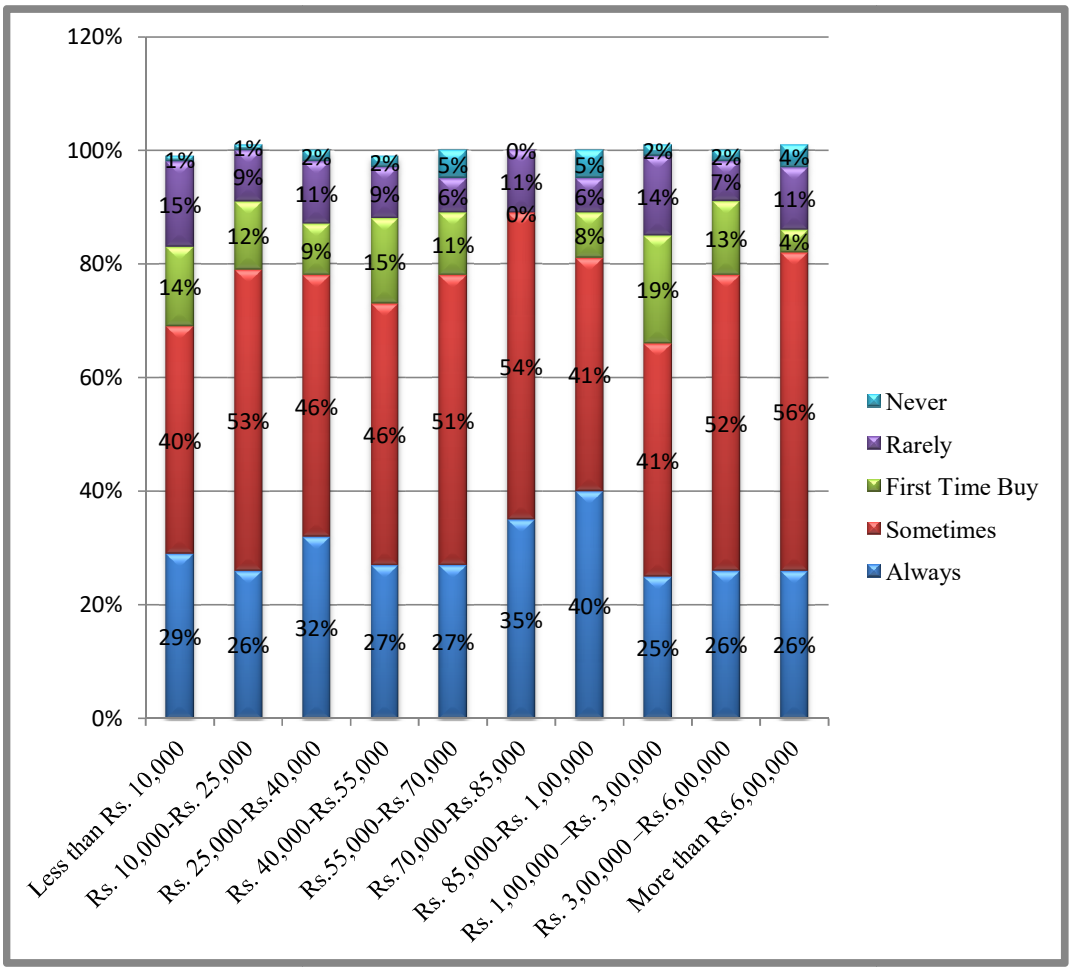
There is no difference in looking for nutritional information on food packages according to occupation qualifications. Although it is seen that respondents (those are retired) are more concerned about the nutritional information on food packages as nearly three fourth of them are always seeing it.

Table 4.19 Monthly Family Income-wise Looking for Nutritional Information on Food Packages

Responses (In Numbers)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Less than Rs. 10,000	23	31	11	12	1	78
Rs. 10,000-Rs. 25,000	36	73	16	12	1	138
Rs. 25,000-Rs.40,000	48	68	14	16	3	149
Rs. 40,000-Rs.55,000	25	42	14	8	2	92
Rs.55,000-Rs.70,000	17	32	7	4	3	63
Rs.70,000-Rs.85,000	13	20	0	4	0	37
Rs. 85,000-Rs. 1,00,000	25	26	5	4	3	63
Rs. 1,00,000 –Rs. 3,00,000	24	39	18	13	2	96
Rs. 3,00,000 –Rs.6,00,000	12	24	6	3	1	46
More than Rs.6,00,000	7	15	1	3	1	27
Total	230	370	92	79	17	789

Responses (In %)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Less than Rs. 10,000	29%	40%	14%	15%	1%	10%
Rs. 10,000-Rs. 25,000	26%	53%	12%	9%	1%	17%
Rs. 25,000-Rs.40,000	32%	46%	9%	11%	2%	19%
Rs. 40,000-Rs.55,000	27%	46%	15%	9%	2%	12%
Rs.55,000-Rs.70,000	27%	51%	11%	6%	5%	8%
Rs.70,000-Rs.85,000	35%	54%	0%	11%	0%	5%
Rs. 85,000-Rs. 1,00,000	40%	41%	8%	6%	5%	8%
Rs. 1,00,000 –Rs. 3,00,000	25%	41%	19%	14%	2%	12%
Rs. 3,00,000 –Rs.6,00,000	26%	52%	13%	7%	2%	6%
More than Rs.6,00,000	26%	56%	4%	11%	4%	3%
Total	29%	47%	12%	10%	2%	100%

Figure 4.19 Monthly Family Income-wise Looking for Nutritional Information on Food Packages



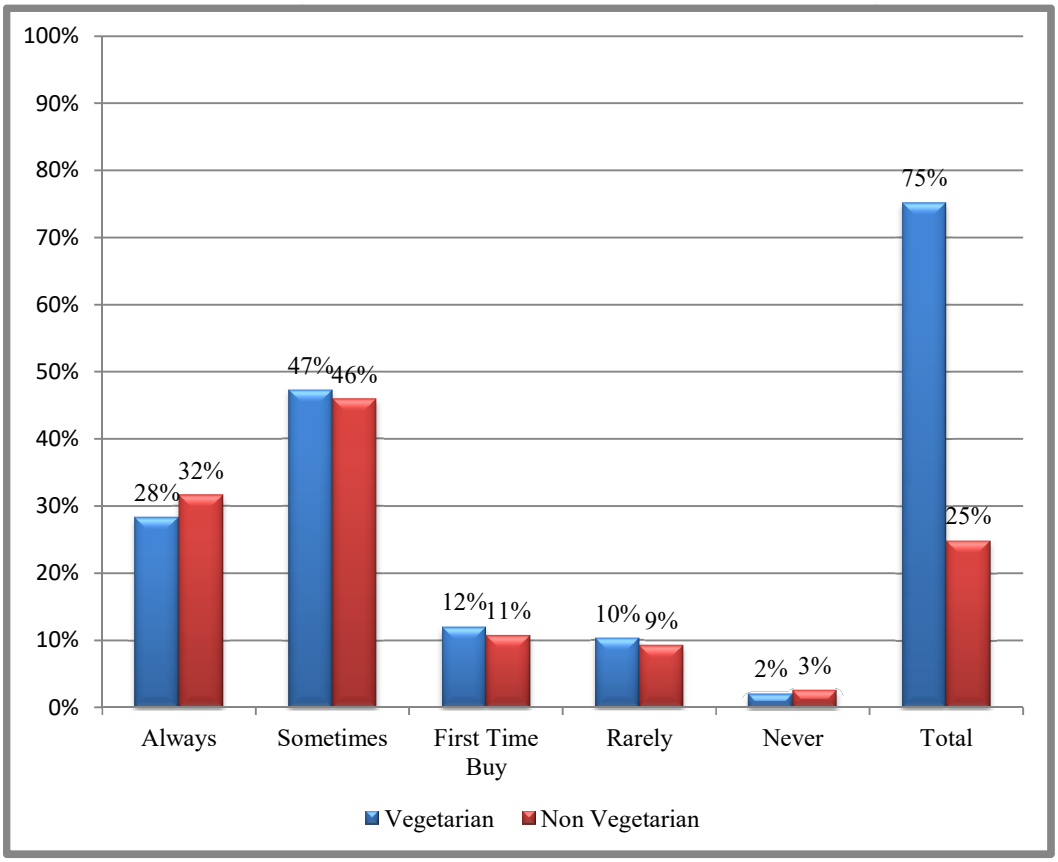
There is no difference in looking for nutritional information on food packages according to monthly family income. However, it was observed that across all income slabs, nearly half of the respondents are sometimes seeing it. Also across all income groups about one fourth or one third of the respondents are more concerned about the nutritional information on food packages as they are always looking for it.

Table 4.20 Food Preference-wise Looking for Nutritional Information on Food Packages

Responses (In Numbers)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Vegetarian	168	280	71	61	12	593
Non Vegetarian	62	90	21	18	5	196
Total	230	370	92	79	17	789

Responses (In %)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Vegetarian	28%	47%	12%	10%	2%	75%
Non Vegetarian	32%	46%	11%	9%	3%	25%
Total	29%	47%	12%	10%	2%	100%

Figure 4.20 Food Preference-wise Looking for Nutritional Information on Food Packages



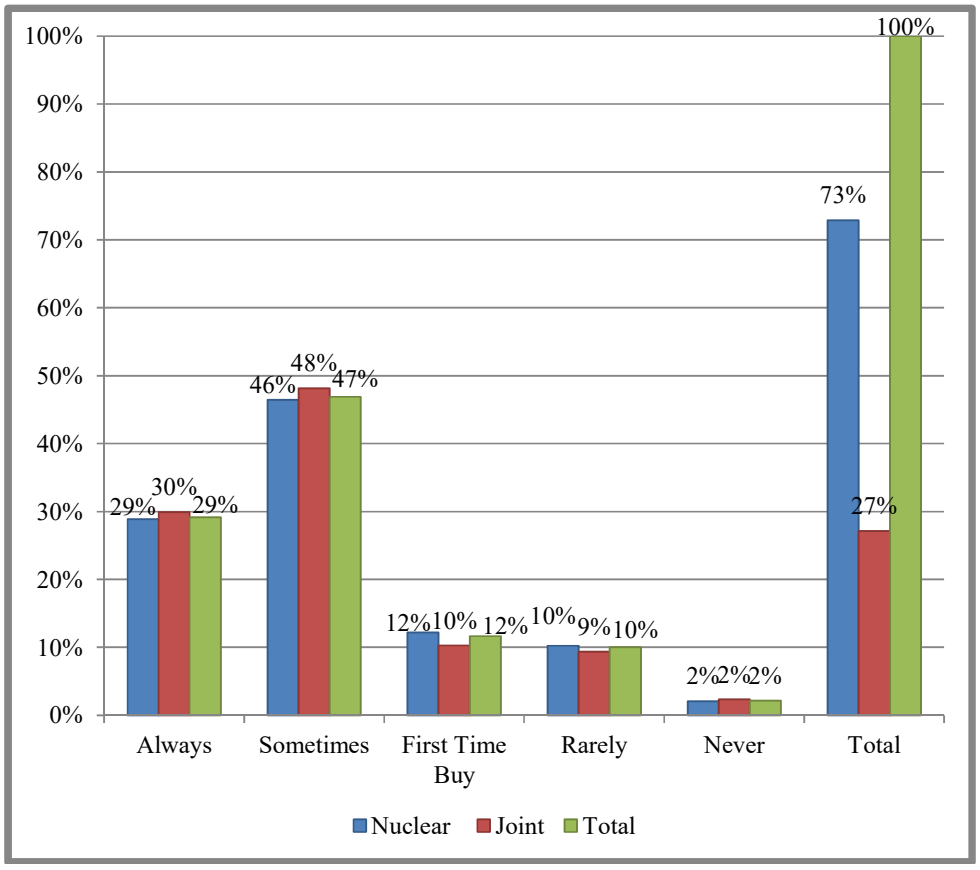
There is no difference in looking for nutritional information on food packages according to food preference.

Table 4.21 Family Type-wise Looking for Nutritional Information on Food Packages

Responses (In Numbers)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Nuclear	166	267	70	59	12	575
Joint	64	103	22	20	5	214
Total	230	370	92	79	17	789

Responses (In %)	Always	Sometimes	First Time Buy	Rarely	Never	Total
Nuclear	29%	46%	12%	10%	2%	73%
Joint	30%	48%	10%	9%	2%	27%
Total	29%	47%	12%	10%	2%	100%

Figure 4.21 Family Type-wise Looking for Nutritional Information on Food Packages



There is no difference in looking for nutritional information on food packages according to family type.

7. What information in the nutritional information panels do you look for?

(The responses to this question relate only to those who had not answered 'Never' in the previous question that asked about whether they look for Nutrient Information on the food pancakes. The number of such respondents is 771 as 18 out of 789 had responded 'Never' in the previous question)

Table 4.22a Nutrient Looking for on Nutritional Information Panel: Energy

What information in the nutritional information panels do you look for? Energy	No. of Responses (N=771)	In %
Always	364	47%
Mostly	180	23%
Sometimes	185	24%
Rarely	28	4%
Never	14	2%
Total	771	100%

Table 4.22b Nutrient Looking for on Nutritional Information Panel: Fat

What information in the nutritional information panels do you look for? Fat	No. of Responses (N=771)	In %
Always	334	43%
Mostly	220	29%
Sometimes	185	24%
Rarely	22	3%
Never	10	1%
Total	771	100%

Table 4.22c Nutrient Looking for on Nutritional Information Panel: Sugars

What information in the nutritional information panels do you look for? Sugars	No. of Responses (N=771)	In %
Always	294	38%
Mostly	192	25%
Sometimes	226	29%
Rarely	43	6%
Never	16	2%
Total	771	100%

Table 4.22d Nutrient Looking for on Nutritional Information Panel: Vitamins

What information in the nutritional information panels do you look for? Vitamins	No. of Responses (N=771)	In %
Always	384	50%
Mostly	177	23%
Sometimes	146	19%
Rarely	51	6%
Never	13	2%
Total	771	100%

Table 4.22e Nutrient Looking for on Nutritional Information Panel: Minerals

What information in the nutritional information panels do you look for? Minerals	No. of Responses (N=771)	In %
Always	282	37%
Mostly	207	27%
Sometimes	151	20%
Rarely	88	11%
Never	43	5%
Total	771	100%

Table 4.22f Nutrient Looking for on Nutritional Information Panel: Sodium/Salt

What information in the nutritional information panels do you look for? Sodium/Salt	No. of Responses (N=771)	In %
Always	223	29%
Mostly	202	26%
Sometimes	184	24%
Rarely	96	12%
Never	66	9%
Total	771	100%

Table 4.22g Nutrient Looking for on Nutritional Information Panel: Proteins

What information in the nutritional information panels do you look for? Proteins	No. of Responses (N=771)	In %
Always	393	51%
Mostly	164	21%
Sometimes	117	15%
Rarely	62	8%
Never	35	5%
Total	771	100%

Table 4.22h Nutrient Looking for on Nutritional Information Panel: Fiber

What information in the nutritional information panels do you look for? Fiber	No. of Responses (N=771)	In %
Always	216	28%
Mostly	219	28%
Sometimes	182	24%
Rarely	80	10%
Never	74	10%
Total	771	100%

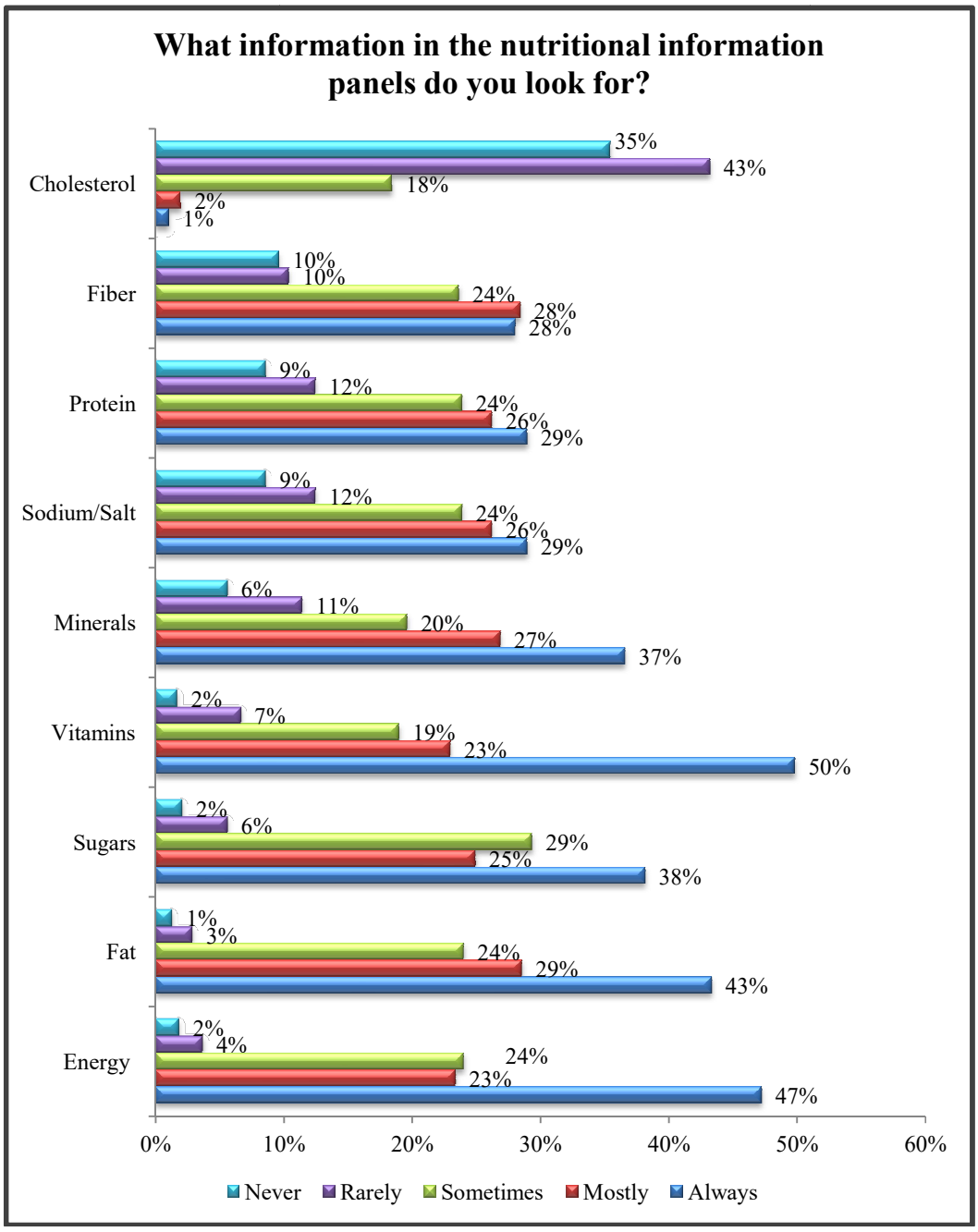
Table 4.22i Nutrient Looking for on Nutritional Information Panel: Cholesterol

What information in the nutritional information panels do you look for? Cholesterol	No. of Responses (N=771)	In %
Always	8	1%
Mostly	15	2%
Sometimes	142	18%
Rarely	333	43%
Never	273	36%
Total	771	100%

The summarized graph for all these parameters is as shown below.

Figure 1: Q7 Responses - By Information looking for in the nutritional information panels (In %)

Figure 4.22 Nutrients Looking for on Nutritional Information Panel



Considering inputs for analysis of Q7, (for Mostly and Always) following are the looked for top 5 nutrients:

Rank	No. of Responses received for Almost and Mostly in %
1	Vitamins [73%]
2	Fats [72%]
3	Energy [70%]
4	Minerals [64%]
5	Sugars [63%]

A surprising finding is that only 3% of respondents claimed to look at the cholesterol values in the nutrition table.

Correlation Matrix for these parameters in Q7 is as shown below.

Table 1: Correlation Matrix for Q. 7

What information in the nutritional information panels do you look for?	*Energy*	*Fats*	*Sugars*	*Vitamins*	*Minerals*	*Sodium / Salt*	*Proteins*	*Fiber*	*Cholesterol*
Energy	1.0000								
Fats	0.4097	1.0000							
Sugars	0.4343	0.5268	1.0000						
Vitamins	0.5218	0.3665	0.4277	1.0000					
Minerals	0.4828	0.3082	0.4128	0.6923	1.0000				
Sodium / Salt	0.3985	0.3386	0.5127	0.4139	0.4762	1.0000			
Proteins	0.5010	0.4145	0.4224	0.6538	0.6222	0.4595	1.0000		
Fiber	0.4824	0.3891	0.4833	0.5552	0.5961	0.5613	0.5687	1.0000	
Cholesterol	0.5559	0.6177	0.3592	0.6239	0.5391	0.4126	0.4998	0.5935	1.0000

Note: The pairs showing good correlation coefficients (> 0.60) are: Fats and Cholesterol, Vitamins and Minerals, Vitamins and Proteins, Vitamins and Cholesterol, Minerals and Proteins.

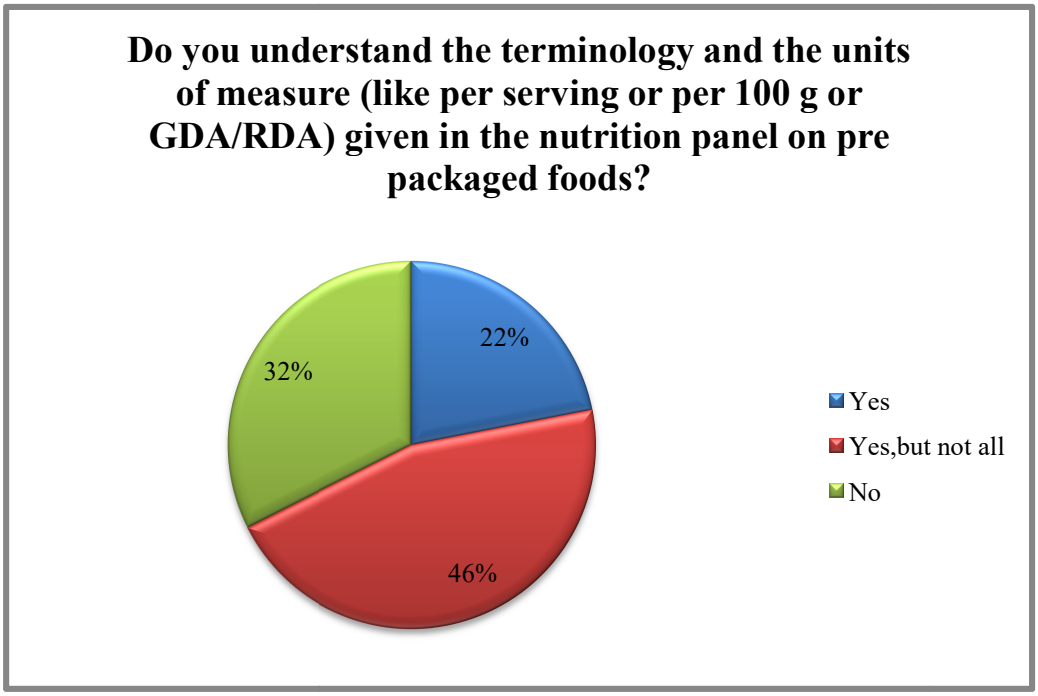
8. Do you understand the terminology and the units of measure (like per serving or per 100 g or GDA/RDA) given in the nutrition panel on pre packaged foods?

(The responses to this question relate only to those who had not answered 'Never' in the previous question that asked about whether they look for Nutrient Information on the food pancakes. The number of such respondents is 771 as 18 out of 789 had responded 'Never' in question 6)

Table 4.23: Understanding Terminology on Nutritional Information Tables

8. Do you understand the terminology and the units of measure (like per serving or per 100 g or GDA/RDA) given in the nutrition panel on pre packaged foods?	Number of responses	In %
Yes	169	22%
Yes,but not all	352	46%
No	250	32%
Total	771	100%

Figure 4.23: Understanding Terminology on Nutritional Information Tables



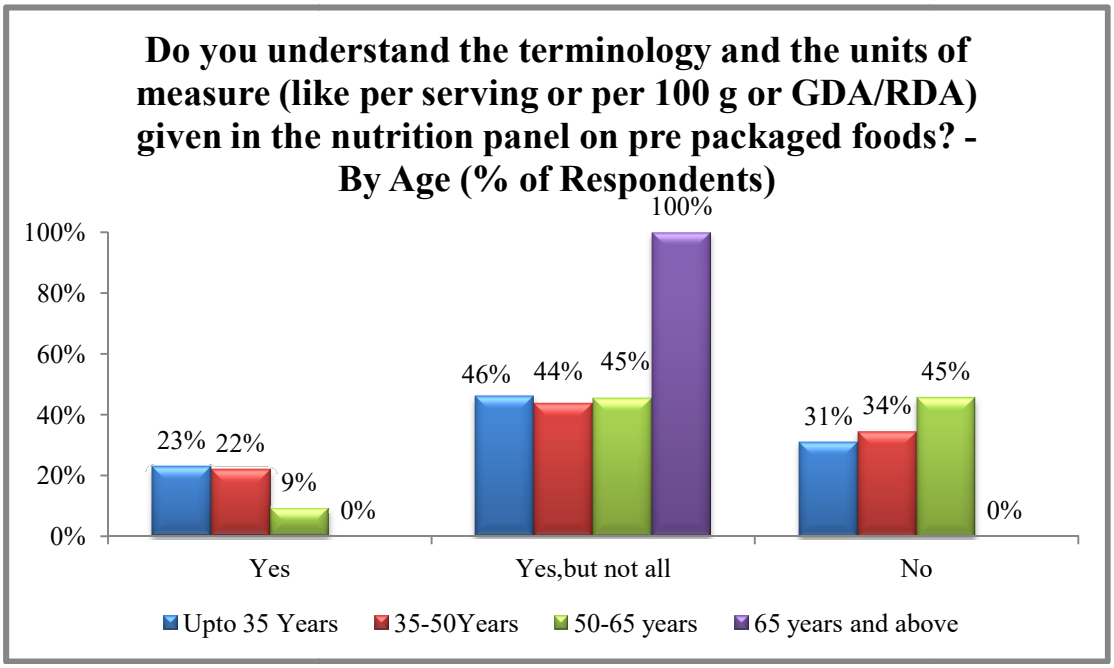
Note: GDA: Guideline Daily Amount, RDA: Recommended Daily Allowance

Analyses of Q.8 by using different types of demographic inputs (by respondent's profile) are presented subsequently.

