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IMPORTANCE OF NUTRITIONAL LABELLING ON PACKED FOOD ITEMS AND CUSTOMER'S BUYING PREFERENCE TOWARDS IT IN IRELAND

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ABSTRACT

Ireland stands in third place for the consumption of unhealthy and fast food over the past 15 years. This has boosted the rate of obesity and heart-related conditions in Ireland. After the implementation of Nutritional Labelling Law, many European countries have shown a positive impact on customer's buying and decision-making behaviour. The main objective of this study is to determine the use of nutritional labels and people's perception of nutritional labels in Ireland before buying pre-packed food products from supermarkets/grocery stores. Quantitative methodology is used to collect primary data. The design of the study is the cross-sectional design