Table 4.24: Age-wise Understanding Terminology on Nutritional Information Tables

Responses (In Numbers)	Yes	Yes, but not all	No	Total
18 - 35 years	115	233	155	503
> 35 years -50 years	51	102	80	233
> 50 years-65 years	3	15	15	33
> 65 years	0	2	0	2
Total	169	352	250	771
Responses (In %)	**Yes**	**Yes, but not all**	**No**	**Total**
18 - 35 years	23%	46%	31%	66%
> 35 years -50 years	22%	44%	34%	30%
> 50 years-65 years	9%	45%	45%	4%
> 65 years	0%	100%	0%	0%
Total	22%	46%	32%	100%

Figure 4.24: Age-wise Understanding Terminology on Nutritional Information Tables

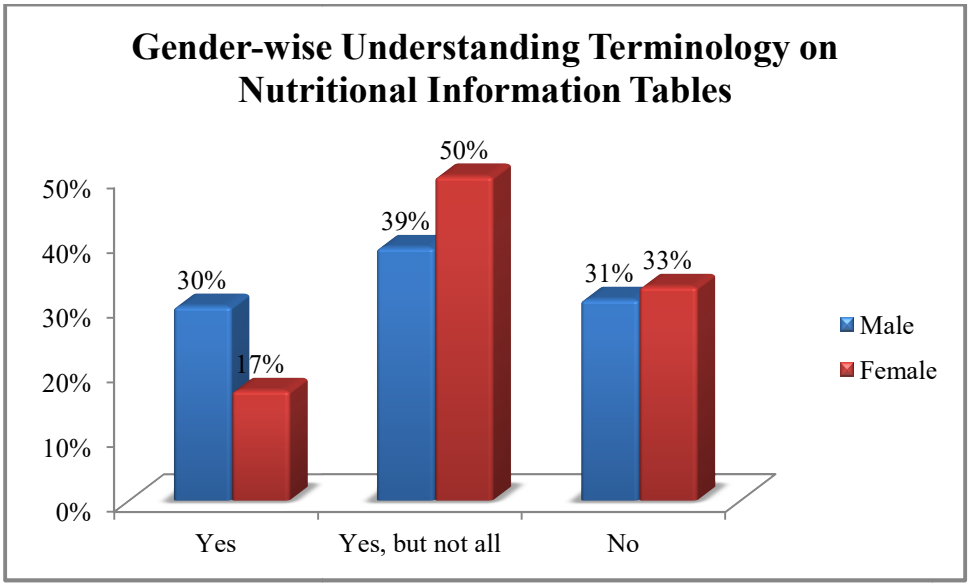


About half of the respondents across all age groups have indicated that they understand (some of the) information, but not all of the information.

Table 4.25 Gender-wise Understanding Terminology on Nutritional Information Tables

Responses (In Numbers)	Yes	Yes, but not all	No	Total
Male	90	117	93	300
Female	79	235	157	471
Total	169	352	250	771
Responses (In %)	**Yes**	**Yes, but not all**	**No**	**Total**
Male	30%	39%	31%	38%
Female	17%	50%	33%	62%
Total	22%	46%	32%	100%

Figure 4.25: Gender-wise Understanding Terminology on Nutritional Information Tables

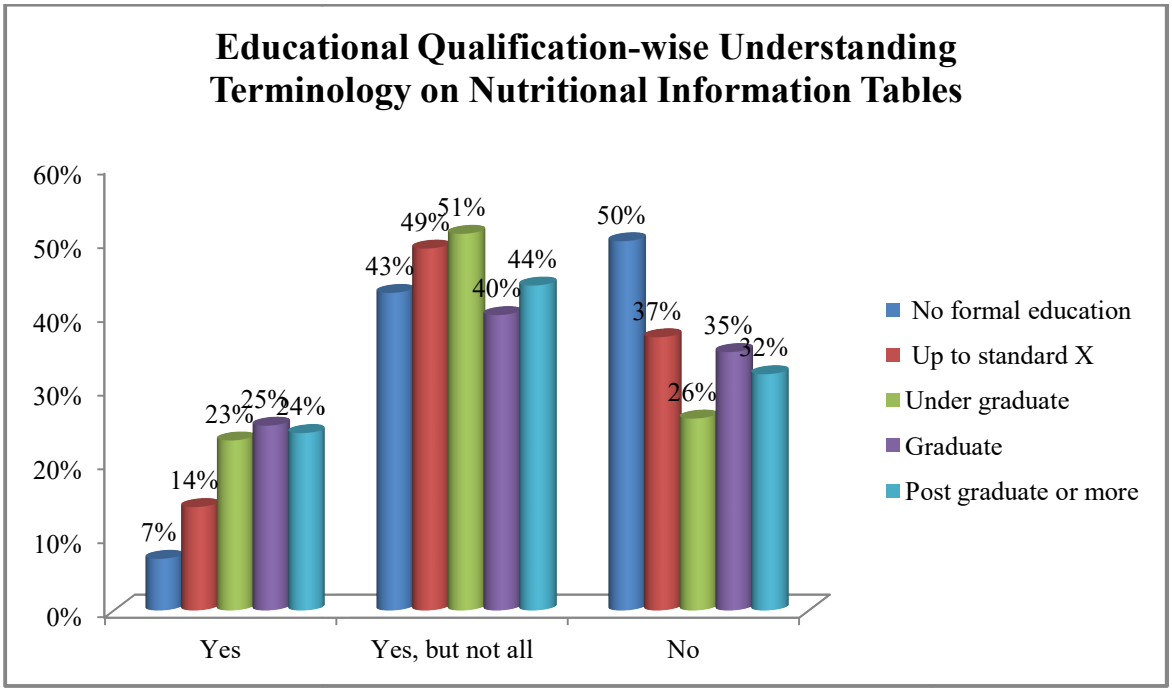


As compared to female respondents it is seen that more male respondents (in terms of percentages) are of the opinion that they understand the terminology and units of measure on pre-packaged foods.

Table 4.26: Educational Qualification-wise Understanding Terminology on Nutritional Information Tables

Responses (In Numbers)	Yes	Yes, but not all	No	Total
No formal education	1	7	8	16
Up to standard X	12	42	34	88
Under graduate	84	182	109	375
Graduate	48	78	68	194
Post graduate or more	24	43	31	98
Total	169	352	250	771
Responses (In %)	**Yes**	**Yes, but not all**	**No**	**Total**
No formal education	7%	43%	50%	2%
Up to standard X	14%	49%	37%	11%
Under graduate	23%	51%	26%	49%
Graduate	25%	40%	35%	25%
Post graduate or more	24%	44%	32%	13%
Total	22%	46%	32%	100%

Figure 4.26: Educational Qualification-wise Understanding Terminology on Nutritional Information Tables



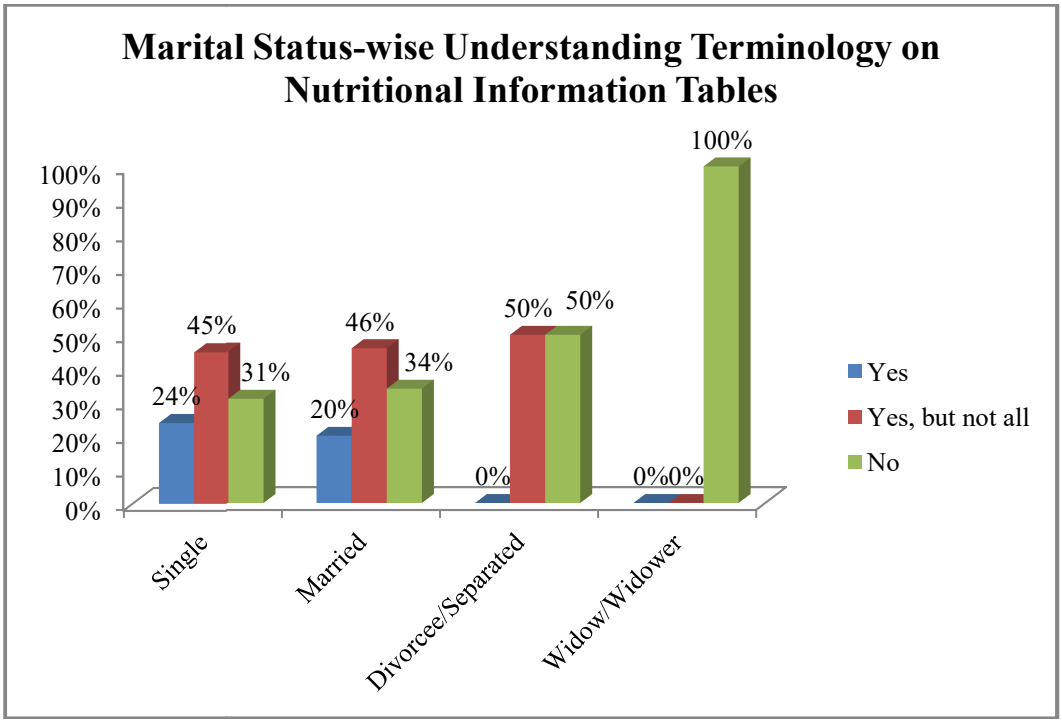
There is no difference in understanding the terminology and units of measure given in the nutrition panel on pre-packed foods according to educational qualifications. Although it

is seen that respondents with no formal education (in percentage terms) saying 'Yes' for understanding the nutritional information are much less than the educated ones to understand the same.

Table 4.27: Marital Status-wise Understanding Terminology on Nutritional Information Tables

Responses (In Numbers)	Yes	Yes, but not all	No	Total
Single	112	213	146	471
Married	57	138	102	297
Divorcee/Separated	0	1	1	2
Widow/Widower	0	0	1	1
Total	169	352	250	771
Responses (In %)	**Yes**	**Yes, but not all**	**No**	**Total**
Single	24%	45%	31%	61%
Married	20%	46%	34%	38%
Divorcee/Separated	0%	50%	50%	0%
Widow/Widower	0%	0%	100%	0%
Total	22%	46%	32%	100%

Figure 4.27: Marital Status-wise Understanding Terminology on Nutritional Information Tables

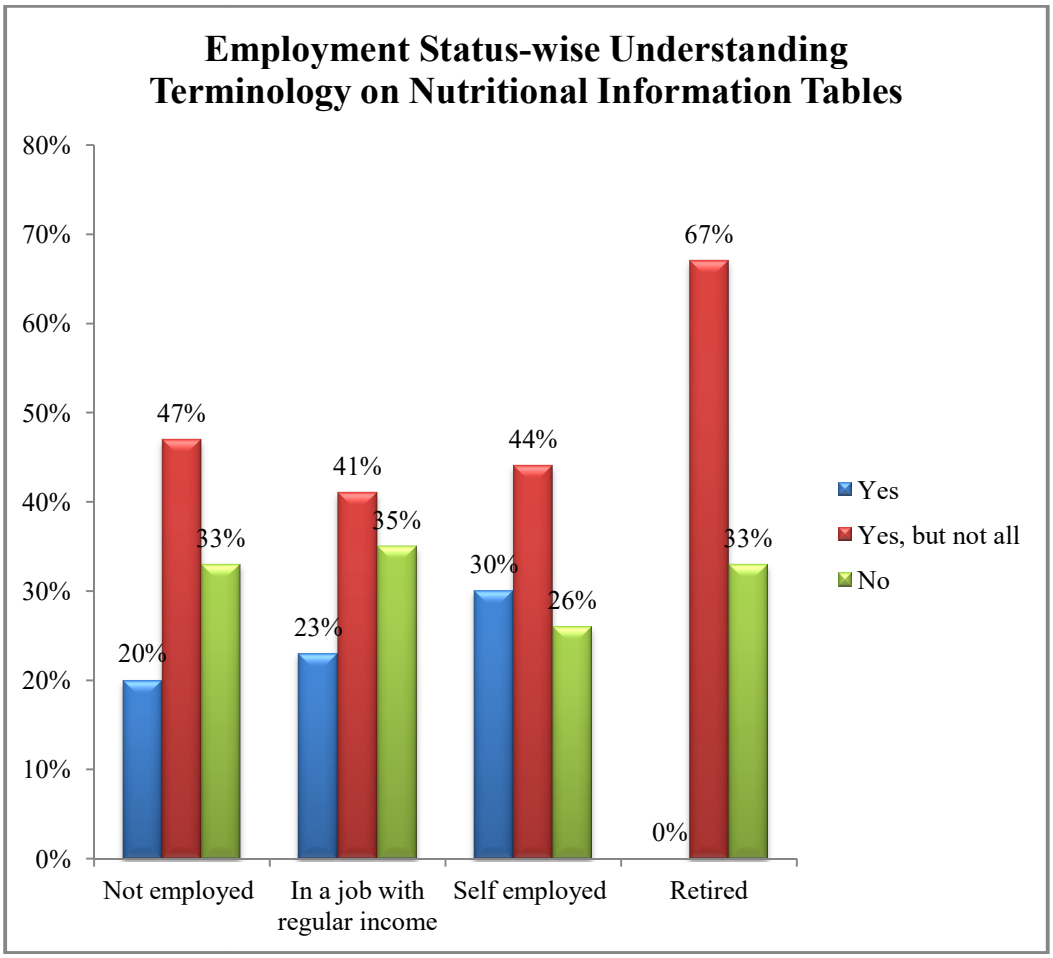


There is no difference in understanding the terminology and units of measure given in the nutrition panel on pre-packed foods according to marital status.

Table 4.28: Employment Status-wise Understanding Terminology on Nutritional Information Tables

Responses (In Numbers)	Yes	Yes, but not all	No	Total
Not employed	102	238	165	505
In a job with regular income	38	68	58	164
Self employed	29	44	26	99
Retired	0	2	1	3
Total	169	352	250	771
Responses (In %)	**Yes**	**Yes, but not all**	**No**	**Total**
Not employed	20%	47%	33%	65%
In a job with regular income	23%	41%	35%	21%
Self employed	30%	44%	26%	13%
Retired	0%	67%	33%	1%
Total	22%	46%	32%	100%

Figure 4.28: Employment Status-wise Understanding Terminology on Nutritional Information Tables

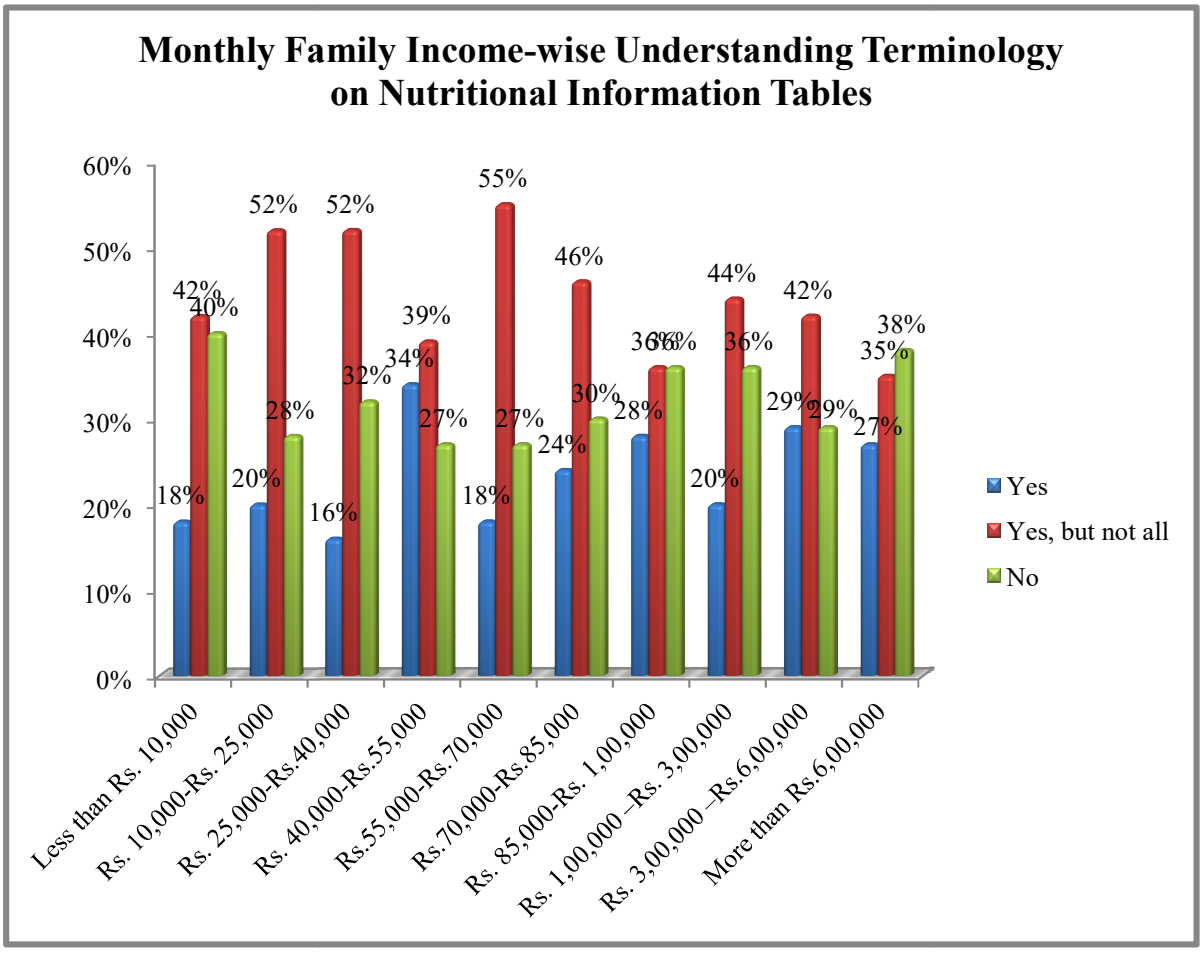


There is no difference in understanding the terminology and units of measure given in the nutrition panel on pre-packed foods according to occupation.

Table 4.29: Monthly Family Income-wise Understanding Terminology on Nutritional Information Tables

Responses (In Numbers)	Yes	Yes, but not all	No	Total
Less than Rs. 10,000	14	32	30	76
Rs. 10,000-Rs. 25,000	26	68	43	137
Rs. 25,000-Rs.40,000	23	76	47	146
Rs. 40,000-Rs.55,000	30	35	24	89
Rs.55,000-Rs.70,000	11	33	16	60
Rs.70,000-Rs.85,000	9	17	11	37
Rs. 85,000-Rs. 1,00,000	17	22	22	61
Rs. 1,00,000 –Rs. 3,00,000	19	41	34	94
Rs. 3,00,000 –Rs.6,00,000	13	19	13	45
More than Rs.6,00,000	7	9	10	26
Total	169	352	212	771
Responses (In %)	**Yes**	**Yes, but not all**	**No**	**Total**
Less than Rs. 10,000	18%	42%	40%	10%
Rs. 10,000-Rs. 25,000	20%	52%	28%	18%
Rs. 25,000-Rs.40,000	16%	52%	32%	19%
Rs. 40,000-Rs.55,000	34%	39%	27%	12%
Rs.55,000-Rs.70,000	18%	55%	27%	8%
Rs.70,000-Rs.85,000	24%	46%	30%	5%
Rs. 85,000-Rs. 1,00,000	28%	36%	36%	8%
Rs. 1,00,000 –Rs. 3,00,000	20%	44%	36%	11%
Rs. 3,00,000 –Rs.6,00,000	29%	42%	29%	6%
More than Rs.6,00,000	27%	35%	38%	3%
Total	23%	48%	29%	100%

Figure 4.29: Monthly Family Income-wise Understanding Terminology on Nutritional Information Tables

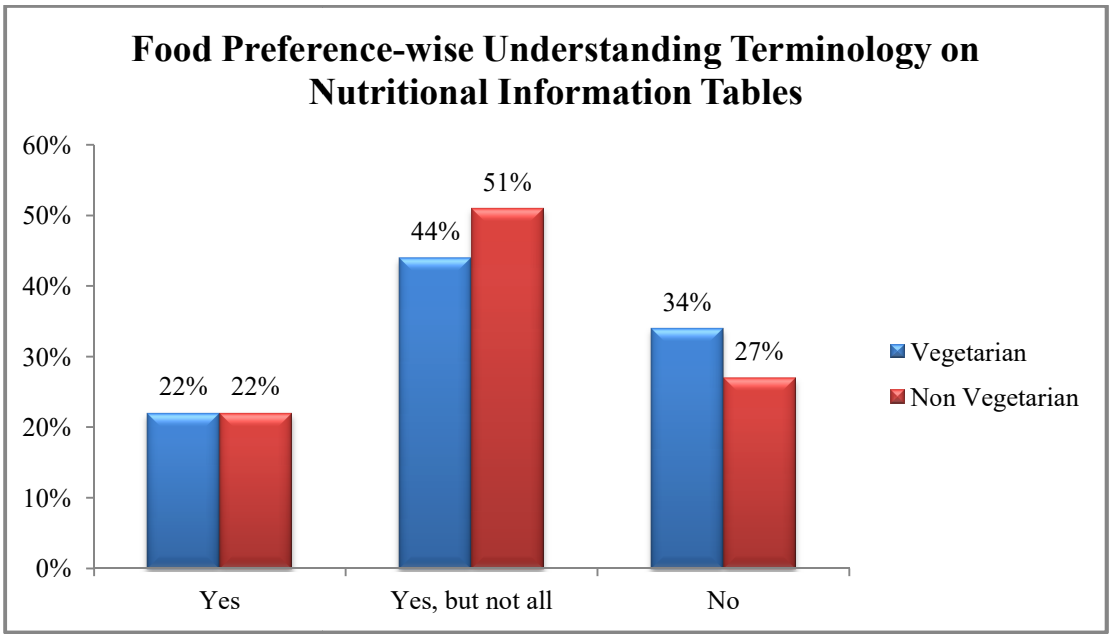


There is no difference in understanding the terminology and units of measure given in the nutrition panel on pre-packed foods according to monthly family income. Although, it was observed that across all income slabs, nearly half of the respondents have indicated the response 'Yes, but not all'. Also across all income about one fifth of the respondents have indicated the response 'Yes'.

Table 4.30: Food Preference-wise Understanding Terminology on Nutritional Information Tables

Responses (In Numbers)	Yes	Yes, but not all	No	Total
Vegetarian	127	254	199	580
Non Vegetarian	42	98	51	191
Total	169	352	250	771
Responses (In %)	**Yes**	**Yes, but not all**	**No**	**Total**
Vegetarian	22%	44%	34%	75%
Non Vegetarian	22%	51%	27%	25%
Total	22%	46%	32%	100%

Figure 4.30: Food Preference-wise Understanding Terminology on Nutritional Information Tables

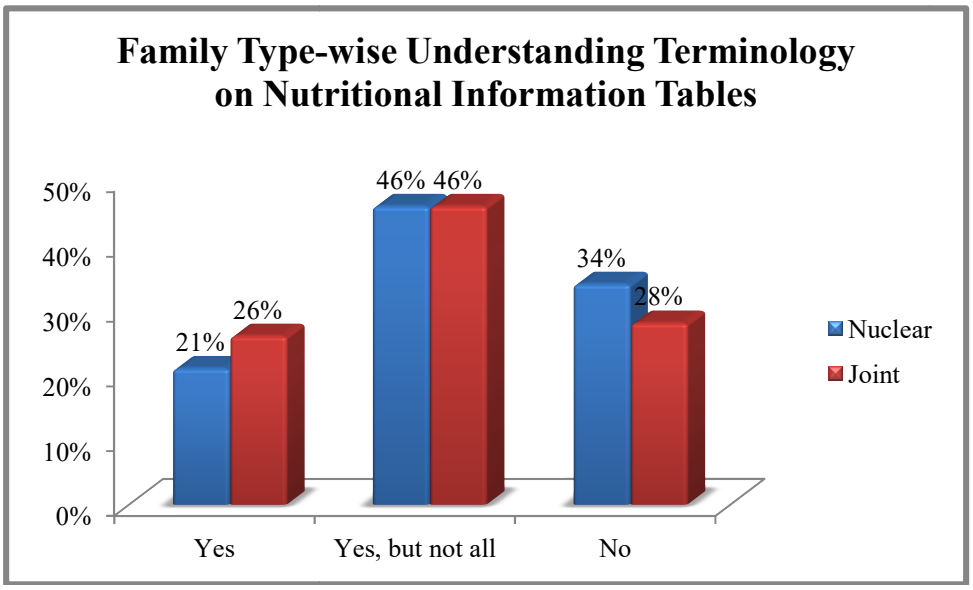


There is no difference in understanding the terminology and units of measure given in the nutrition panel on pre-packed foods according to food preference.

Table 4.31: Family Type-wise Understanding Terminology on Nutritional Information Tables

Responses (In Numbers)	Yes	Yes, but not all	No	Total
Nuclear	115	256	190	561
Joint	54	96	60	210
Total	169	352	212	771
Responses (In %)	Yes	Yes, but not all	No	Total
Nuclear	21%	46%	34%	73%
Joint	26%	46%	28%	27%
Total	22%	46%	32%	100%

Figure 4.31: Family Type-wise Understanding Terminology on Nutritional Information Tables



There is no difference in understanding the terminology and units of measure given in the nutrition panel on pre-packed foods according to food preference.

However, it was observed that across family types, nearly half of the respondents have indicated the response 'Yes, but not all'. Also across all family types one third of the respondents have indicated the response 'No'.

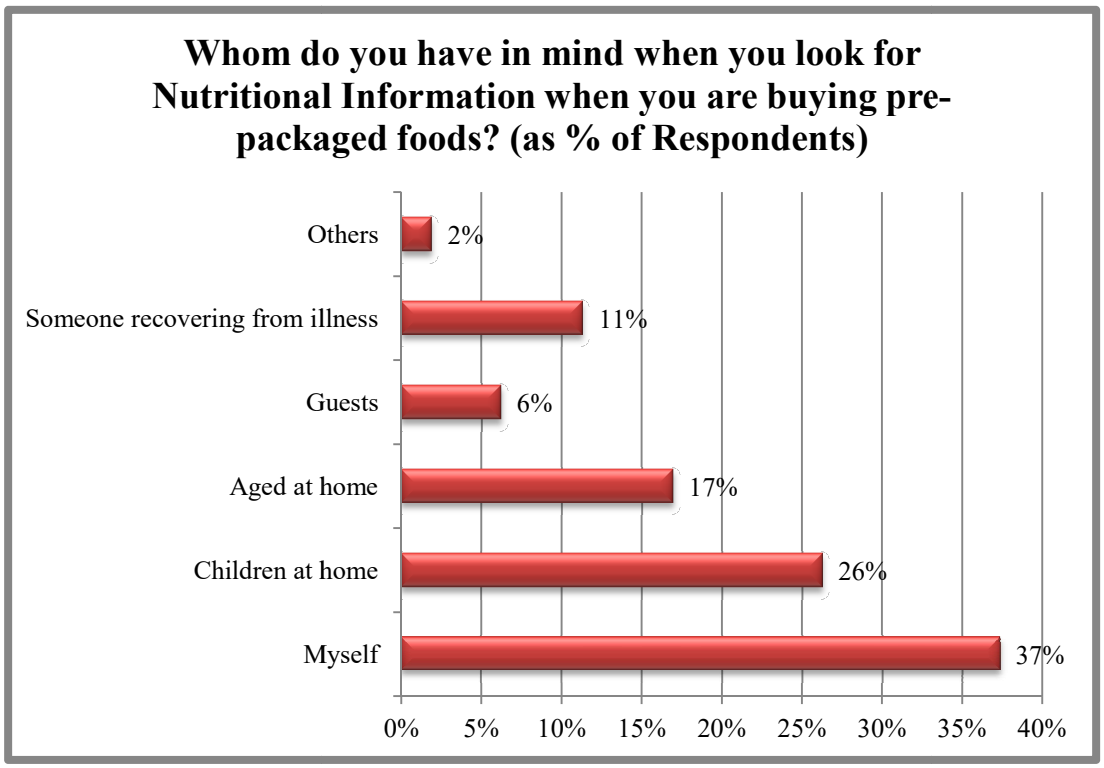
9. Whom do you have in mind when you look for Nutritional Information when you are buying pre-packaged foods?

This is question with multiple choices. Analysis is presented below.

Table 4.32: Food Purchased for whom

Whom do you have in mind when you look for Nutritional Information when you are buying pre-packaged foods?	No. of Responses (N=1210)	In %
Myself	452	37%
Children at home	318	26%
Aged at home	205	17%
Guests	75	6%
Someone recovering from illness	137	11%
Others	23	2%
Total	1210	100%

Figure 4.32: Food Purchased for whom



Most customers while buying food consider themselves and children at home.

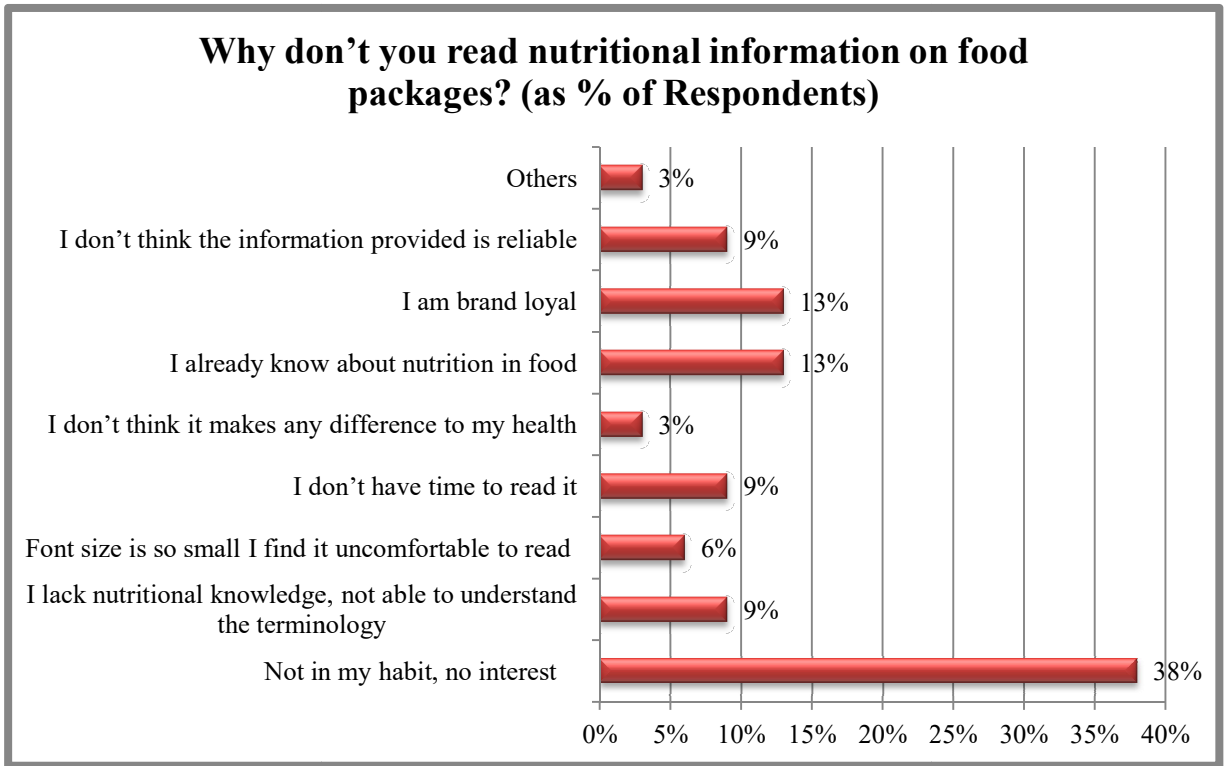
Q11. Why don't you read nutritional information on food packages?

This is question with multiple choices. Very few respondents have answered this question. Analysis is presented below.

Table 4.33 Reason for not reading Nutritional Information

Why don't you read nutritional information on food packages?	No. of Responses (N=32)	In %
Not in my habit, no interest	12	38%
I lack nutritional knowledge, not able to understand the terminology	3	9%
Font size is so small I find it uncomfortable to read	2	6%
I don't have time to read it	3	9%
I don't think it makes any difference to my health	1	3%
I already know about nutrition in food	4	13%
I am brand loyal	4	13%
I don't think the information provided is reliable	3	9%
Others	1	3%
Total	32	100%

Figure 4.33 Reason for not reading Nutritional Information



Most customers (38%) find it habitual nit to read nutritional information but the others also feel they would not switch to any other brand so do not evaluate and compare. Still others also feel that they already know about nutrition so do not need to look for it.

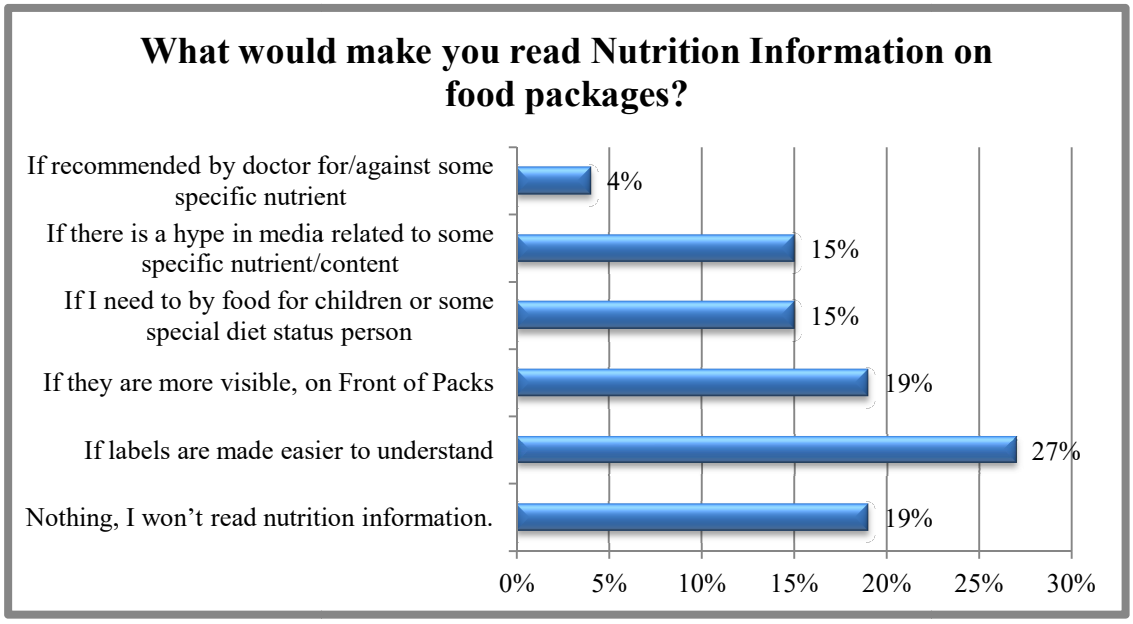
Q12. What would make you read Nutrition Information on food packages?

This is question with multiple choices. Very few respondents have answered this question. Analysis is presented below.

Table 4.34: Factors that may lead to reading Nutrition Information

What would make you read Nutrition Information on food packages?	No. of Responses (N=26)	In %
Nothing, I won't read nutrition information.	5	19%
If labels are made easier to understand	7	27%
If they are more visible, on Front of Packs	5	19%
If I need to by food for children or some special diet status person	4	15%
If there is a hype in media related to some specific nutrient/content	4	15%
If recommended by doctor for/against some specific nutrient	1	4%
Others		
Total	26	100%

Figure 4.34: Factors that may lead to reading Nutrition Information



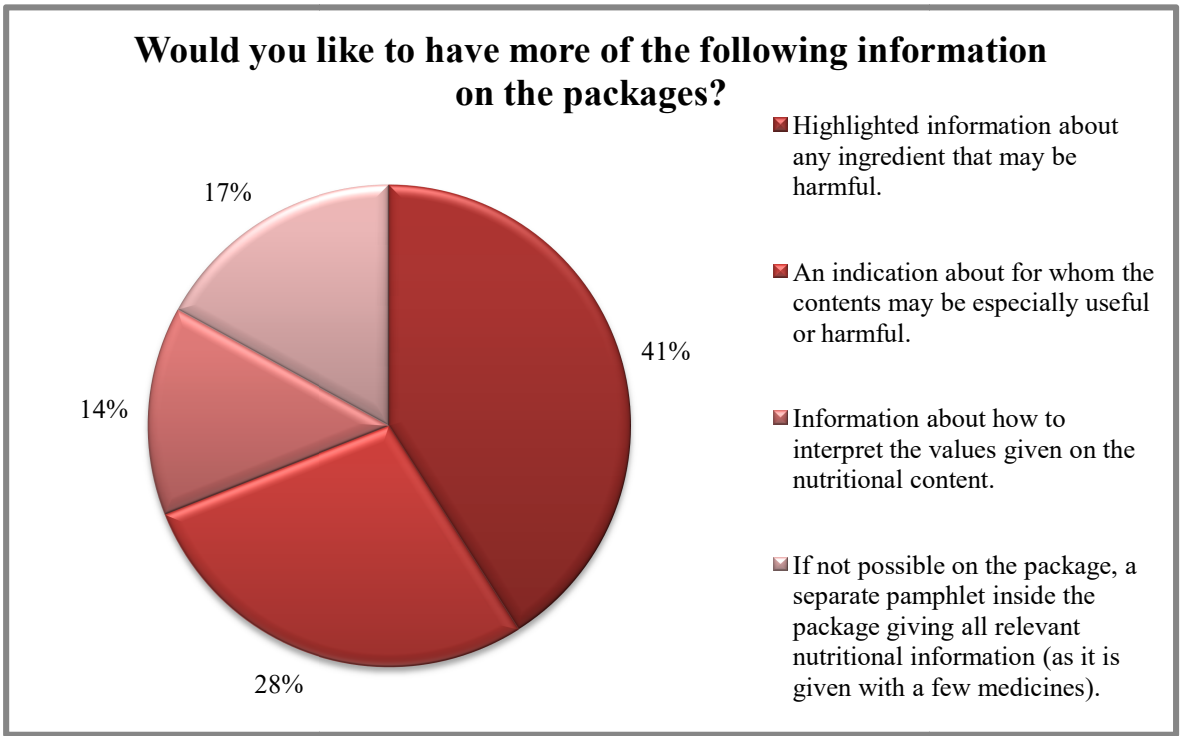
Many customers are of the view that they may read Nutrition Information if the labels are read. The others feel that more clearly visible tables can prompt them to read them.

13. Would you like to have more of the following information on the packages?

Table 4.35 Additional Information on Nutrition Tables

Would you like to have more of the following information on the packages?	No. of Responses (N=1219)	In %
Highlighted information about any ingredient that may be harmful.	504	41%
An indication about for whom the contents may be especially useful or harmful.	335	28%
Information about how to interpret the values given on the nutritional content.	171	14%
If not possible on the package, a separate pamphlet inside the package giving all relevant nutritional information (as it is given with a few medicines).	209	17%
Total	1219	100%

Figure 4.35 Additional Information on Nutrition Tables



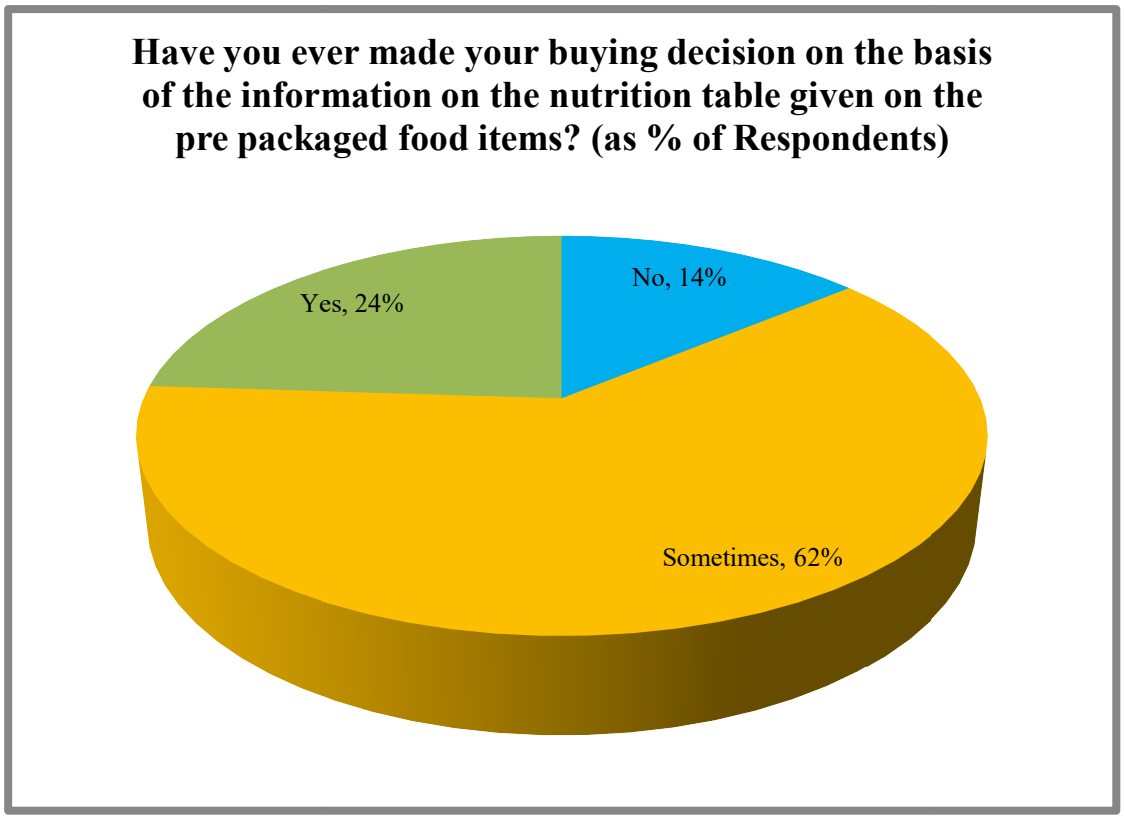
Many customers (41%) stressed upon highlighting information related to the presence of any harmful ingredient in the food.28% customers also felt that there must be an indication of for whom the contents of the food may be specially useful or harmful.

14. Have you ever made your buying decision on the basis of the information on the nutrition table given on the pre packaged food items?

Table 4.36 Buying Decision influenced by Nutrition Information

Have you ever made your buying decision on the basis of the information on the nutrition table given on the pre packaged food items?	No. of Responses (N=789)	In %
Yes	189	24%
Sometimes	488	62%
No	112	14%
Total	789	100%

Figure 4.36 Buying Decision influenced by Nutrition Information

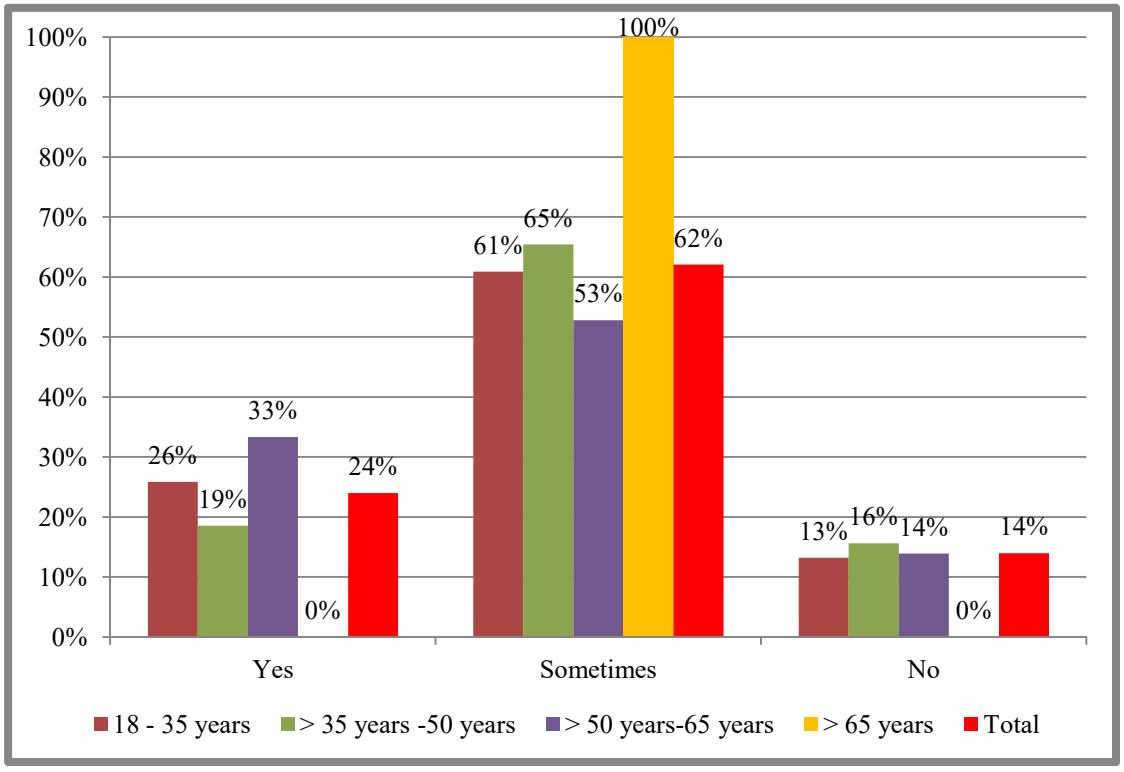


Analyses of Q.14 by using different types of demographic inputs (by respondent's profile) are presented subsequently.

Table 4.37 Age-wise Buying Decision influenced by Nutrition Information

Responses (In Numbers)	Yes	Sometimes	No	Total
18 - 35 years	133	313	68	514
> 35 years -50 years	44	155	38	237
> 50 years-65 years	12	18	6	36
> 65 years	0	2	0	2
Total	189	488	112	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
18 - 35 years	26%	61%	13%	65%
> 35 years -50 years	19%	65%	16%	30%
> 50 years-65 years	33%	53%	14%	5%
> 65 years	0%	100%	0%	0%
Total	24%	62%	14%	100%

Figure 4.37 Age-wise Buying Decision influenced by Nutrition Information

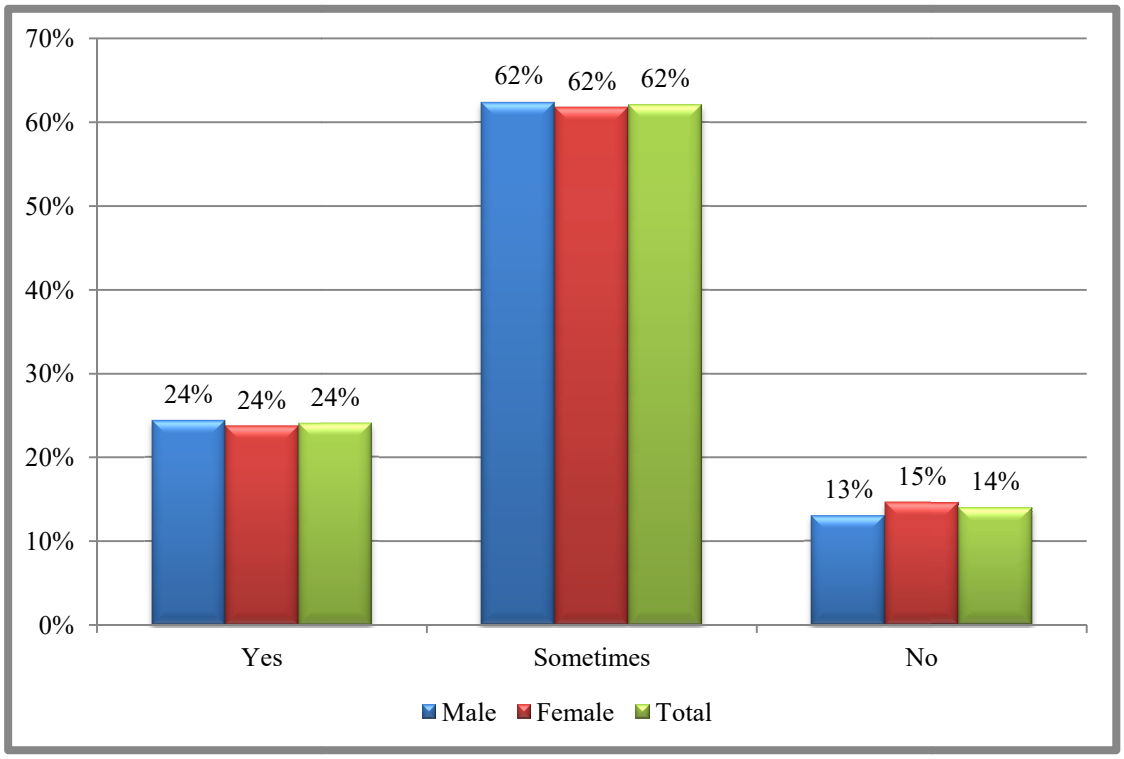


Most of the respondents in the age group > 50 years -65 years and > 65 years have indicated that nutritional information on food packages may have influenced their purchasing decision.

Table 4.38 Gender-wise Buying Decision influenced by Nutrition Information

Responses (In Numbers)	Yes	Sometimes	No	Total
Male	75	192	41	308
Female	114	296	71	481
Total	189	488	112	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
Male	24%	62%	13%	39%
Female	24%	62%	15%	61%
Total	24%	62%	14%	100%

Figure 4.38 Gender-wise Buying Decision influenced by Nutrition Information

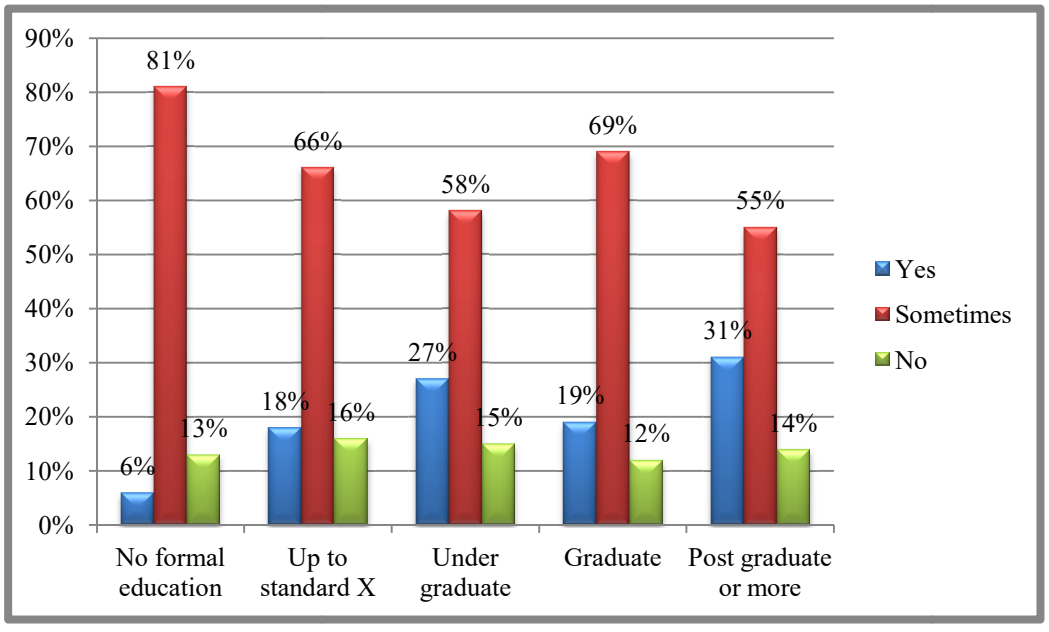


There is no difference in making purchasing decisions on the basis of nutritional information according to the gender.

Table 4.39 Educational Qualification-wise Buying Decision influenced by Nutrition Information

Responses (In Numbers)	Yes	Sometimes	No	Total
No formal education	1	13	2	16
Up to standard X	16	60	15	91
Under graduate	102	223	56	381
Graduate	38	135	25	198
Post graduate or more	32	57	14	103
Total	189	488	112	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
No formal education	6%	81%	13%	2%
Up to standard X	18%	66%	16%	12%
Under graduate	27%	58%	15%	48%
Graduate	19%	69%	12%	25%
Post graduate or more	31%	55%	14%	13%
Total	24%	62%	14%	100%

Figure 4.39 Educational Qualification-wise Buying Decision influenced by Nutrition Information



There is no difference in purchasing choice by the respondents on the basis of the information on the nutrition table given on the pre packaged food items according to educational qualifications.

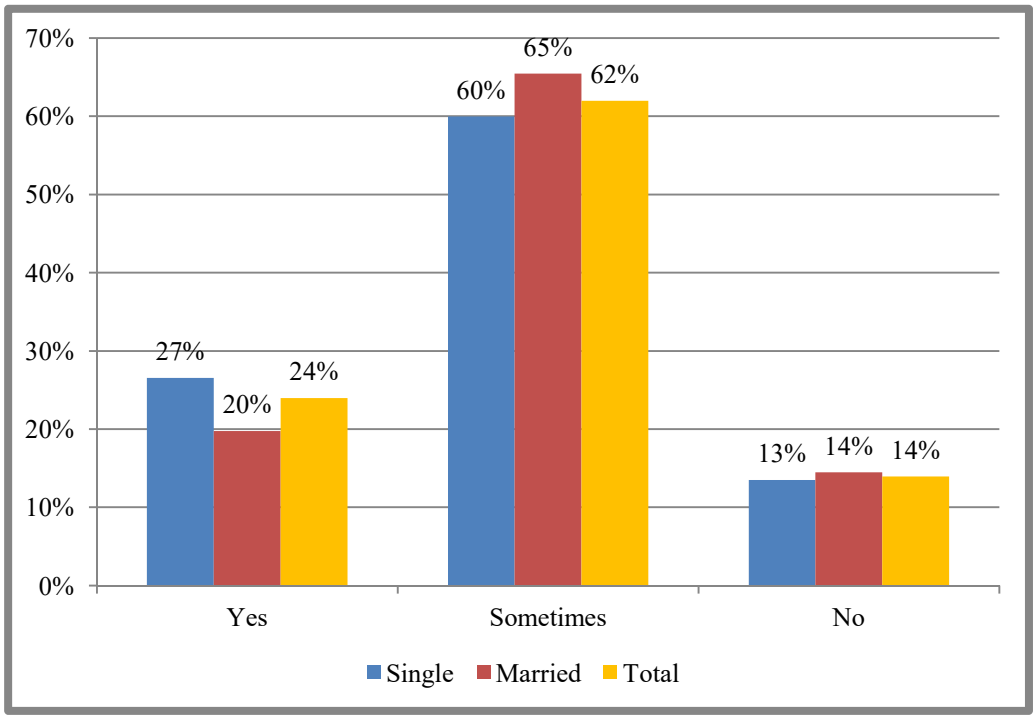
It is seen that respondents with no formal education are more (in terms of percentages) than the educated ones doing the purchases 'sometimes'. Education definitely helps in understanding the meaning and importance of the nutritional information on food packages.

Table 4.40 Marital Status-wise Buying Decision influenced by Nutrition Information

Responses (In Numbers)	Yes	Sometimes	No	Total
Single	128	289	65	482
Married	60	198	46	304
Divorcee/Separated	1	1	0	2
Widow/Widower	0	0	1	1
Total	189	488	112	789

Responses (In %)	Yes	Sometimes	No	Total
Single	27%	60%	13%	61%
Married	20%	65%	14%	39%
Divorcee/Separated	50%	50%	0%	0%
Widow/Widower	0%	0%	100%	0%
Total	24%	62%	14%	100%

Figure 4.40 Marital Status-wise Buying Decision influenced by Nutrition Information

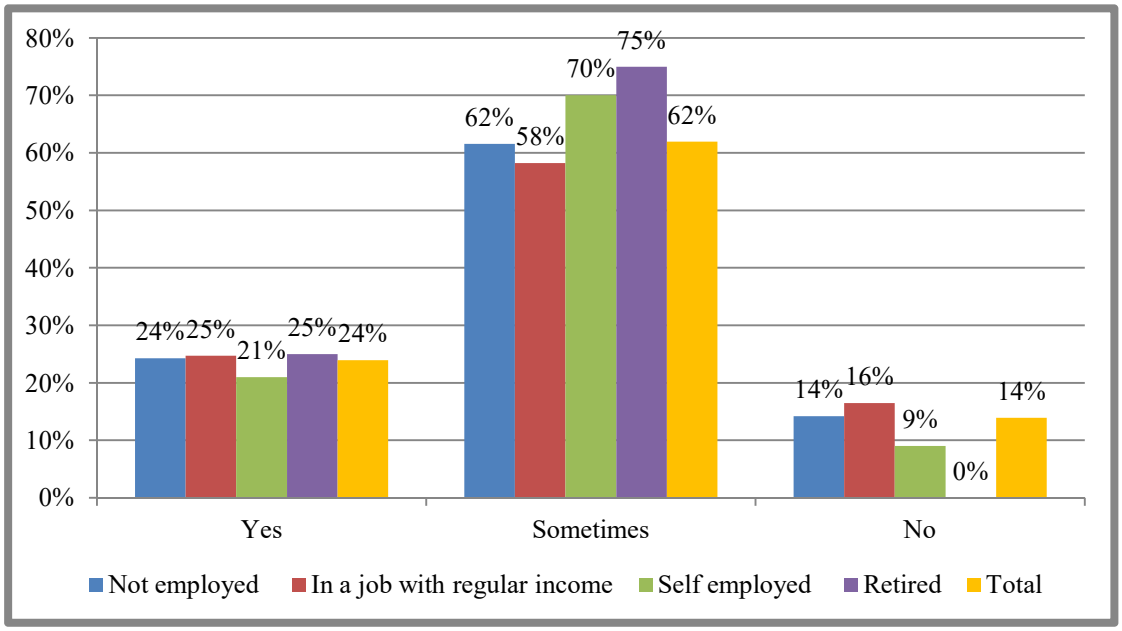


There is no difference in purchasing choice by the respondents on the basis of the information on the nutrition table given on the pre packaged food items according to marital status.

Table 4.41 Employment Status-wise Buying Decision influenced by Nutrition Information

Responses (In Numbers)	Yes	Sometimes	No	Total
Not employed	125	316	74	515
In a job with regular income	42	99	29	171
Self employed	21	70	9	100
Retired	1	3	0	4
Total	189	488	112	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
Not employed	24%	62%	14%	65%
In a job with regular income	25%	58%	16%	22%
Self employed	21%	70%	9%	13%
Retired	25%	75%	0%	1%
Total	24%	62%	14%	100%

Figure 4.41 Employment Status-wise Buying Decision influenced by Nutrition Information



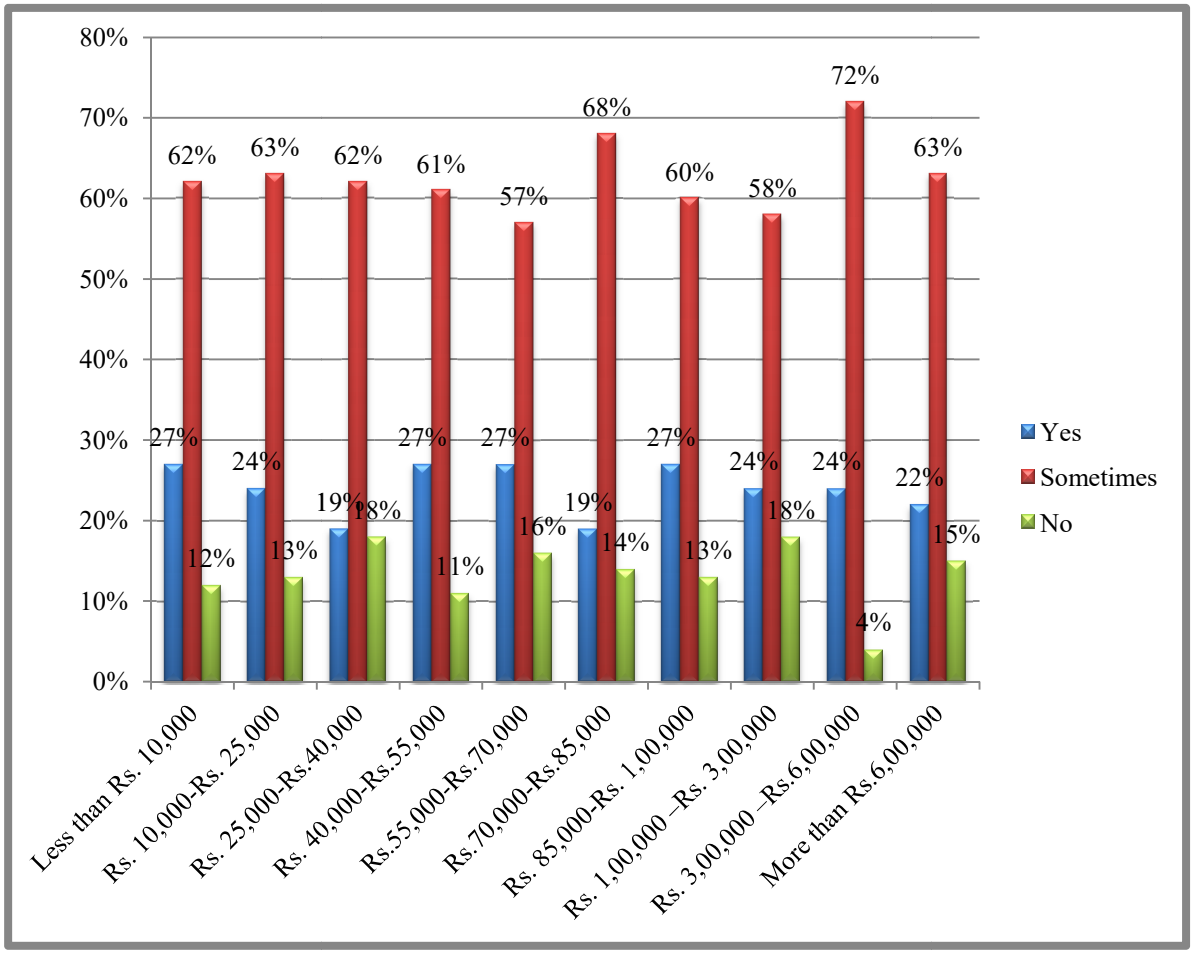
There is no difference in purchasing choice by the respondents on the basis of the information on the nutrition table given on the pre packaged food items according to occupation. It is seen that respondents (those are self employed and retried) are more (in terms of percentages) than the working and non-working ones doing the purchases based on nutrients 'sometimes' .

Table 4.42 Monthly Family Income-wise Buying Decision influenced by Nutrition Information

Responses (In Numbers)	Yes	Sometimes	No	Total
Less than Rs. 10,000	21	47	10	78
Rs. 10,000-Rs. 25,000	33	87	18	138
Rs. 25,000-Rs.40,000	29	93	27	149
Rs. 40,000-Rs.55,000	25	56	10	91
Rs.55,000-Rs.70,000	17	36	10	63
Rs.70,000-Rs.85,000	7	25	5	37
Rs. 85,000-Rs. 1,00,000	17	38	9	64
Rs. 1,00,000 –Rs. 3,00,000	23	56	17	96
Rs. 3,00,000 –Rs.6,00,000	11	33	2	46
More than Rs.6,00,000	6	17	4	27
Total	189	488	112	789

Responses (In %)	Yes	Sometimes	No	Total
Less than Rs. 10,000	27%	62%	12%	10%
Rs. 10,000-Rs. 25,000	24%	63%	13%	17%
Rs. 25,000-Rs.40,000	19%	62%	18%	19%
Rs. 40,000-Rs.55,000	27%	61%	11%	12%
Rs.55,000-Rs.70,000	27%	57%	16%	8%
Rs.70,000-Rs.85,000	19%	68%	14%	5%
Rs. 85,000-Rs. 1,00,000	27%	60%	13%	8%
Rs. 1,00,000 –Rs. 3,00,000	24%	58%	18%	12%
Rs. 3,00,000 –Rs.6,00,000	24%	72%	4%	6%
More than Rs.6,00,000	22%	63%	15%	3%
Total	24%	62%	14%	100%

Figure 4.42 Monthly Family Income-wise Buying Decision influenced by Nutrition Information

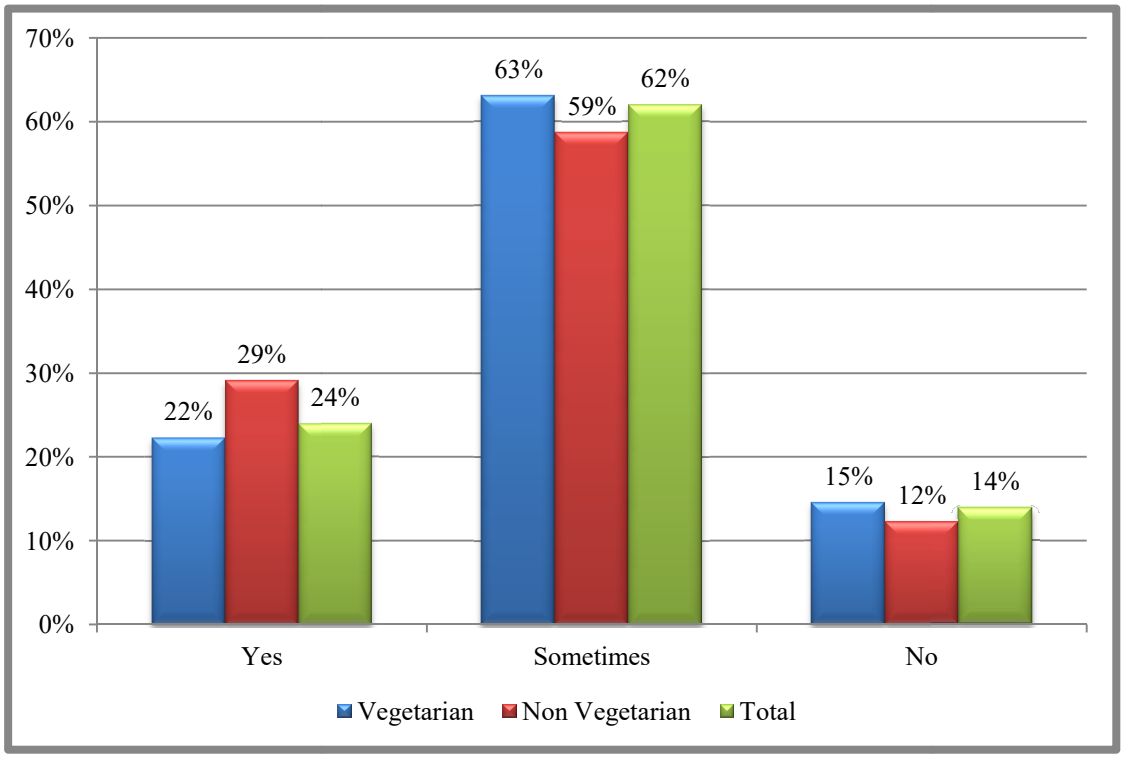


There is no difference in purchasing choice by the respondents on the basis of the information on the nutrition table given on the pre packaged food items according to monthly family income. However, it was observed that across all income slabs, nearly three fifth of the respondents have indicated their response as 'sometimes'.

Table 4.43 Food Preference-wise Buying Decision influenced by Nutrition Information

Responses (In Numbers)	Yes	Sometimes	No	Total
Vegetarian	132	373	88	593
Non Vegetarian	57	115	24	196
Total	189	488	110	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
Vegetarian	22%	63%	15%	75%
Non Vegetarian	29%	59%	12%	25%
Total	24%	62%	14%	100%

Figure 4.43 Food Preference-wise Buying Decision influenced by Nutrition Information

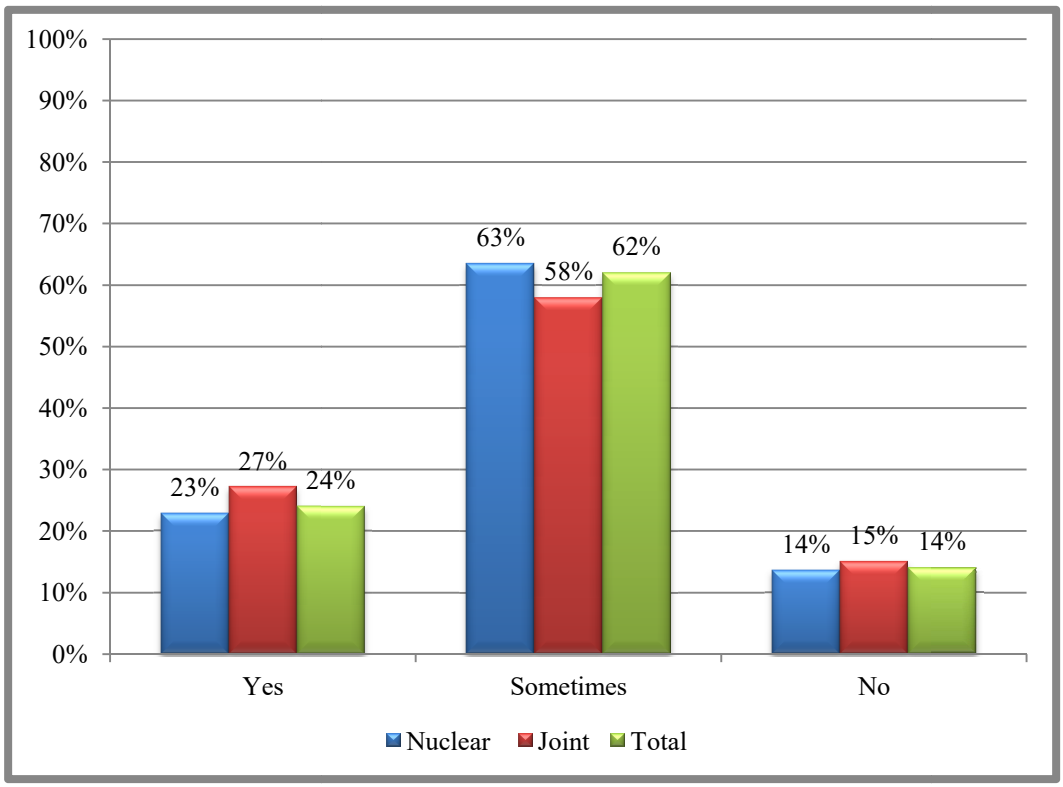


There is no difference in purchasing choice by the respondents on the basis of the information on the nutrition table given on the pre packaged food items according to food preference. Although it is seen that respondents (those are non vegetarian) are slightly more (in terms of percentages) than the vegetarian ones doing the purchases and indicated their response as 'Yes'.

Table 4.44 Family Type-wise Buying Decision influenced by Nutrition Information

Responses (In Numbers)	Yes	Sometimes	No	Total
Nuclear	131	364	80	575
Joint	58	124	32	214
Total	189	488	110	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
Nuclear	23%	63%	14%	73%
Joint	27%	58%	15%	27%
Total	24%	62%	14%	100%

Figure 4.44 Family Type-wise Buying Decision influenced by Nutrition Information



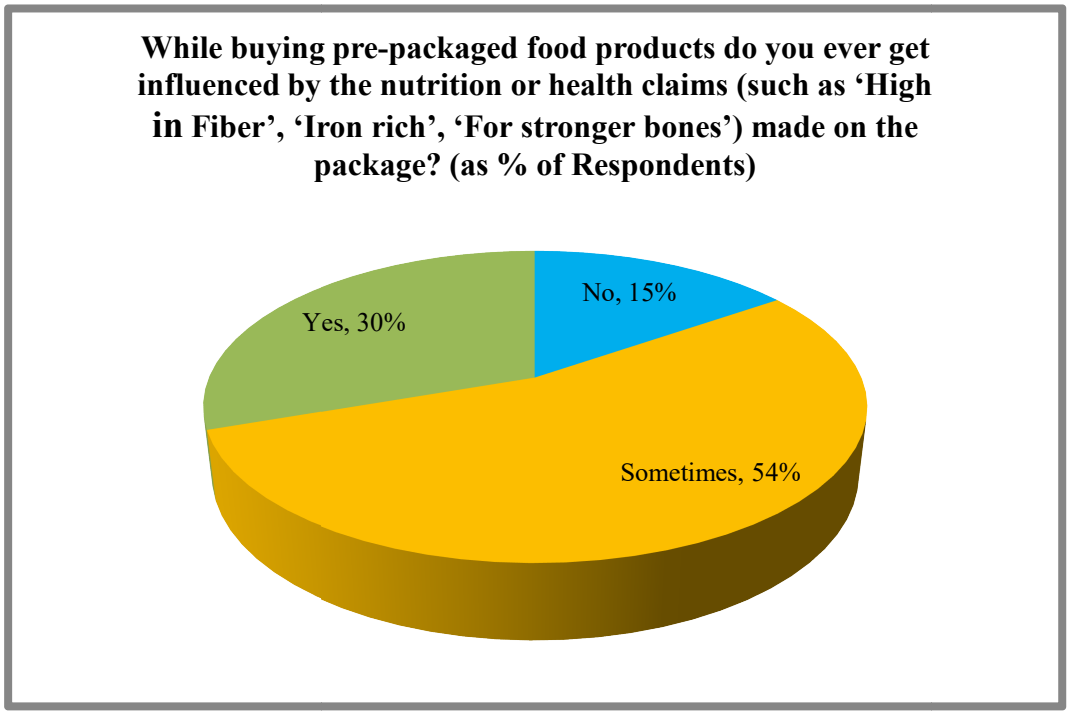
There is no difference in purchasing choice by the respondents on the basis of the information on the nutrition table given on the pre packaged food items according to family type. Although it is seen that respondents (in joint family) are slightly more (in terms of percentages) than the ones (in nuclear family) doing the purchases and indicated their response as 'Yes'.

15. While buying pre-packaged food products do you ever get influenced by the nutrition or health claims (such as 'High in Fiber', 'Iron rich', 'For stronger bones') made on the package?

Table 4.45 Influence of Nutrition/Health Claims on Food Purchase Decision

While buying pre-packaged food products do you ever get influenced by the nutrition or health claims (such as 'High in Fiber', 'Iron rich', 'For stronger bones') made on the package?	No. of Responses (N=789)	In %
Yes	239	30%
Sometimes	427	54%
No	123	15%
Total	789	100%

Figure 4.45 Influence of Nutrition/Health Claims on Food Purchase Decision

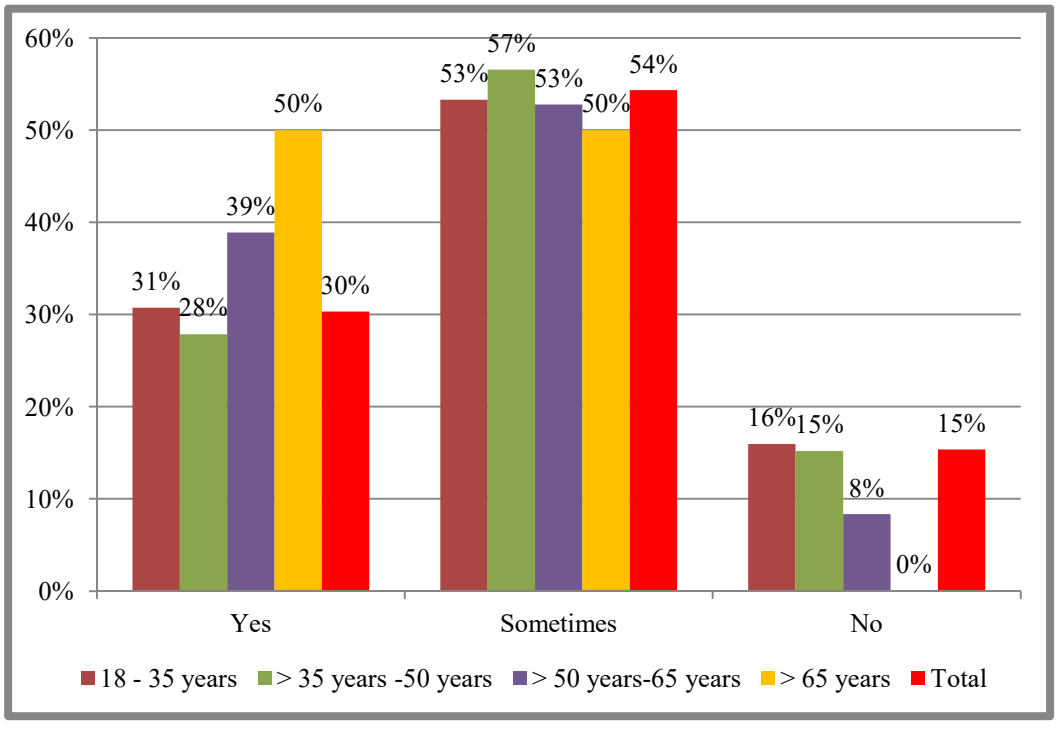


Analyses of Q.15 by using different types of demographic inputs (by respondent's profile) are presented subsequently.

Table 4.46 Age-wise Influence of Nutrition/Health Claims on Food Purchase Decision

Responses (In Numbers)	Yes	Sometimes	No	Total
Up to 20 years				
18 - 35 years	158	274	82	514
> 35 years -50 years	66	134	37	237
> 50 years-65 years	14	18	4	36
> 65 years	1	1	0	2
Total	239	427	123	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
18 - 35 years	31%	53%	16%	65%
> 35 years -50 years	28%	57%	15%	30%
> 50 years-65 years	39%	53%	8%	5%
> 65 years	50%	50%	0%	0%
Total	30%	54%	15%	100%

Figure 4.46 Age-wise Influence of Nutrition/Health Claims on Food Purchase Decision

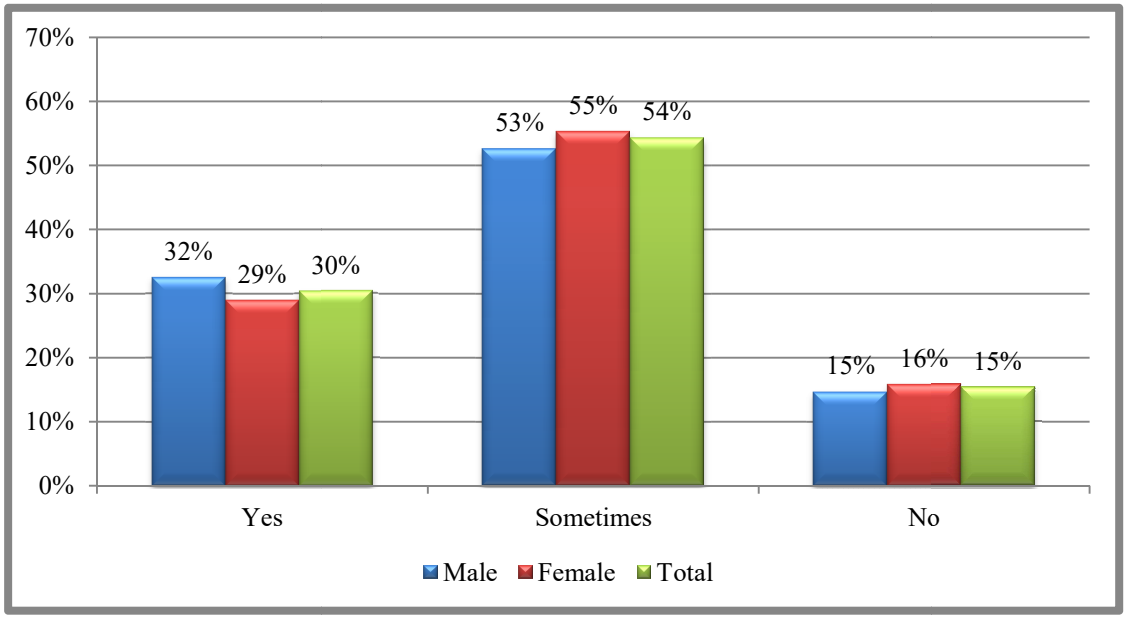


Most of the respondents in the age group > 65 years have indicated that nutrition or health claims have influenced them to buy pre-packaged food products. In fact, across all age groups nearly half of the respondents have shown their response as 'sometimes'.

Table 4.47 Gender-wise Influence of Nutrition/Health Claims on Food Purchase Decision

Responses (In Numbers)	Yes	Sometimes	No	Total
Male	100	162	46	308
Female	139	265	77	481
Total	239	427	123	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
Male	32%	53%	15%	39%
Female	29%	55%	16%	61%
Total	30%	54%	15%	100%

Figure 4.47 Gender-wise Influence of Nutrition/Health Claims on Food Purchase Decision

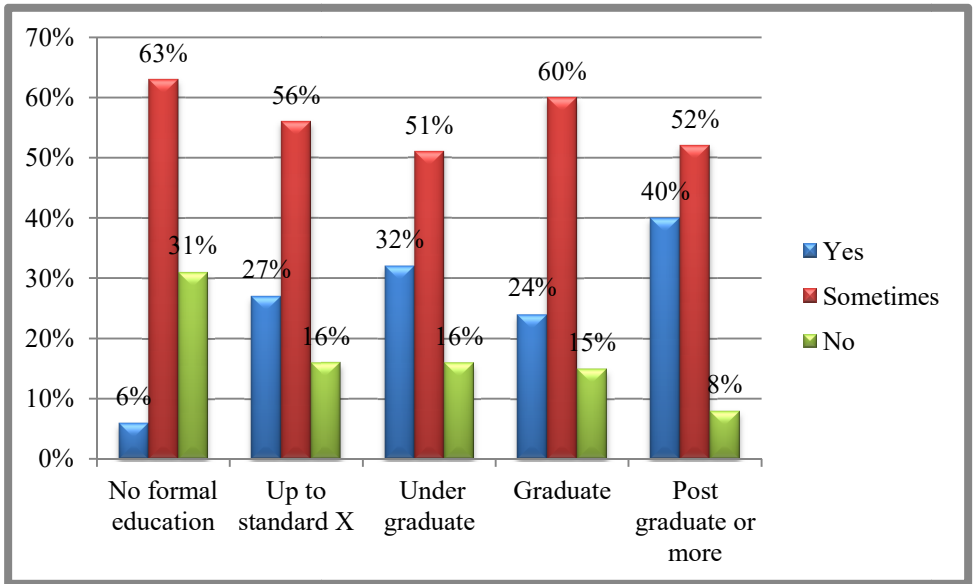


There is no difference in making purchasing decisions on the basis of nutrition or health claims according to the gender.

Table 4.48 Educational Qualification-wise Influence of Nutrition/Health Claims on Food Purchase Decision

Responses (In Numbers)	Yes	Sometimes	No	Total
No formal education	1	10	5	16
Up to standard X	25	51	15	91
Under graduate	124	194	63	382
Graduate	48	118	32	197
Post graduate or more	41	54	8	103
Total	239	427	123	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
No formal education	6%	63%	31%	2%
Up to standard X	27%	56%	16%	12%
Under graduate	32%	51%	16%	48%
Graduate	24%	60%	15%	25%
Post graduate or more	40%	52%	8%	13%
Total	30%	54%	15%	100%

Figure 4.48 Educational Qualification-wise Influence of Nutrition/Health Claims on Food Purchase Decision



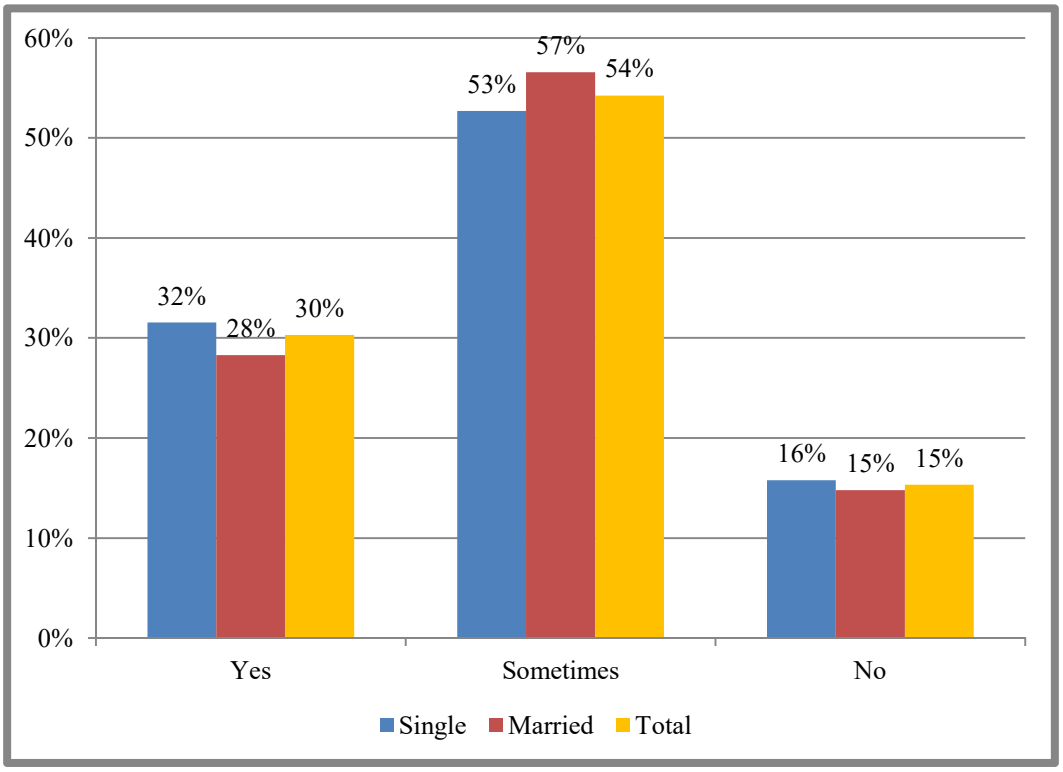
There is no difference in purchasing choice by the respondents inclined based on the nutrition or health claims about the pre-packaged food items according to educational qualifications.

Although it is seen that respondents with no formal education are much less (in terms of percentages) than the educated ones those have indicated the response as 'Yes'. To a certain extent, education facilitates in understanding the meaning and significance of the nutrition or health claims about the pre-packaged food items and then it may have an impact on the buying decision.

Table 4.49 Marital Status-wise Influence of Nutrition/Health Claims on Food Purchase Decision

Responses (In Numbers)	Yes	Sometimes	No	Total
Single	152	254	76	482
Married	86	171	47	304
Divorcee/Separated	1	1	0	2
Widow/Widower	0	1	0	1
Total	239	427	123	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
Single	32%	53%	16%	61%
Married	28%	57%	15%	39%
Total	30%	54%	15%	100%

Figure 4.49 Marital Status-wise Influence of Nutrition/Health Claims on Food Purchase Decision

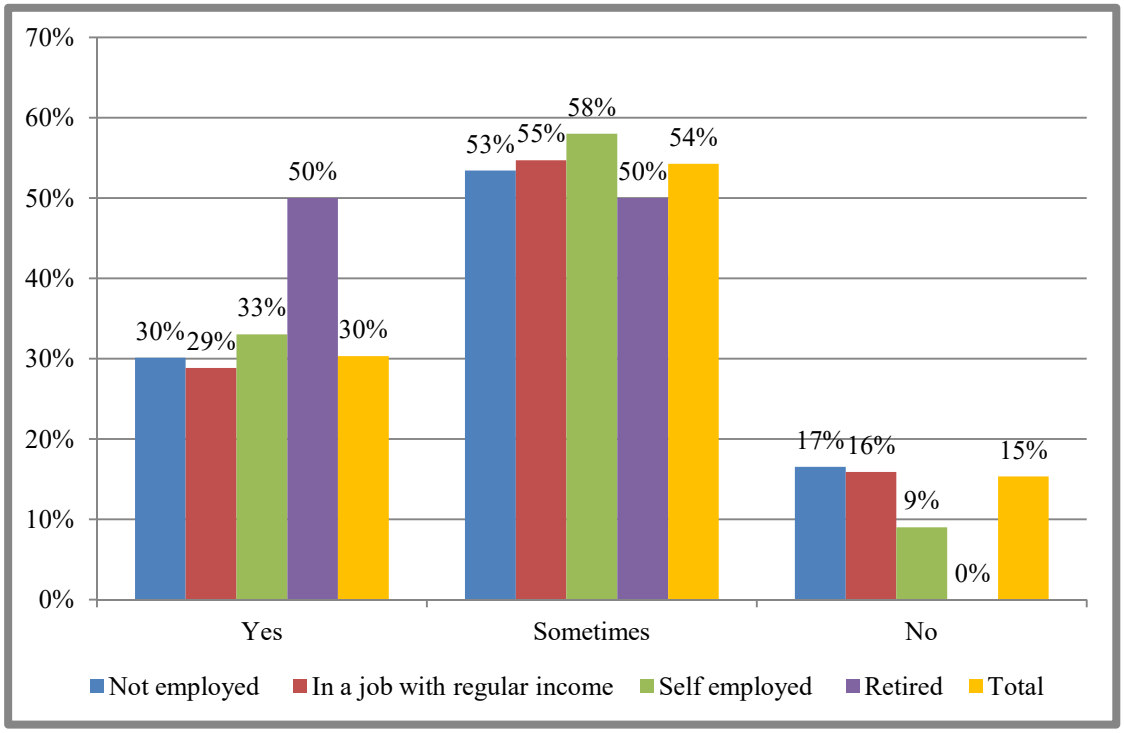


There is no difference in purchasing choice by the respondents inclined based on the nutrition or health claims about the pre-packaged food items according to marital status.

Table 4.50 Employment Status-wise Influence of Nutrition/Health Claims on Food Purchase Decision

Responses (In Numbers)	Yes	Sometimes	No	Total
Not employed	155	274	86	515
In a job with regular income	49	93	28	170
Self employed	33	58	9	100
Retired	2	2	0	4
Total	239	428	121	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
Not employed	30%	53%	17%	65%
In a job with regular income	29%	55%	16%	22%
Self employed	33%	58%	9%	13%
Retired	50%	50%	0%	1%
Total	30%	54%	15%	100%

Figure 4.50 Employment Status-wise Influence of Nutrition/Health Claims on Food Purchase Decision

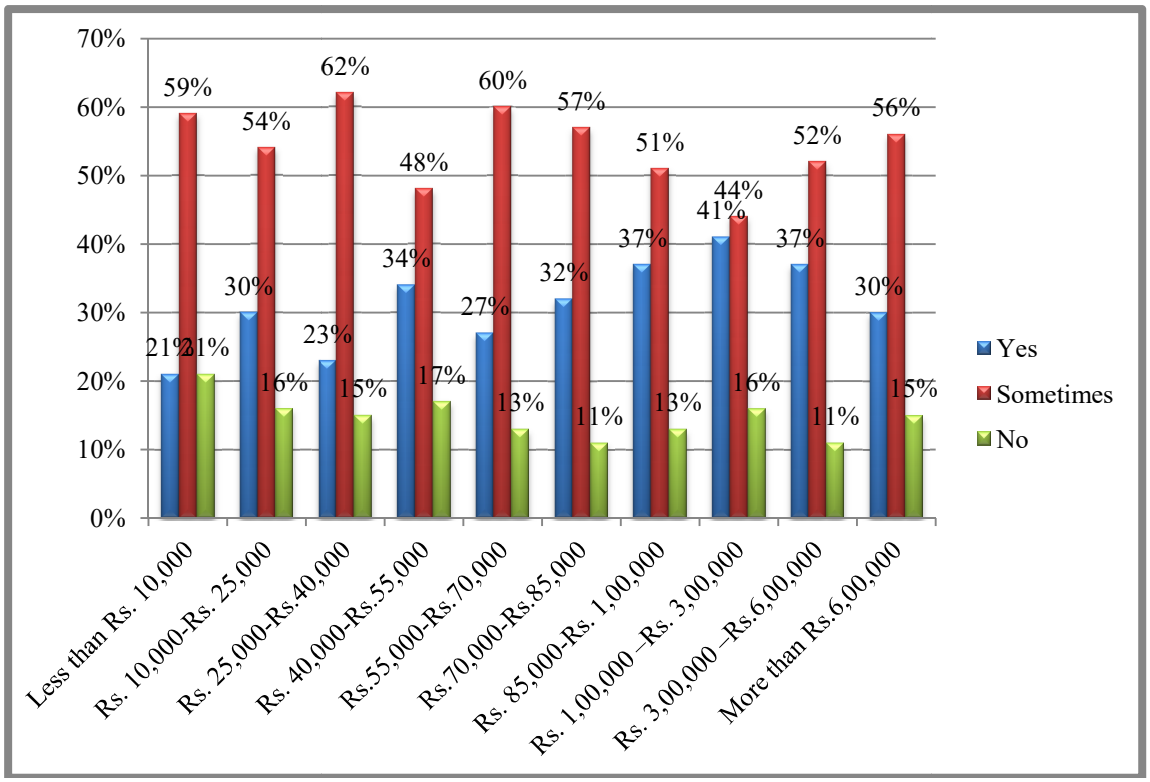


There is no difference in purchasing choice by the respondents inclined based on the nutrition or health claims about the pre-packaged food items according to occupation. Although it is seen that respondents (those are self employed and retired) are more (in terms of percentages) than the working and non-working ones with the response 'Yes'.

Table 4.51 Monthly Family Income-wise Influence of Nutrition/Health Claims on Food Purchase Decision

Responses (In Numbers)	Yes	Sometimes	No	Total
Less than Rs. 10,000	16	45	17	78
Rs. 10,000-Rs. 25,000	42	74	22	138
Rs. 25,000-Rs.40,000	34	92	23	149
Rs. 40,000-Rs.55,000	31	44	16	92
Rs.55,000-Rs.70,000	17	38	9	63
Rs.70,000-Rs.85,000	12	21	4	37
Rs. 85,000-Rs. 1,00,000	23	32	8	63
Rs. 1,00,000 –Rs. 3,00,000	39	42	15	96
Rs. 3,00,000 –Rs.6,00,000	17	24	5	46
More than Rs.6,00,000	8	15	4	27
Total	239	427	123	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
Less than Rs. 10,000	21%	59%	21%	10%
Rs. 10,000-Rs. 25,000	30%	54%	16%	17%
Rs. 25,000-Rs.40,000	23%	62%	15%	19%
Rs. 40,000-Rs.55,000	34%	48%	17%	12%
Rs.55,000-Rs.70,000	27%	60%	13%	8%
Rs.70,000-Rs.85,000	32%	57%	11%	5%
Rs. 85,000-Rs. 1,00,000	37%	51%	13%	8%
Rs. 1,00,000 –Rs. 3,00,000	41%	44%	16%	12%
Rs. 3,00,000 –Rs.6,00,000	37%	52%	11%	6%
More than Rs.6,00,000	30%	56%	15%	3%
Total	30%	54%	15%	100%

Figure 4.51 Monthly Family Income-wise Influence of Nutrition/Health Claims on Food Purchase Decision

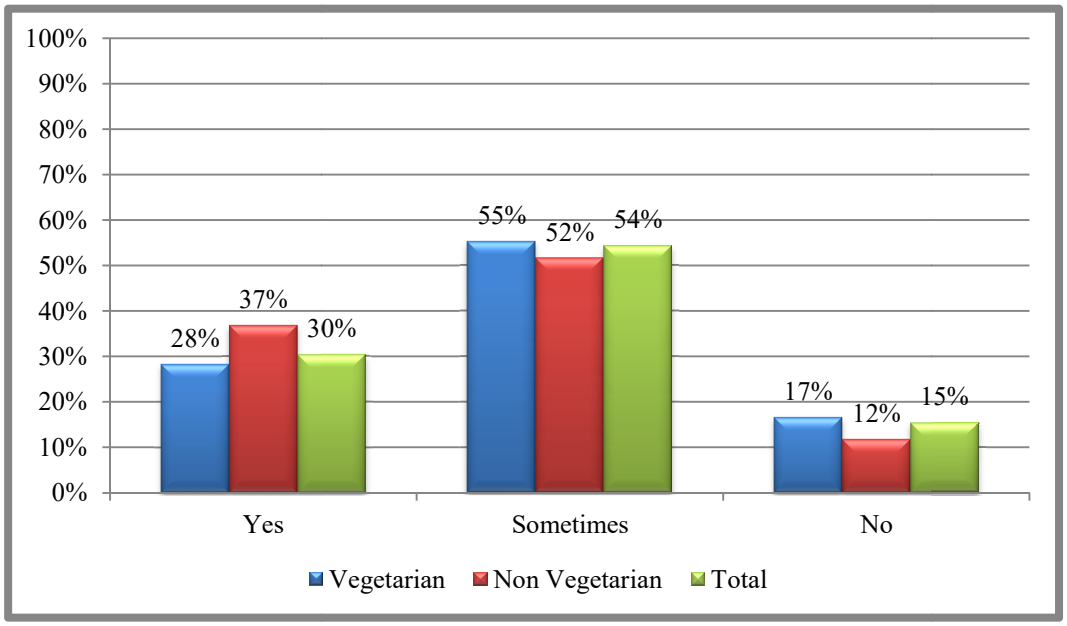


There is no difference in purchasing choice by the respondents inclined based on the nutrition or health claims about the pre-packaged food items according to monthly family income. However, it was observed that across all income slabs, at least half of the respondents have indicated their response as 'sometimes'.

Table 4.52 Food Preference-wise Influence of Nutrition/Health Claims on Food Purchase Decision

Responses (In Numbers)	Yes	Sometimes	No	Total
Vegetarian	167	327	98	593
Non Vegetarian	72	101	23	196
Total	239	428	121	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
Vegetarian	28%	55%	17%	75%
Non Vegetarian	37%	52%	12%	25%
Total	30%	54%	15%	100%

Figure 4.52 Food Preference-wise Influence of Nutrition/Health Claims on Food Purchase Decision

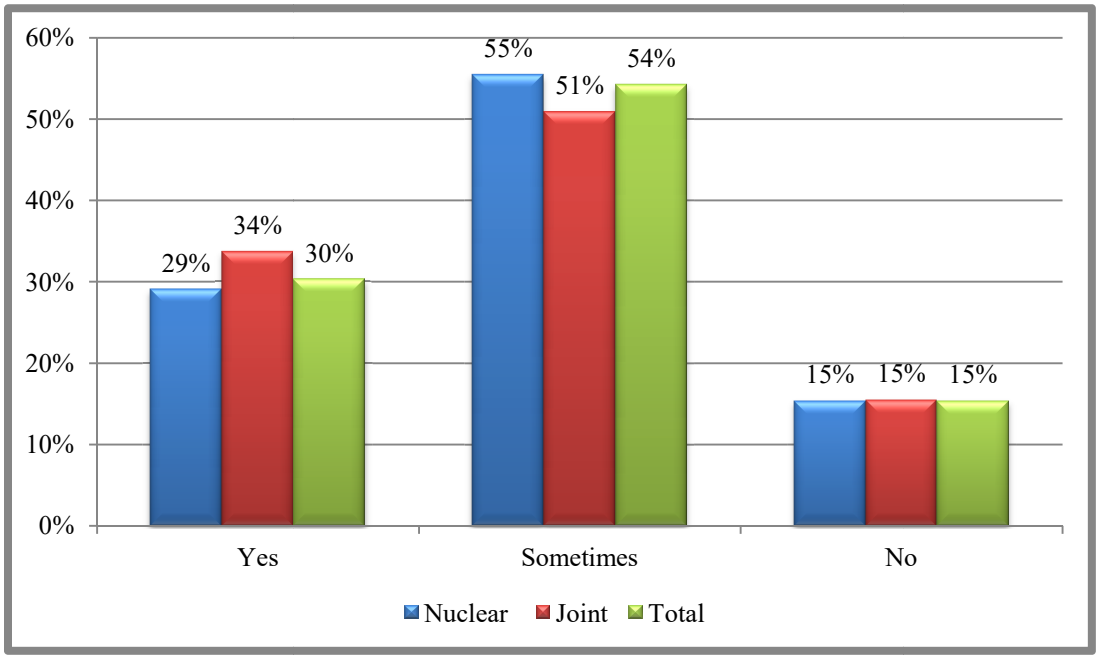


There is no difference in purchasing choice by the respondents based on the nutrition or health claims on the pre-packaged food items according to food preference. Although it is seen that respondents those who are non vegetarian are slightly more (in terms of percentages) than the vegetarian ones doing the purchases as an influence of such claims and indicated their response as 'Yes'.

Table 4.53 Family Type-wise Influence of Nutrition/Health Claims on Food Purchase Decision

Responses (In Numbers)	Yes	Sometimes	No	Total
Nuclear	167	319	88	575
Joint	72	109	33	214
Total	239	428	121	789
Responses (In %)	**Yes**	**Sometimes**	**No**	**Total**
Nuclear	29%	55%	15%	73%
Joint	34%	51%	15%	27%
Total	30%	54%	15%	100%

Figure 4.53 Family Type-wise Influence of Nutrition/Health Claims on Food Purchase Decision



There is no difference in purchasing choice by the respondents inclined based on the nutrition or health claims about the pre-packaged food items according to family type. Although it is seen that respondents (in joint family) are slightly more (in terms of percentages) than the ones (in nuclear family) doing the purchases and indicated their response as 'Yes'.

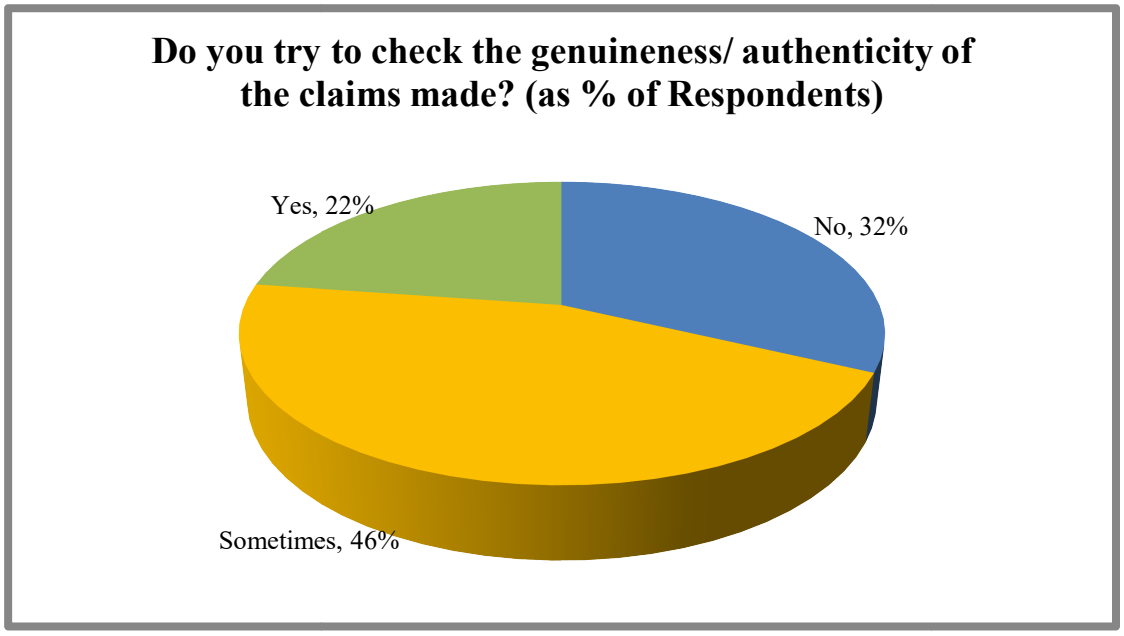
16. Do you try to check the genuineness / authenticity of the claims made?

Analysis is presented below.

Table 4.54 Checking genuineness of Claims

Do you try to check the genuineness/ authenticity of the claims made?	No. of Responses (N=789)	In %
Yes	177	22%
Sometimes	359	46%
No	253	32%
Total	789	100%

Figure 4.54 Checking genuineness of Claims



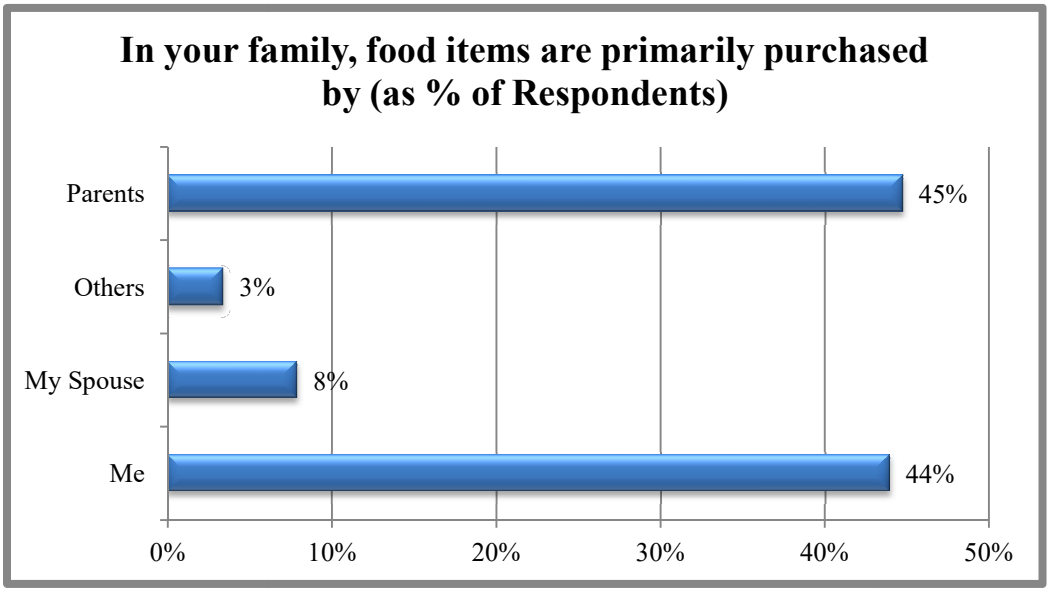
17. In your family, food items are primarily purchased by:

This is question with multiple choices. Analysis is presented below.

Table 4.55 Food purchased By

In your family, food items are primarily purchased by	No. of Responses (N=1005)	In %
Me	442	44%
My spouse	79	8%
Parents	450	45%
Others	34	3%
Total	1005	100%

Figure 4.55 Food purchased By



In most cases food is either purchased by the respondent or by parents.

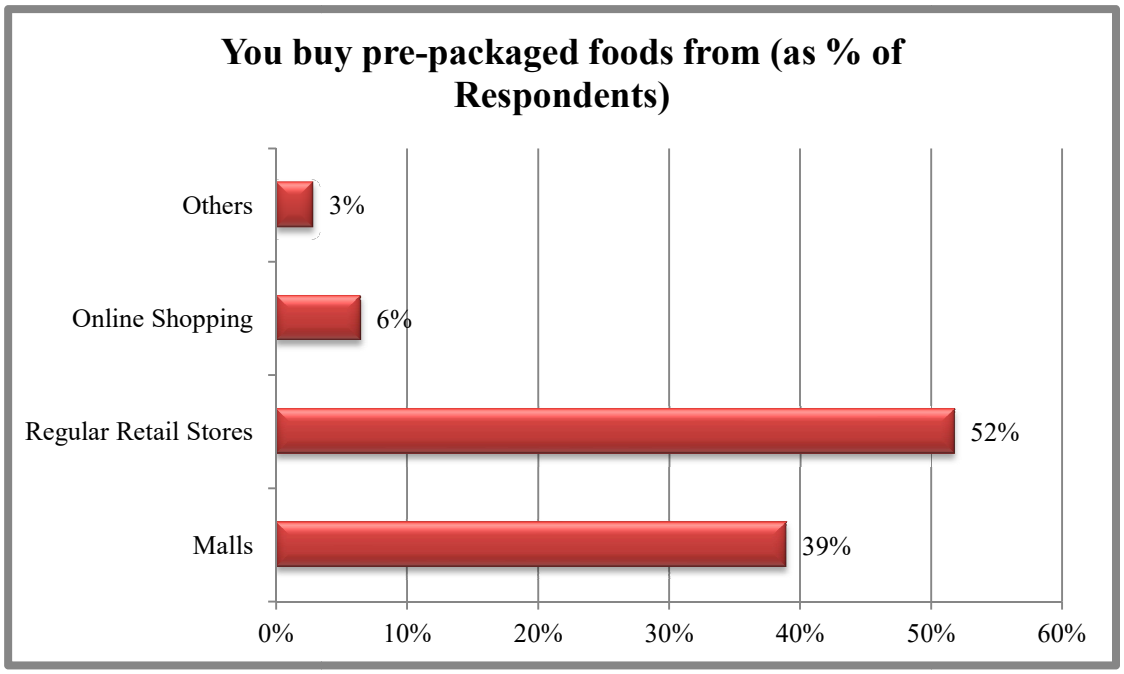
18. You buy pre-packaged foods from:

This is question with multiple choices. Analysis is presented below.

Table 4.56 Food purchased from

You buy pre-packaged foods from	No. of Responses (N=1136)	In %
Malls	443	39%
Regular Retail Stores	588	52%
Online Shopping	73	6%
Others	32	3%
Total	1136	100%

Figure 4.56 Food purchased from



Majority of respondents buy food from regular retail shops.

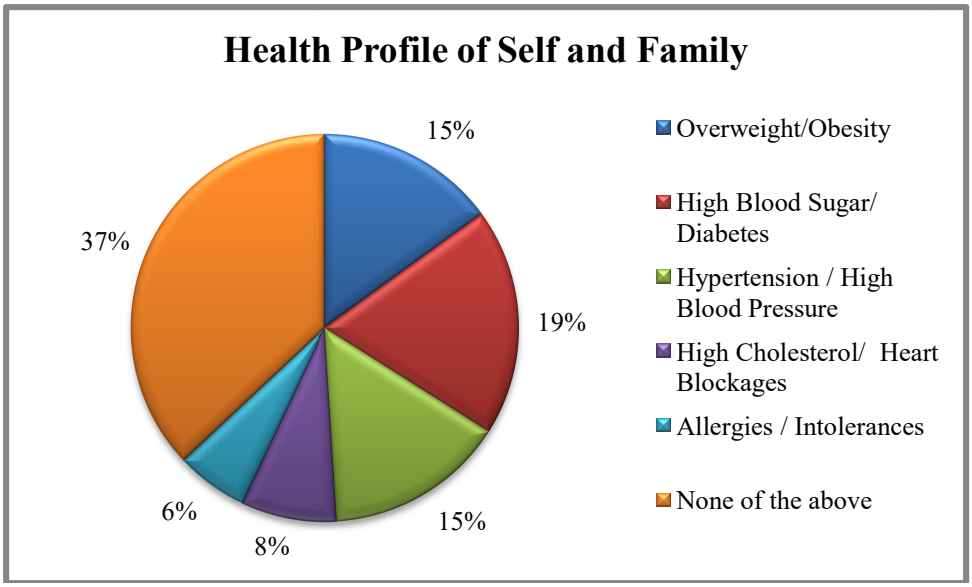
19. Are you or anyone in your family having any of the following health problems for which there are direct links of food intake with the health status?

This is question with multiple choices. Analysis is presented below.

Table 4.57: Health Profile of Self and Family

Are you or anyone in your family having any of the following health problems for which there are direct links of food intake with the health status?	No. of Responses	In %
Overweight/Obesity	155	15%
High Blood Sugar/ Diabetes	201	19%
Hypertension / High Blood Pressure	159	15%
High Cholesterol/ Heart Blockages	87	8%
Allergies / Intolerances	62	6%
None of the above	376	37%
Total	1040	100%

Figure 4.57: Health Profile of Self and Family



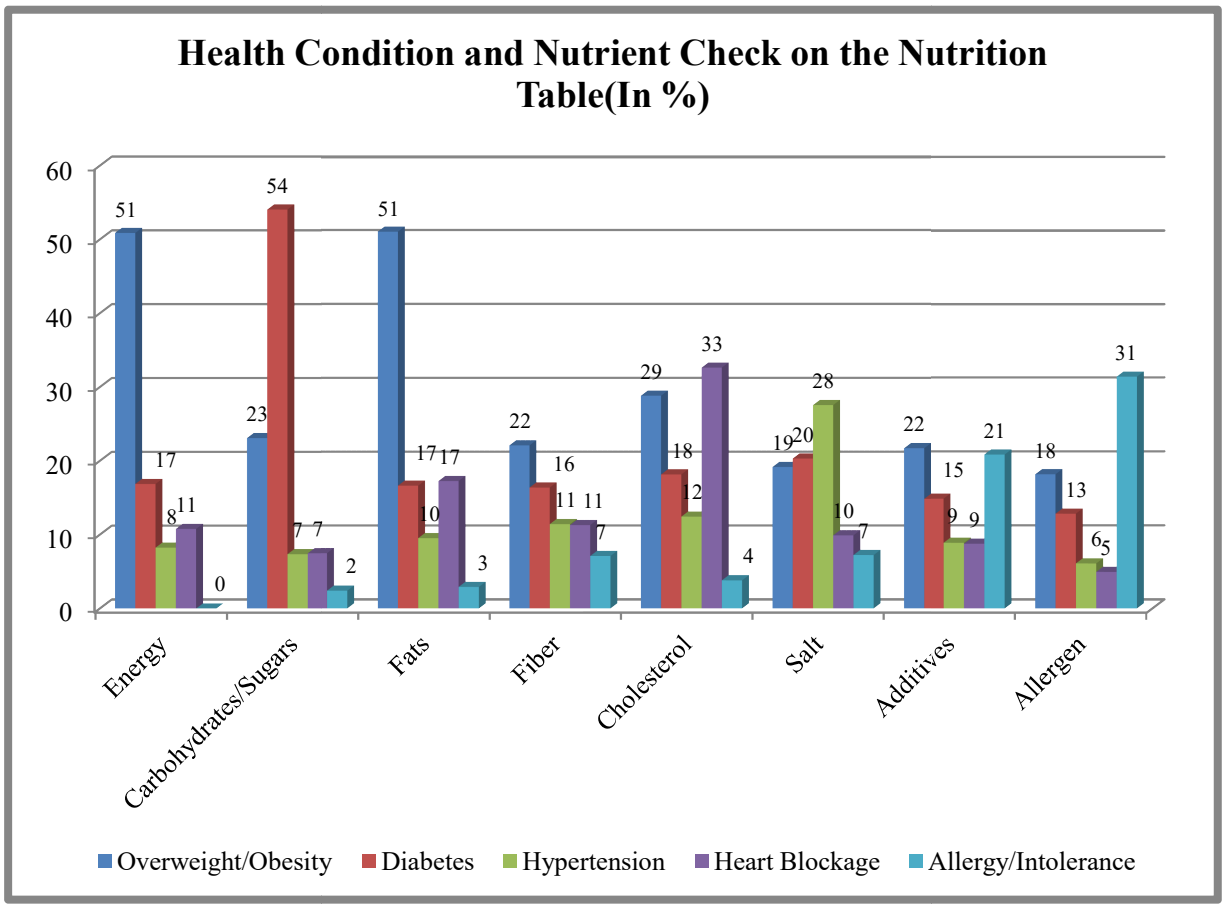
20. Which nutrient should you examine in the nutrition panel in relation to…?

The summary of the responses w. r. t. nutrients and diseases is presented herewith.

Table 4.58: Consumer awareness about nutrient relationship with health condition

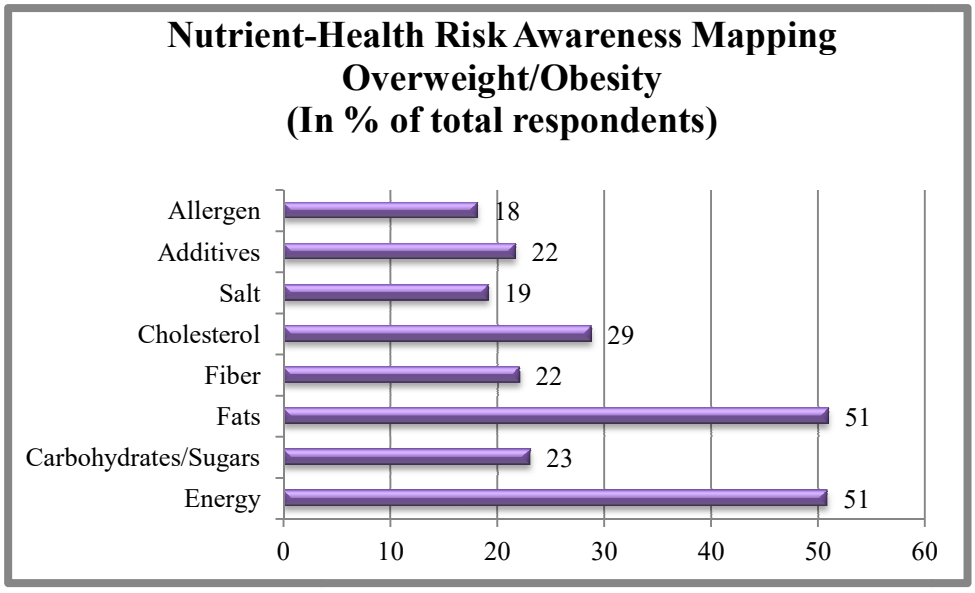
	Overweight/ Obesity	Diabetes	Hypertension	Heart Blockage	Allergy/ Intolerance
Energy	51	17	8	11	0
Carbohydrates/Sugars	23	54	7	7	2
Fats	51	17	10	17	3
Fiber	22	16	11	11	7
Cholesterol	29	18	12	33	4
Salt	19	20	28	10	7
Additives	22	15	9	9	21
Allergen	18	13	6	5	31

Figure 4.58: Consumer awareness about nutrient relationship with health condition



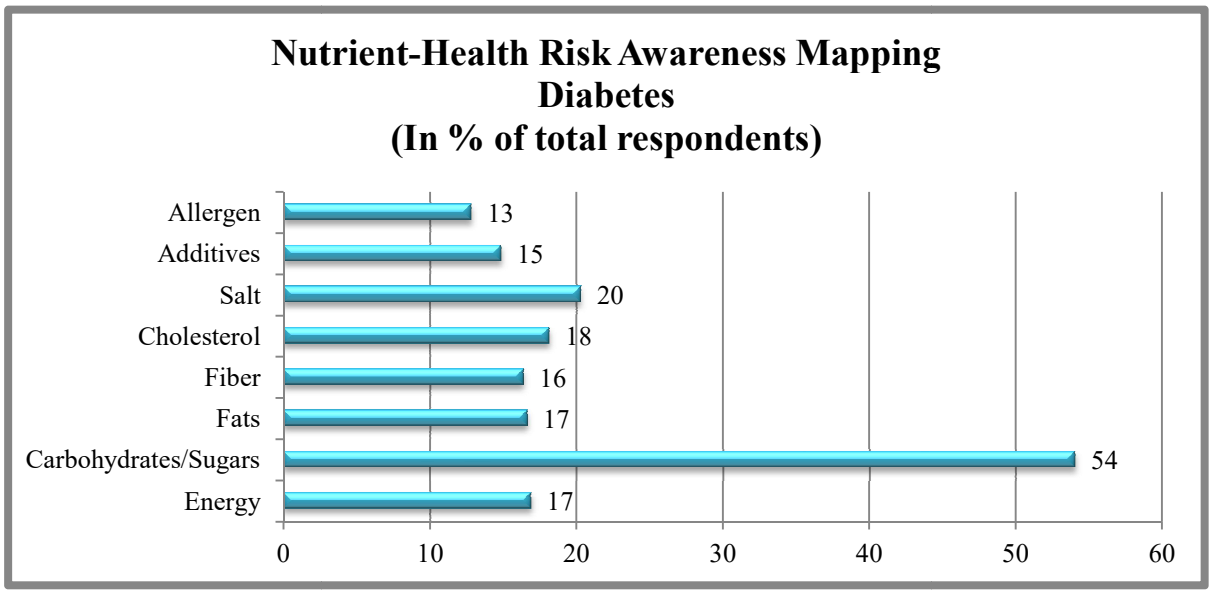
The details about each nutrient-health risk awareness mapping are presented subsequently.

Figure 4.59: Nutrient- Health Risk Mapping for Overweight/Obesity (In %)



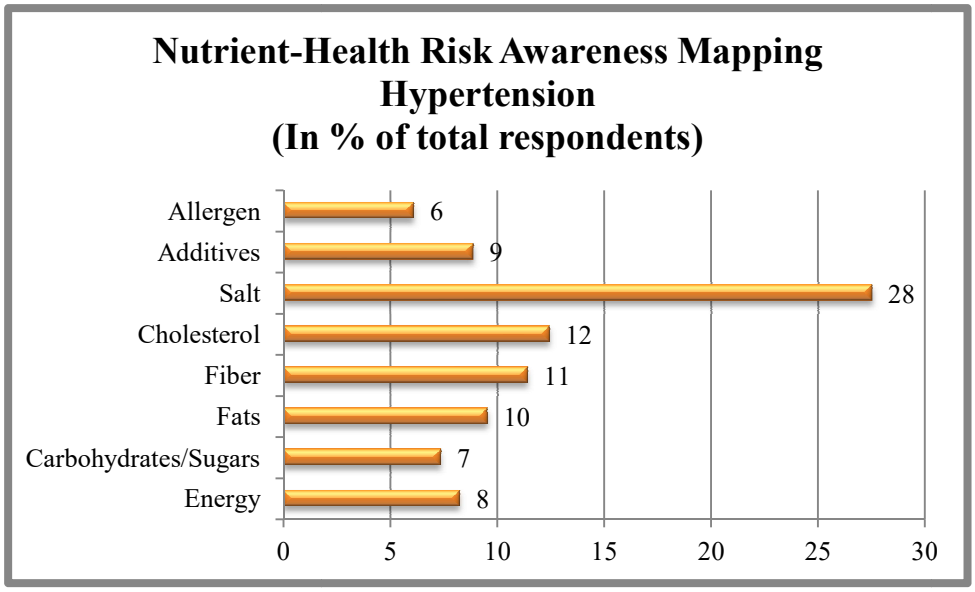
It is quite obvious that majority of the respondents (about 51%) are aware about Energy/Calories and also Fats being important in relation to Overweight / Obesity. It is also interesting to note that 22% and 18% respondents have also pointed out additives and allergens respectively for obesity which are actually not related.

Figure 4.60: Nutrient- Health Risk Mapping for Diabetes (In %)



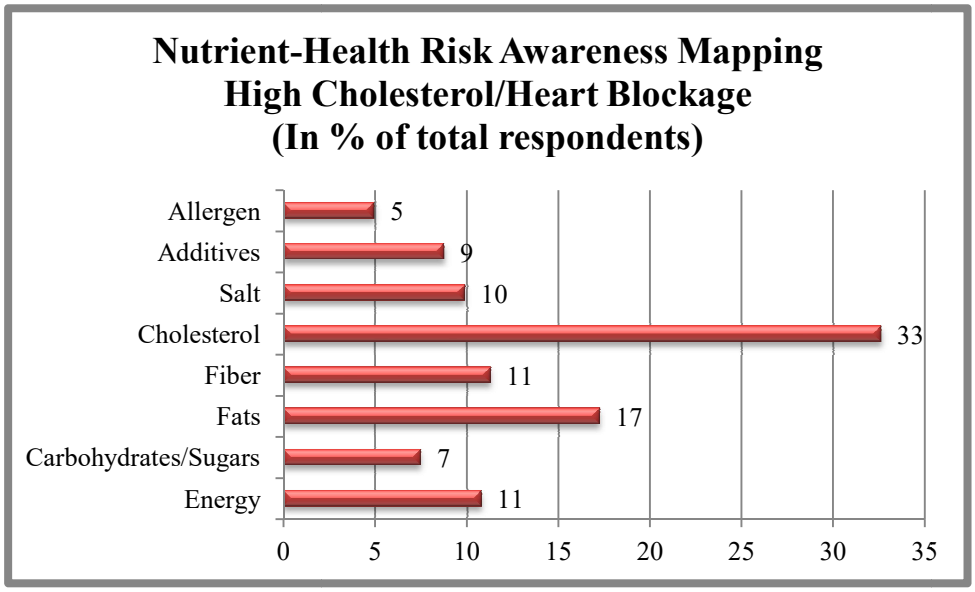
Customers have shown a clear preference to look out for the value of Sugars in the nutrition table while purchasing for food products for diabetics (54%). This is clear indication of their awareness about what to look out for. Rest all other nutrients weigh much lesser according to the customers while considering food for those with high blood sugar levels.

Figure 4.61: Nutrient- Health Risk Mapping for High Blood Pressure/Hypertension (In %)



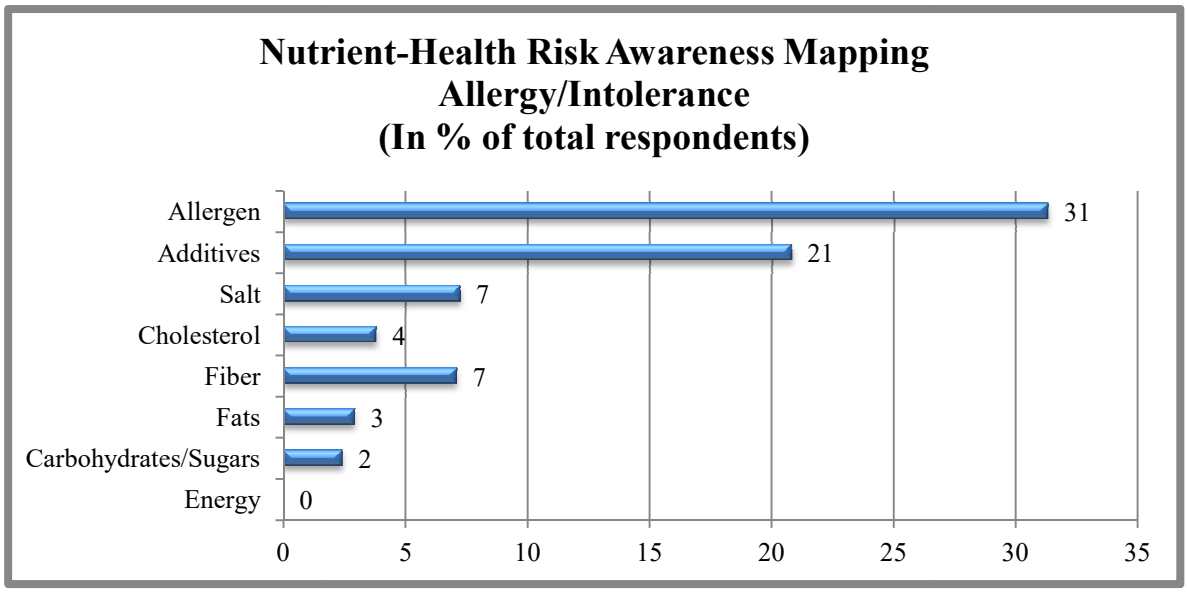
Although only 28% of the respondents have shown an indication of looking out for the values of Salt in the food while purchasing food items for people with High Blood Pressure or Hypertension, the number is much higher as compared to any other nutrient.

Figure 4.62: Nutrient- Health Risk Mapping for High Blood Cholesterol/Heart Blockage (In %)



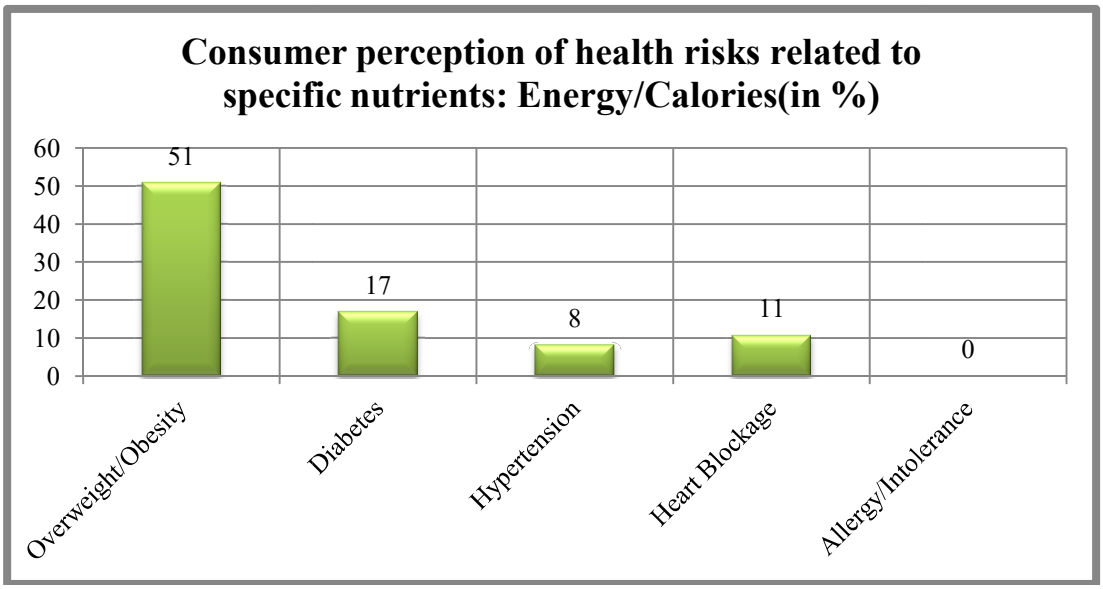
Respondents state that they must look for the value of Cholesterol in case they purchase any food item for those suffering from any heart ailment specially the ones related to blockage of arteries. 33 % of respondents relate cholesterol with heart blockage and then the next nutrient associated with heart ailments is fats (17%).

Figure 4.63: Nutrient- Health Risk Mapping for Allergy/Intolerance (In %)



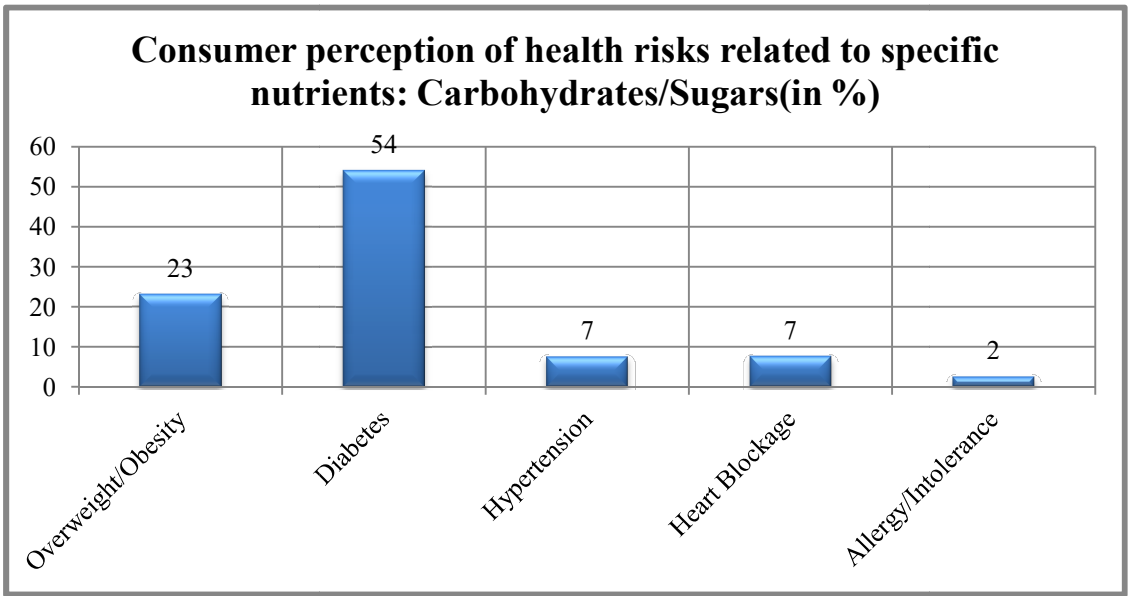
It is quite obvious that most of the respondents (about 31%) are examining Allergens in relation to Allergies. This was followed by Additives (21%) that too sometimes contain such chemicals that lead to allergy. Interestingly none of the respondents have attributed allergy to energy values.

Figure 4.64: Consumer perception of health risks related to specific nutrients: Energy/Calories (in %)



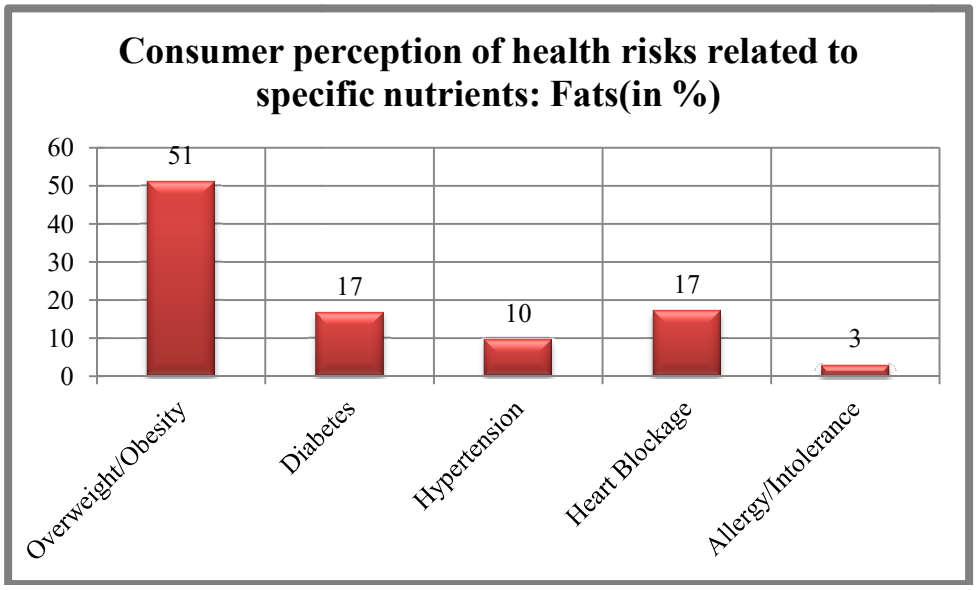
As is clear from the figure, energy (calories) are considered important for Overweight/Obesity (51%) and to some extent for Diabetes followed by heart blockage and Hypertension.

Figure 4.65: Consumer perception of health risks related to specific nutrients: Carbohydrates/Sugars (in %)



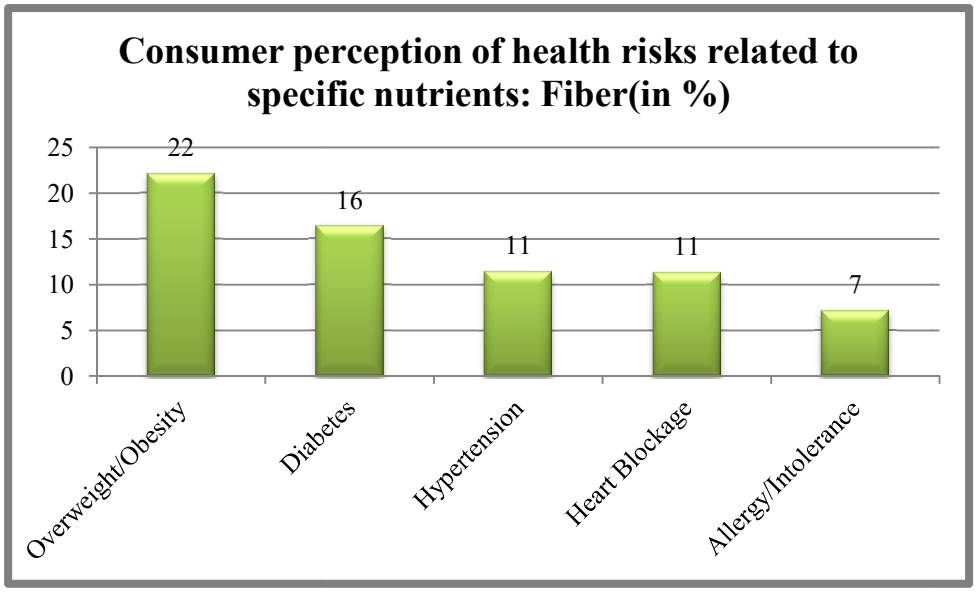
The figure makes it obvious that majority of the respondents (54%) attribute Carbohydrates/Sugars to Diabetes followed by Obesity (23%). The awareness about keeping track of carbohydrates and sugars values in the nutrition panel can be easily seen among the respondents.

Figure 4.66: Consumer perception of health risks related to specific nutrients: Fats



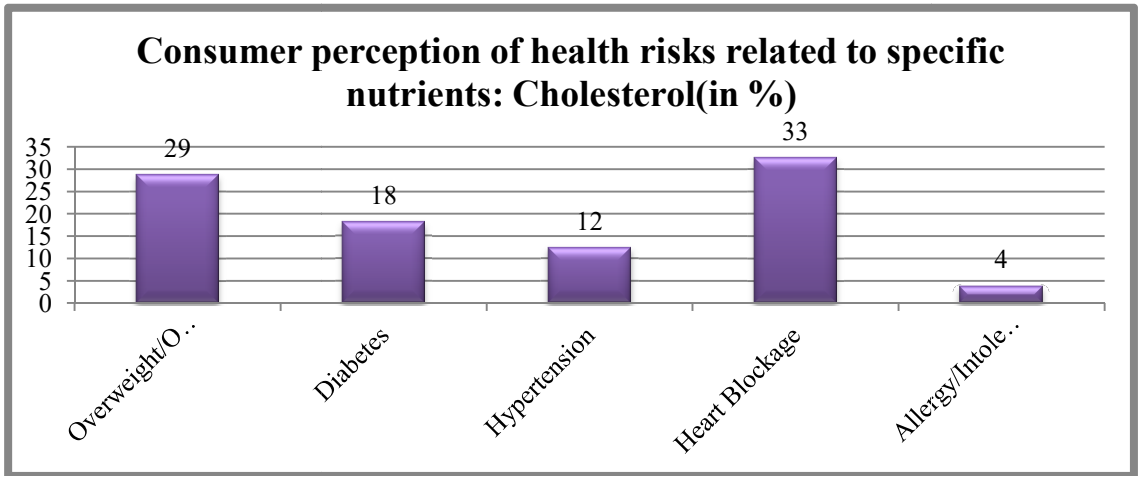
Fats are found to be most important nutrient in case of Overweight/obesity (51%). Only 17% of respondents attach fats with heart blockage and Diabetes each although researchers have found relationship between intake of fats in diet and heart blockages as well as diabetes and to some extent with hypertension too.

Figure 4.67: Consumer perception of health risks related to specific nutrients: Fiber



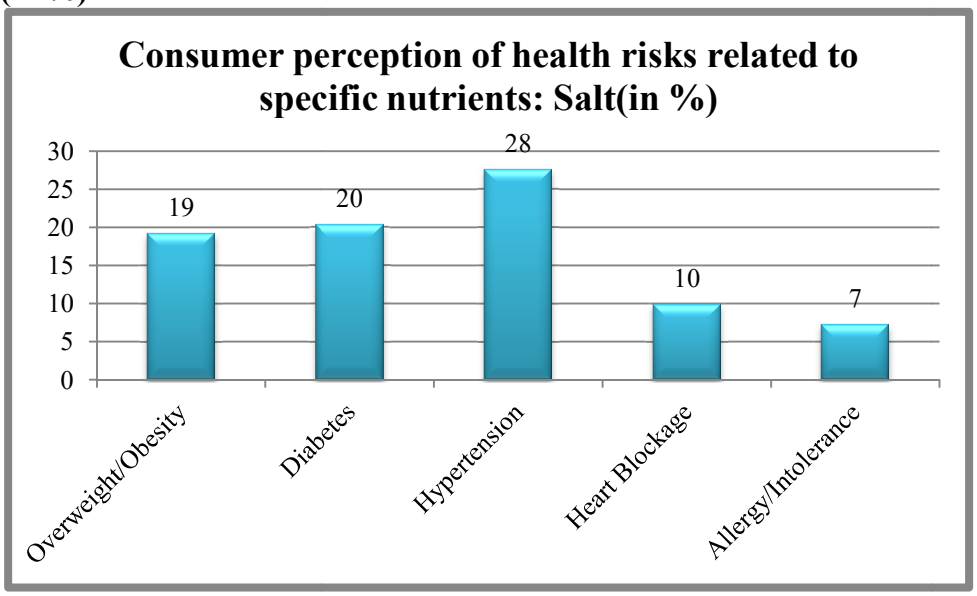
The importance of fiber in food products may not add any nutritive value to the food but is responsible for better digestion and enhanced satiety value. Fiber rich foods are considered good for all specially for people with obesity, diabetes, hyper tension and heart blockage. Awareness of people related to the importance of fiber seems to be less.

Figure 4.68: Consumer perception of health risks related to specific nutrients: Cholesterol (in %)



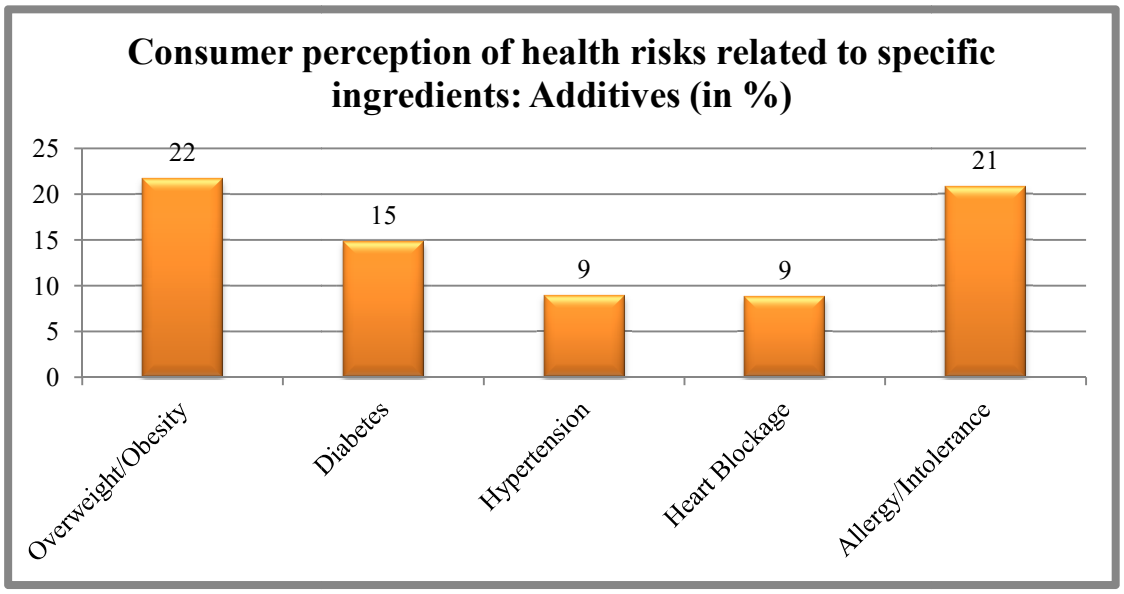
The figure depicts that more number of people attach cholesterol to heart blockage (33%) followed by overweight/obesity (29%). Cholesterol is a very well promoted content with a number of food products specially oils putting up the information 'Cholesterol free' on their packets and claiming the products to be heart friendly.

Figure 4.69: Consumer perception of health risks related to specific nutrients: Salt (in %)



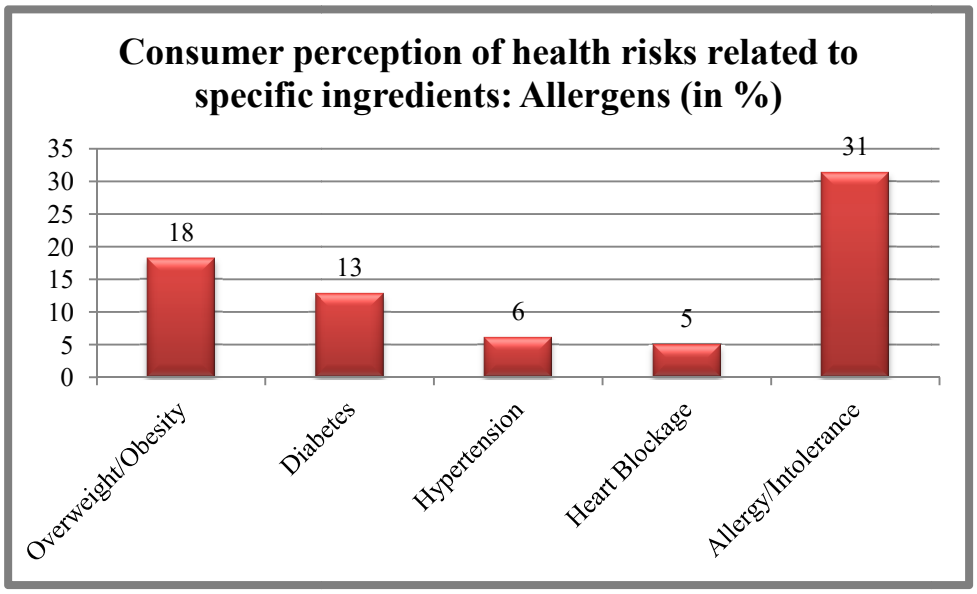
About 28% of respondents have stated that the consumption of salt needs to be checked in case of a person suffering from high blood pressure followed by diabetes(20%)and obesity(19%). Although maximum customers have pointed out at the relationship of salt with hypertension which is correct too, consumers seem to be less aware about salt consumption.

Figure 4.70: Consumer perception of health risks related to specific ingredients: Additives (in %)



Consumers have shown little awareness related to the association of additives with obesity(22%) and allergy(21%). There have been studies linking additives and preservatives with various allergies and also with other varied health issues.

Figure 4.71: Consumer perception of health risks related to specific ingredients: Allergens (in %)



Allergens are known sources of allergy found in various food products. These may be natural or may be chemicals that are induced in food products. 31% consumers are aware of the presence of information about allergens on food packages and state that in case of known allergies or intolerances the information about allergens is required to be seen by consumers.

4.3 Hypotheses Testing

Summary of Hypothesis Testing is provided herewith.

Table 4.59: Summary of Hypothesis Testing

Objective	Hypothesis	Null Hypothesis	Test Used	Result
To assess awareness **and** understanding **of consumers regarding the contents present on Nutritional Information Panels of pre packaged food products.**	H1 (awareness)	$H_0$1: The consumers don't vary in terms of their awareness about the presence of nutritional information available on pre-packaged food products.	Friedman Test	Null Hypothesis Rejected
	H2 (understanding)	$H_0$2: There is no association between consumers understanding nutritional information and their respective health status.	Chi Square test	Fail to Reject Null Hypothesis
To indicate if there exists a relationship between various health risk factors **(overweight and obesity, high blood pressure, high blood cholesterol, diabetes, allergic conditions)** and the use of nutritional information panels **by consumers.**	H3 (usage) healthy/non healthy	Ho3: There is no association between the usage of nutrition information on food packages and the health status of consumers.	Chi Square test	Null Hypothesis Rejected
	H3.1 (usage) Obese/Non-Obese	Ho3.1: There is no significant association between the usage of nutrition information on food packages and the health status of consumers in terms of obesity/overweight.	Chi Square Test	Fail to Reject Null Hypothesis
	H3.2 (usage) High BP/No High BP	Ho3.2: There is no significant association between the usage of nutrition information on food packages and the health status of consumers in terms of high blood pressure.	Chi Square Test	Null Hypothesis Rejected

	H3.3 (usage) High Cholesterol/No High Cholesterol	Ho3.3: There is no significant association between the usage of nutrition information on food packages and the health status of consumers in terms of High Cholesterol	Chi Square Test	Null Hypothesis Rejected
	H3.4 (usage) Diabetic/Non-Diabetic	Ho3.4: There is no significant association between the usage of nutrition information on food packages and the health status of consumers in terms of Diabetes	Chi Square Test	Fail to Reject Null Hypothesis
	H3.5 (usage) Allergy/No Allergy	Ho3.5: There is no significant association between the usage of nutrition information on food packages and the health status of consumers in terms of Allergies	Chi Square Test	Fail to Reject Null Hypothesis
To determine whether Nutritional Information Panel, nutrition claims and/or health claims influence purchase decision**.**	H4 Influence of nutrition information on purchase decision	$H_0$4: There is no significant association between the influence of nutrition information on purchase decision and the health status of consumers	Chi Square Test	Fail to Reject Null Hypothesis
	H5 Influence of Nutrition/Health Claims on purchase decision	$H_0$5: There is no significant association between the influence of nutrition/health claims on purchase decision and the health status of consumers	Chi Square Test	Fail to Reject Null Hypothesis

Hypothesis 1

Statistical Test:

Friedman Test

Hypothesis:

$H_0$1: The consumers don't vary in terms of their awareness about the presence of nutritional information available on pre-packaged food products.

H_a1: The consumers vary in terms of their awareness about the presence of nutritional information available on pre-packaged food products.

Level of Significance = 0.05

Test Statistics:

Test Statistics	
N	789
Chi-Square	1577.327
Df	12
Asymp. Sig.	0.000

Observation:

X^2 (12) = 1577.327, p < 0.01

Since p value is less than 0.05, we reject the Null Hypothesis and accept the alternate one, which suggest that information present on the prepackaged food is perceived differently by the sample respondents. To understand how they have perceived this differently we refer to the ranks table mentioned below:

Ranks	
Information	Mean Rank
Brand name	8.79
Best before/Expiry date	8.71
Veg/Non Veg indication	8.61
Manufacturing date	8.51
Nutrient Information	6.89
Calorie content	6.75
Place of Manufacturing	6.69
Specific Ingredients	6.45
Food additives/Preservatives	6.43
Marketed by	6.23
Certification(Such as FSSAI , AGMARK)	6.15
Nutrition/Health claims	5.45
Salt content	5.35

Conclusion:

Sample respondents perceived the information present on the prepackaged food differently, especially in the case of Brand Name, Best before / Expiry date, Veg/Non Veg Indication and Manufacturing date. As the value of Nutrient Information comes at 5^{th} rank people are aware about the presence of Nutrition Information lesser than the brand name, best-before date, Veg/Non-Veg indication and manufacturing date.

Hypothesis 2

Statistical Test:

Chi-Square Tests

Hypothesis:

$H_0$2: There is no association between consumers understanding nutritional information and their respective health status.

H_a2: There is an association between consumers understanding nutritional information and their respective health status.

Results			
	Healthy	Non-Healthy	Row Totals
Yes	76 (81.54) [0.38]	93 (87.46) [0.35]	169
Yes, but not all	179 (169.84) [0.49]	173 (182.16) [0.46]	352
No	117 (120.62) [0.11]	133 (129.38) [0.10]	250
Column Totals	372	399	771 (Grand Total)

The Chi-square statistics is 1.8931. the *p*-value is .388072. The result is not significant at $p<.05$.The result of the Chi Square test shows that null hypothesis cannot be rejected and thus there is no association found in the understanding of nutrition information and with the health status of a consumer. Thus both healthy and non healthy consumers' understanding of nutrition information is the same.

Crosstab				
Count				
		Health_Status		Total
		Healthy	Non_Healthy	
8. Do you understand the terminology and the units of measure (like per serving or per 100 g or GDA/RDA) given in the nutrition panel on pre packaged foods?	Yes	76	93	169
	Yes, but not all	179	173	352
	No	117	133	250
Total		372	399	771

At the same time looking at the percentage of consumers belonging to both categories (healthy and non healthy), it is probable that consumers understand nutrition information. The table is presented here:

8. Do you understand the terminology and the units of measure (like per serving or per 100 g or GDA/RDA) given in the nutrition panel on pre packaged foods?	Healthy (In %)	Non Healthy (In %)
Yes	20	23
Yes, but not all	48	43
No	31	33
Total	100	100

When seen as percentage of Healthy and non healthy consumers responding to their understanding of nutrition information also it may be inferred that although there is no significant difference in their understanding but approximately 68% of healthy and 66% of non healthy consumers claim to understand nutrition information if not fully, to some extent.

Hypothesis 3

Statistical Test:

Chi-Square Tests

Hypothesis 3 is a combination of sub hypothesis that are presented below:

$H_0$3: There is no significant association between the health status of consumers in terms of **healthy and unhealthy** and their usage of nutrition information on food packages.

H_a3: There is a significant association between the health status of consumers in terms of healthy and unhealthy and their usage of nutrition information on food packages.

$H_0$3.1: There is no significant association between the **health status of consumers in terms of obesity/overweight** and their usage of nutrition information on food packages.

H_a3.1: There is a significant association between the health status of consumers in terms of obesity/overweight and their usage of nutrition information on food packages.

$H_0$3.2: There is no significant association between the **health status of consumers in terms of high blood pressure** and their usage of nutrition information on food packages.

H_a3.2: There is a significant association between the health status of consumers in terms of high blood pressure and their usage of nutrition information on food packages.

$H_0$3.3: There is an association between the **health status of consumers in terms of high blood cholesterol** and their usage of nutrition information on food packages.

H_a3.3: There is a significant association between the health status of consumers in terms of high blood cholesterol and their usage of nutrition information on food packages.

$H_0$3.4: There is no significant association between the **health status of consumers in terms of diabetes** and their usage of nutrition information on food packages.

H_a3.4: There is a significant association between the health status of consumers in terms of diabetes and their usage of nutrition information on food packages.

$H_0$3.5: There is no significant association between the **health status of consumers in terms of allergies** and their usage of nutrition information on food packages.

H_a3.5: There is a significant association between the health status of consumers in terms of allergies and their usage of nutrition information on food packages.

Level of Significance = 0.05

Test Statistics:

	Value	df	p-value
Obesity	2.694	4	0.61
Diabetes	6.756	4	0.14
High Blood Pressure	13.578	4	0.00
Heart Blockages	11.898	4	0.01
Allergies	6.332	4	0.17
Health Status	10.438	4	0.034

Observation 1:

X^2 (4) = 2.694, p > 0.05

Observation 2:

X^2 (4) = 6.756, p > 0.05

Observation 3:

X^2 (4) = 13.578, p < 0.05

Observation 4:

X^2 **(4) = 11.898, p < 0.05**

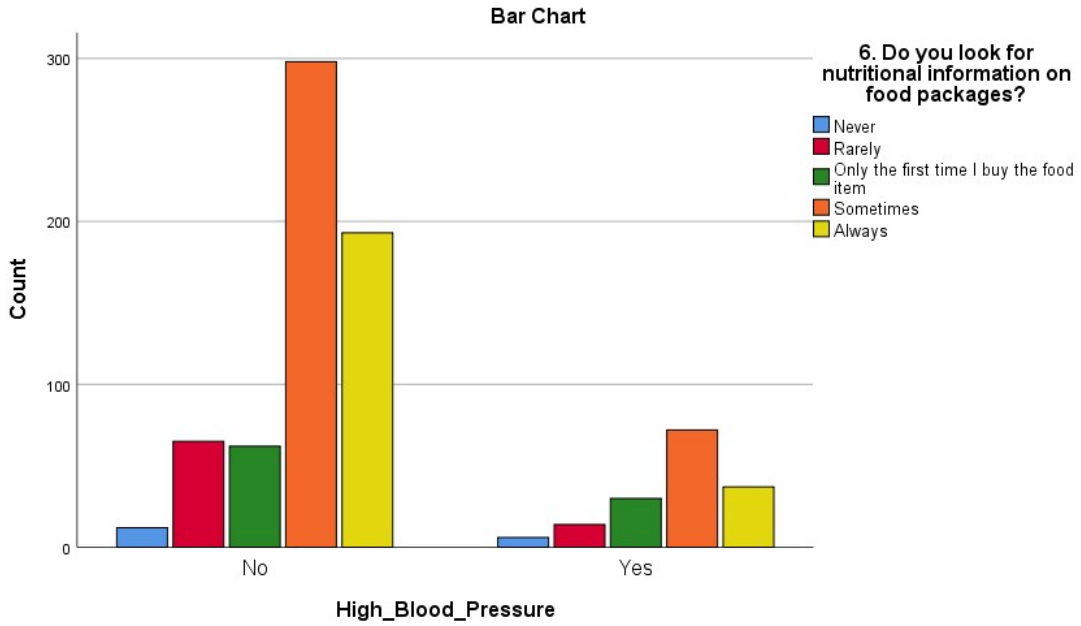
Observation 5:

X^2 **(4) = 6.332, p < 0.05**

Observation 6:

X^2 **(4) = 10.438, p < 0.05**

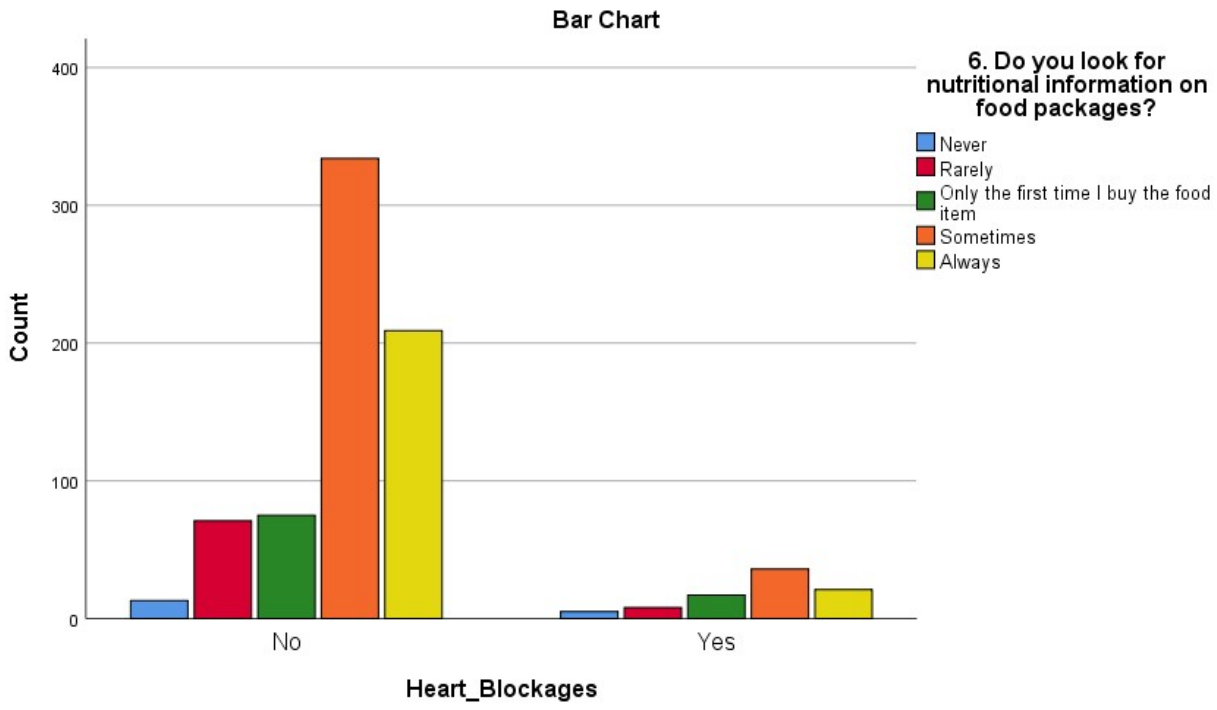
Since p value is less than 0.05 in case of **High Blood Pressure and Heart Blockages and for Health Status**, hence we accept the alternate hypotheses for these three cases and reject the rest of the hypotheses, which suggest that there is association between health status of the consumer with the usage of nutrition information on food packages. To understand the association between health status of the consumer with the usage of nutrition information on food packages, we refer to the bar chart mentioned below:



Crosstab							
Count							
		6. Do you look for nutritional information on food packages?					Total
		Never	Rarely	Only the first time I buy the food item	Some times	Always	
High_Blood_Pressure	No	12	65	62	298	193	630
	Yes	6	14	30	72	37	159
Total		18	79	92	370	230	789

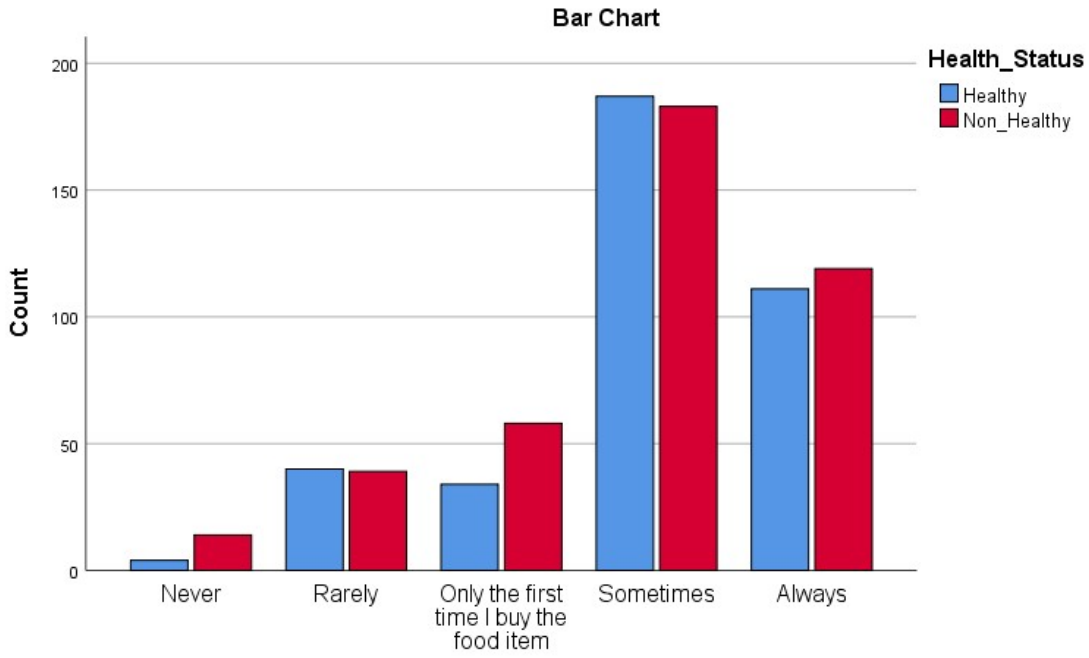
Almost 78% of the consumers who do not have High Blood Pressure look for nutrition information always or sometimes. For those who have High Blood Pressure this percentage is 69%.

From the above table and graph we can say that respondents who are not having high blood pressure look for nutritional information more critically as compared to respondents having high blood pressure.



Crosstab							
Count							
		6. Do you look for nutritional information on food packages?					Total
		Never	Rarely	Only the first time I buy the food item	Some times	Always	
Heart_ Blockages	No	13	71	75	334	209	702
	Yes	5	8	17	36	21	87
Total		18	79	92	370	230	789

From the above table and graph we can say that respondents who are not having heart blockages look for nutritional information more critically as compared to respondents having heart blockages. Almost 77% of the consumers who do not have Heart Blockages look for nutrition information always or sometimes. For those who have High Blood Cholesterol this percentage is 66%. It is found that 30% of those with no heart issues 'Always' look for Nutrition Information whereas only 24% of those who have heart ailments 'Always' look for the same. It is also found that Cholesterol is the least 'Always looked for'(only 1%) nutrient from among all nutrients by consumers.



6. Do you look for nutritional information on food packages?

6. Do you look for nutritional information on food packages? * Health_Status Crosstabulation				
Count				
		Health_Status		Total
		Healthy	Non_Healthy	
6. Do you look for nutritional information on food packages?	Never	4	14	18
	Rarely	40	39	79
	Only the first time I buy the food item	34	58	92
	Sometimes	187	183	370
	Always	111	119	230
Total		376	413	789

Almost 79% of the consumers who do not have any of the specified ailments look for nutrition information always or sometimes. For those who have any of the specified ailments, this percentage is 73%.From the above table and graph we can say that respondents who are healthy look for nutritional information more critically as compared to respondents who are not healthy. This concurs also with the findings related to High blood pressure and high cholesterol.

Hypothesis 4

Statistical Test:

Chi-Square Test

H_o4: There is no significant association between the health status of consumers and their usage of nutrition information on food packages for purchase decision.

Ha4: There is a significant association between the health status of consumers and their usage of nutrition information on food packages for purchase decision.

Results			
	Healthy	Non-Healthy	Row Totals
Yes/Sometimes	320 (322.63) [0.02]	357 (354.37) [0.02]	677
No	56 (53.37) [0.13]	56 (58.63) [0.12]	112
Column Totals	376	413	789 (Grand Total)

The Chi-square statistics is 0.2877. The *p*-value is .59171. The result is not significant at $p<.05$. The result of the Chi Square test shows that null hypothesis cannot be rejected and thus there is no association found in the influence of nutrition information on purchase decision for pre packaged foods with the health status of a consumer. Thus both healthy and non healthy consumers' get equally influenced/not influenced by nutrition information.

To find out whether consumers get influenced by nutrition information while purchasing food the crosstab is presented along with percentage analysis.

Crosstab				
Count				
		Health_Status		Total
		Healthy	Non_Healthy	
14. Have you ever made your buying decision on the basis of the information on the nutrition table given on the pre packaged food items?	Yes	86	103	189
	Sometimes	234	254	488
	No	56	56	112
Total		376	413	789

Almost 83% of the consumers who do not have any of the specified ailments respond to getting influenced by nutrition information. For those who have any of the specified ailments, this percentage is 87%.From the above table it can be said that respondents get influenced by nutrition information while purchasing pre packaged food irrespective of whether they are healthy or not.

Hypothesis 5

Statistical Test:

Chi Square Test

Ho5: There is no significant association between the health status of consumers and their usage of nutrition/health claims on food packages for purchase decision.

Ha5: There is a significant association between the health status of consumers and their usage of nutrition/health claims on food packages for purchase decision.

Results			
	Healthy	Non-Healthy	Row Totals
Yes/Sometimes	310 (317.38) [0.17]	356 (348.62) [0.16]	677
No	66 (58.62) [0.93]	57 (64.38) [0.85]	112
Column Totals	376	413	789 (Grand Total)

The Chi-square statistics is 2.1052. The *p*-value is 1.146796. The result is not significant at $p<.05$. The result of the Chi Square test shows that null hypothesis cannot be rejected and thus there is no association found in the influence of nutrition/health claims on purchase decision for pre packaged foods with the health status of a consumer. Thus both healthy and non healthy consumers' get equally influenced/not influenced by nutrition/health claims.

To find out whether consumers get influenced by nutrition/health claims while purchasing food the crosstab is presented along with percentage analysis.

Crosstab

Count

		Health_Status		Total
		Healthy	Non_Healthy	
15. While buying pre-packaged food products do you ever get influenced by the nutrition or health claims (such as 'High in Fiber', 'Iron rich', 'For stronger bones') made on the package?	Yes	113	126	239
	Sometimes	197	230	427
	No	66	57	123
Total		376	413	789

Almost 82% of the consumers who do not have any of the specified ailments respond to getting influenced by nutrition/health claims. For those who have any of the specified ailments, this percentage is 86%.From the above table it can be said that respondents get influenced by nutrition/health claims while purchasing pre packaged food irrespective of whether they are healthy or not.

4.4 Conclusion

The chapter presents a thorough analysis of the data collected for the purpose of research. The researcher has analyzed the primary data and hypotheses are tested thus achieving the objectives of the study. The major findings that emerge from both descriptive analysis and testing of hypothesis have enabled the researcher to understand and suggest ways in which nutrition information may best be used for consumers in taking informed decisions.

Chapter 5: Conclusions, Suggestions and Scope of the Study

The chapter focuses on the findings that have emerged as the result of analysis of the data collected, whether the findings concur or contradict the literature reviewed, conclusions that surface, suggestions that the researcher has come up with and scope for further research.

5.1 Findings of the Study

The research was intended to answer questions related to the awareness and understanding of consumers about nutrition information present on prepackaged foods. The purpose of the study was also to find out if the presence of lifestyle and nutrition related diseases influences the consumers' purchase decision. Another area that the study planned to look into was the influence that nutrition /health claims have on consumer's purchase decision.

The research was conducted on a sample consisting of 789 respondents comprising a heterogeneous mix of different demographic sections. Majority of the respondents belonged to the age of up to 35 yrs and were females. Most of the respondents were vegetarians and also lived in nuclear families. Their responses were taken on a number of questions that were designed to get answers to the research questions.

In order to gain insight into the research questions three objectives of the study were defined. These objectives include assessing the awareness and understanding of consumers regarding nutrition information panels of pre packaged food products, finding out the existence of any relationship between presence of a lifestyle related disease and use of nutrition information. The health issues that were considered a part of the study are overweight/obesity, high blood pressure, high blood sugar, high cholesterol or heart blockage and allergies or intolerances. One of the objectives was to find out whether nutrition/health claims influence purchase decisions of the customers of pre packaged food products. For the purpose of accomplishing the aforesaid objectives a number of hypotheses were framed.

The objectives of the study are well accomplished as certain conclusive findings have emerged on testing of various hypotheses framed at the commencement of the study. The result of the testing of hypothesis related to the awareness of consumers about the presence of nutritional information on food packets proved that consumers are quite aware of its presence on pre packaged food items although it is not one of the most looked for information on the food labels.

With the outcome of the second hypothesis that dealt with figuring out whether consumers comprehend the information on the nutritional facts panel, the results came out fairly positive portraying that most consumers understand the nutritional information. However there is no association found between the understanding of nutritional information and the health status of consumers figuring out that both the ones who are devoid of any of the specified health risks and those who suffer from one or more lifestyle related health risks comprehend the nutrition information equally well.

The third hypothesis had branches with five sub hypotheses each to find out if there exists any relationship between the presence of a lifestyle related disease(Obesity, Diabetes, Hypertension, Heart blockages and Allergies) with the usage of nutritional information. The testing of these sub hypotheses revealed that the consumers , those who have hypertension, High blood Cholesterol and overall any health risk issue vary in using(looking for) the nutrition information in comparison to those who do not have hypertension, high blood cholesterol or overall any lifestyle related health issue. Those who are healthy tend to look for nutrition information more than the ones who have hypertension, high blood cholesterol or overall any health issue. For the consumers who have obesity, diabetes or allergy, the results suggest that there is no association in the presence of these health risk issues and the usage of nutrition information.

The fourth hypothesis was framed to understand whether there is any association of the health status of consumers with getting influenced by the nutrition information and actually using the information while taking purchase decision. The percentages suggest an inclination stating that consumers do use this information at the time of purchase of

food items although the results of hypothesis testing show that both healthy and non-healthy consumers equally get influenced by nutrition information while taking purchase decisions for pre packaged food.

The final assumption related to the influence that nutrition and health claims may have on consumers' purchase decisions specially whether these claims impact healthy and non healthy consumers differently. The outcome looking at the percentages confirmed that they believe in such claims and thus consumers' purchases of food products are influenced by nutrition and health claims but no significant difference could be established among the healthy and non healthy consumers in getting influenced by these nutrition or health claims while purchasing pre packaged food.

Various other findings of the study based on descriptive analysis are presented here:

- Most of the customers read food labels and were aware of the information about nutrition on the food labels, the other information that most customers claimed to be aware of were brand name, best-before/ expiry date, manufacturing date and indication of the product being vegetarian or non vegetarian. The finding concurred with the literature reviewed by the researcher. Most of the researches done in this area in the country and abroad suggest that consumers are aware of the presence of nutrition information on food packets.
- Consumers are aware of the presence of a variety of information provided on the food packets but when it came to what information they looked for on the packages, most consumers could think of the brand name, best before date, manufacturing date, vegetarian/non-vegetarian indication and nutritional information. The finding about what the customers actually look for is different from the other studies that were reviewed by the researcher. In the present study price of the food item does not figure out as one of the most looked for information on food packets whereas in two of the studies reviewed price was one of the aspects that consumers look for primarily. In the present study price figures out only after Best Before date, Manufacturing date and taste in what the consumers find to be extremely important while purchasing food. Nutrition

Information and Nutrition Claims both are considered extremely important by almost equal number of respondents which is approximately 45%.Various studies have pointed out different kinds of information that consumers look for on the food packages.

- About the presence of nutrition information on the food packets, 60% of respondents were of the view that for all food packets it is mandatory to have nutrition information printed on them. A meager 7% of the respondents seemed unconcerned about whether such information was mandatory or not.
- Almost 76% respondents look for nutrition information on food packets and females were more concerned about nutrition information. Those who were not much educated were found to be more unconcerned about such information as compared to those who were more educated.
- When the respondents studied the nutrition information they looked out for fats, energy, protein, sugars, vitamins and also minerals. Another interesting finding is that a good correlation exists in the pairs fats and cholesterol, vitamins and minerals suggesting that those who look for fats also look for cholesterol and the ones looking for vitamins see minerals too.
- The respondents perceived that they understood the language or the terms that are present about the nutrients on food packets. 22% respondents were confident that they understood all information related to nutrients whereas about 46% respondents claimed that they understood the terminology but sometimes faced problem too. A number of studies reviewed somehow give an impression that mostly people find it difficult to understand the terminology of nutrition facts panel and that is one of the reasons respondents cite why they may not look for nutritional information. It was also seen that in the present study males showed more understanding of information on nutrition facts table as compared to females. Those with no formal education were not comfortable with understanding the content of nutrition tables.
- One of the themes to emerge from the analysis was that most respondents while evaluating the nutrition information have themselves in mind (37%) or the

children at home (26%) as the ones who would be consuming the food rather than other family members or guests.

- Consumers who stated not reading the nutritional information attributed it to be habitual act (38%) rather than giving any specific reason to it. Others argued that they were brand loyal (13%) so they did not wish to compare. Some felt that they already are aware about nutrients (13%) so they did not require to check the information. Still others attributed it to lack of trust in the information provided and difficulty in reading nutritional information due to small font size. When asked about what change could lead them to read nutritional information, most stated they might start to read the information if it was written in clear and simple terms.
- When consumers were asked about any change they would recommend on food labels most consumers were of the view that presence of any harmful ingredient must be highlighted on food panels. Another suggestion that was chosen by consumers was to include such information like, for whom the nutrients of the food might be useful or harmful must be mentioned clearly on the labels.
- Almost 86 % of respondents admitted to be influenced by nutrition information provided on food labels during purchase at some point of time in their previous purchases. Similar trend appeared for influence of nutrition/health claims on food purchase with almost 84% consumers stating that at some point of time in the past they have got influenced by such claims on food packets. Although among those with no formal education almost one third stated that they did not get influenced by such claims. More consumers agreed that they never checked the genuineness of such claims (32%) than those who said that they verify such claims(23%). Rest accepted that they checked for the authenticity of the claims only 'sometimes'.

Health Profile of the respondents (self proclaimed)

- Of the entire list of respondents 37% stated that they (or anyone else in their family) did not have any of the five listed health issues. These were overweight/obesity, high blood pressure, high blood sugar, high blood cholesterol/heart blockages or allergies/intolerances. Almost 19% agreed to be

suffering from diabetes and 15% each for high blood pressure obesity and 8% from high blood cholesterol. Only 6% of the respondents have any known allergy.

- An attempt was made to understand whether consumers are aware of what nutrient might impact their health in a positive or adverse manner in case of specific health issue faced by them. The findings of the study suggest that in general consumers are well aware of the impact various nutrients have on their health specially in relation to specific health issues. For obese, energy/calories values and fats are of importance as these need to be kept minimized in their diet. The amount of fiber too is of importance to them as they must take more fibrous foods. Majority of consumers are aware of the fact that they must look up for fats(51%) and energy(51%) values in case of dealing with overweight and obesity. Similarly, for diabetes the consumers are well aware that the values of Carbohydrates/Sugars make a difference their health (54%). For hypertension, the preferred nutrient to check out for on the nutrition table has been asserted as Salt(33%), although lesser percentage of consumers are aware of the relation but still it s more than any other nutrient specified by them. In the same manner for allergy and intolerances, allergens and additives were picked up more by consumers than other ingredients suggesting that consumers have updated information about these ingredients related with allergy.
- It was also found that for each nutrient which are the health issues that consumers associate. The results suggested that consumers are conscious of the nutrients present in the food items and the relevance that the nutrient has in relation to various lifestyle related health issues dealt with in this study. Consumers mapped Energy and fats with obesity, Carbohydrates/Sugars with Diabetes, Fiber closest to obesity, Salt with hypertension, additives to obesity and allergens to allergies.

5.2 Conclusions of the study

The study aims at understanding the importance of nutrition information panels that are present as a part of the food labels on pre packaged food products in the minds of the customers. It is mandatory for companies to put the nutrition information on the food packets and the customers use this information for taking informed decisions about the

food items that they purchase. The study sought answers to questions on awareness, understanding and usage of the nutrition information by customers. The aim of the study was also to understand if a person with some specific health issues is cognizant of the information related to nutrients before choosing what to buy for oneself and one's family. As the study was conducted in a section of western suburbs of Mumbai city, the results correspond to urban consumers. The results of the study led to conclusive evidence that in the present times, **customers are pretty conscious towards their health** and make their food purchases after evaluating various factors, nutrition information being one of such aspects. Customers not only are aware of the fact that detailed information related to nutrients is given on pre-packaged food, **they also have the requisite understanding about the terminology used in the nutrition tables**.

Consumers, who are dealing with one or more lifestyle related health issues that are known to have a direct connection with the food intake, **judiciously use the information provided on the nutrition information panels** and base their purchase on the outcome of evaluating such information. At the same time, **consumers who do not have any specific issue related to health, are also aware and enlightened** regarding how the information provided on food labels about the nutrients present in the food, is to be understood and used while taking informed decisions leading to purchase of pre packaged food products. In fact consumers who claim to be not having Hypertension and High Cholesterol issues in their families use nutrition information more than the ones with these health risks. Companies use nutrition and health claims are powerful tools of promotion for their food products. The study confirms that **customers get influenced by nutrition and health claims** provided by companies as part of food labels, leading to purchase of food products although there is no difference among healthy and non healthy consumers in the usage of such claims while purchasing pre packaged food products.

5.3 Suggestions

The study provides enough evidence of increased awareness among consumers of prepackaged food products about the nutritional information present on the food labels.

- From this study it is clear that customers get influenced by nutrition claims that provide information in case of any specific ingredient specially useful for any specific category of consumers. But the present study also clearly shows that when asked about what more information customers would like to see on the food packets they do not only wish to know the usefulness of nutrients but are also willing to look at the other side. Thus it is suggested that in case of foods that contain any **ingredient not fit for consumption for any specific category of consumers,** a **separate and clearly visible warning** must be provided on food packets.

- The study comes out with a finding that the presence of preservatives is not considered important by consumers while making purchase decision which means that there is a lack of information among customers related to how preservatives may prove to be harmful to one's health. Thus, it is suggested that it must be made mandatory to mention the presence of preservatives on food packages. Although labeling requirements specify mentioning use of permitted colours and additives**, it must be highlighted as a warning that regular or excessive intake of food with preservatives leads to adverse health influences**. I**f not possible on the package, a separate pamphlet inside the food packages must specify the harmful impact that preservatives and colouring agents may have on one's health**.

- The study indicates that a sizeable percentage of consumers do not check the authenticity of the nutrition claims made on the food packets. It is mandatory for companies to substantiate any claim with relevant mention in nutrition table or providing information about the studies conducted to prove the claim. It is suggested that **consumers must check for any claims made by the companies as nutrition/health claims**. **Alert consumers in case of not finding relevant information by the company must refrain from buying such products** thus being healthy and responsible citizens.

5.4 Scope for further research

The availability of packaged food is no more a reality only for urban India. Packaged and branded food has reached rural parts of the country too and the demand for it has been consistently on the rise even in rural settings**. Research needs to be conducted to understand how nutritional information is used by rural population** where the probability of awareness and understanding of such information may be less.

Similarly as consumer behaviour varies a lot with social settings, research needs to be conducted **to understand the impact of food label information on the purchase decision of consumers belonging to smaller cities** too. Their expectations from the packaged food companies regarding labeling must be sought as those may vary from the ones who reside in a metropolitan area such as Mumbai city.

One of the limitations of this study has been that tests were not conducted on respondents for assessing their awareness or understanding related to nutrition information or nutrition and health claims. The **responses are their perceptions about whether they are aware or do they understand the information provided**. More exhaustive research would be required in order to be definitive about the consumers' perceptions being real. For that to happen, **research must be conducted to substantiate consumer's self proclaimed understanding of nutritional information with results obtained by actually putting them through tests to evaluate their understanding.**

As the new mandate by FSSAI, which is yet to be implemented, suggests colour coding there is need to conduct extensive research by the authority, any other trusted agency or individuals **about fruitfulness of colour coding as packaged food companies would be required to spend huge** in incorporating the recommendations associated with the colour coding of food labels.

Further research needs to be conducted to understand **in which manner nutrition related information should be disseminated to consumers who visit restaurants, hotels and specially fast food joints** where most of the food items fall under 'high fat', 'high sugar' and high salt' category. Whether information should be put on display boards, on menu cards or details to be provided 'on demand'.

The enthusiasm and inquisitiveness of **graduate and post graduate college students must be utilized by involving them in field work** for conducting researches on food and health as these are topics that they relate to and are also existing and potential buyers of food products.

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It is an attempt to get some precious bit of information from you. Something that must be of interest to you and of course to me-the researcher. The questions that follow attempt to get a better understanding about you as a consumer of pre packaged foods(here pre-packaged foods refer to ready to eat as well as food items that are somewhat processed), factors you consider while purchasing these food items and of course suggestions from your side for companies to present nutritional information on these packages in such a manner that you are able to use the information in a better way. I am sure that filling up the questionnaire would be as interesting to you as it would be for me to infer from your responses.

SECTION 1

Q1. Do you use pre-packaged foods?

Yes [ ] b. No [ ]

Q2. What information is present on the pre packaged foods? Put the appropriate letter in front of each option.

Always[A], Mostly[M],Sometimes[S],Rarely[R],Never[N], Can't Say[C]

a. Brand name	[ ]	b. Certifications(Such as FSSAI/AGMARK	[ ]
c. Best before/Expiry date	[ ]	d. Food additives/Preservatives[ ]	
e. Calorie content	[ ]	f. Specific Ingredients	[ ]
g. Nutrient information	[ ]	h. Nutrition/Health Claims	[ ]
i. Manufacturing Date	[ ]	j. Place of Manufacturing	[ ]
k. Salt Content	[ ]	l. Veg/Non veg Indication	[ ]
m. Marketed by	[ ]	n. Others_____	

Q3. Which information do you look for primarily on the food packages? Put the appropriate letter in front of each option.

Always[A], Mostly[M],Sometimes[S],Rarely[R],Never[N], Can't Say[C]

a. Brand name	[ ]	b. Certifications(Such as FSSAI/AGMARK	[ ]
c. Best before/Expiry date	[ ]	d. Food additives/Preservatives[ ]	
e. Calorie content	[ ]	f. Specific Ingredients	[ ]
g. Nutrient information	[ ]	h. Nutrition/Health Claims	[ ]
i. Manufacturing Date	[ ]	j. Place of Manufacturing	[ ]
k. Salt Content	[ ]	l. Veg/Non veg Indication	[ ]
m. Marketed by	[ ]	n. Others_____	

Q4. While shopping for pre packaged food items what do you consider important?

Not at All Important[N], Somewhat Important[S], Extremely Important[E]

a. Taste	☐	b. Price	☐
c. Best Before Date	☐	d. Manufacturing Date	☐
e. Calorie Content	☐	f. Nutritional Content/Ingredients	☐
g. Recommendation by doctor	☐	h. Advertisement	☐
i. Nutrition/Health Claims	☐	j. Place of Manufacturing	☐
k. Certifications(Such as FSSAI/AGMARK)	☐	l. Presence of Preservatives	☐

Q5. Do food packages have Nutritional Information Tables/Panels which provide information about the quantity of nutrients (such as carbohydrates, proteins, fats etc.)?

a. Yes, all food packages have nutrient information.
b. Only some types of food packages have nutrient information.
c. It is mandatory for all food packages to show nutrient content but still some do not have
d. Locally made pre-packaged foods may not have nutrient information.
e. I have no idea as I haven't checked ever

Q6. Do you look for nutritional information on food packages?

Always [ ] Sometimes [ ] Only the first time I buy the food item [ ] Rarely[ ] Never [ ]

Note: If you checked 'Never' in Q6 skip Q7 to Q10.

Q7. What information in the nutritional information panels do you look for?

a. Energy	[ ]	b. Fats	[ ]
c. Sugars	[ ]	d. Vitamins	[ ]
e. Minerals	[ ]	f. Sodium/Salt	[ ]
g. Proteins	[ ]	h. Fiber	[ ]
i. Cholesterol	[ ]	j. Others? Specify_____	

Q8. Do you understand the terminology and the units of measure (like per serving or per 100 g) given in the nutrition panel on pre packaged foods?

Yes [ ] No [ ] Yes,but not all [ ]

Q9. For whom do you look for Nutritional Information when you are buying prepackaged foods ?

a. Myself	[ ]	b. Children at home	[ ]
c. Aged at home	[ ]	d. Guests	[ ]
e. Someone recovering from illness	[ ]		

Q10. Do you find it difficult to understand the information present on the Nutrition Information Panels of pre packaged foods?

Yes, always [ ] No [ ] Yes,Sometimes [ ]

Q11. Why don't you read nutritional information on food packages?

a. Not in my habit, no interest [ ]
b. I lack nutritional knowledge, not able to understand the terminology [ ]
c. Font size is so small I find it uncomfortable to read [ ]
d. I don't have time to read it [ ]
e. I don't think it makes any difference to my health [ ]
f. I already know about nutrition in food [ ]
g. I am brand loyal [ ]
h. I don't think the information provided is reliable [ ]
i. If any other reason,
specify_____
_____

Q12. What would make you read Nutrition Information on food packages?

a. Nothing, I won't read nutrition information. [ ]
b. If labels are made easier to understand [ ]
c. If they are more visible, on Front of Packs [ ]
d. If I need to by food for children or some special diet status person [ ]
e. If there is a hype in media related to some specific nutrient/content [ ]
f. If recommended by doctor for/against some specific nutrient [ ]

Q13. You would like to have more of the following information on the packages…

a. Highlighted information about any ingredient that may be harmful. [ ]
b. An indication about for whom the contents may be specially useful or harmful [ ]
c. Information about how to interpret the values given on the nutritional content [ ]
d. If not possible on the package, a separate pamphlet inside the package giving all relevant nutritional information (as it is given with a few medicines). [ ]
e. Any other suggestion _____

Q14. Have you ever made your buying decision on the basis of the information on the nutrition table given on the pre packaged food items?

Yes [ ] Sometimes [ ] No [ ]

Q15. While buying pre packaged food products do you ever get influenced by the nutrition or health claims (such as 'High in Fiber', 'Iron rich', 'For stronger bones') made on the package?

Yes [ ] Sometimes [ ] No [ ]

Q16. Do you try to check the genuineness/ authenticity of the claims made?

Yes [ ] Sometimes [ ] No [ ]

Q17. In your family, food items are primarily purchased by

a. Me [ ]
b. My Spouse [ ]
c. Parents [ ]
d. Other _____

Q18. You buy pre packaged foods from

a. Malls [ ] b. Regular retail stores [ ]
c. Online shopping [ ] d. Others_____

Q19. Are you or anyone in your family facing any of the following health problems for which there are direct links of food intake with the health status?

Nutrition related Health problem	**Put a √ for Yes**
Overweight/Obesity	
High Blood Sugar/ Diabetes	
Hypertension/High Blood Pressure	
High Cholesterol/ Heart Blockages	
Allergies/Intolerances	

Q20. Which nutrient should you look for in the nutrition panel in relation to…(Put a √ at the right cell)

Health Problem→ **Nutrient↓**	**Overweight / Obesity**	**High Blood Sugar/ Diabetes**	**Hypertension / High Blood Pressure**	**High Cholesterol**	**Allergies / Intolerances**
Energy/Calories					
Sugars					
Fats(Transfats /Saturated fats)					
Proteins					
Fiber					
Cholesterol					
Salt/Sodium					
Additives					
Allergens					

SECTION 2

Q1. My name (optional)_____

Q2. My Age

Less than 20 years	[ ]	>20 years - 35 years	[ ]
>35years -50 years	[ ]	>50 years-65 years	[ ]
>65 years	[ ]		

Q3. I am a _____. (male/female)

Q4. My educational qualifications

a. No formal education	[ ]	b. Up to standard X	[ ]
c. Under graduate	[ ]	d. Graduate	[ ]
e. Post graduate or more	[ ]		

Q5. My family structure (Write the number)

a. Number of adults-more than 15 yrs of age (including me)_____
b. Number of children(less than 15 yrs of age)_____

Q6. I am

a. Single	[ ]	b. Married	[ ]
c. Divorcee	[ ]	d. Widow/Widower	[ ]

Q7. I am

a. Not employed	[ ]	b. In a job resulting in regular income	[ ]
c. Self employed	[ ]		

Q8. My monthly family income

a. Less than Rs. 10,000	[ ]	b. Rs. 10,000-Rs. 25,000	[ ]
c. Rs. 25,000-Rs.40,000	[ ]	d. Rs. 40,000-Rs.55,000	[ ]
e. Rs.55,000-Rs.70,000	[ ]	f. Rs.70,000-Rs.85,000	[ ]
g. Rs. 85,000-Rs. 1,00,000	[ ]	h. Rs. 1,00,000 –Rs. 2,50,000	[ ]
i. Rs. 2,50,000 –Rs.5,00,000	[ ]	j. More than Rs. 5,00,000	[ ]

Q9. My Food Preference

Vegetarian [ ] Non Vegetarian [ ]

Q10. My Family Type

Nuclear [ ] Joint [ ]

Q9. My Address: _____

THANK YOU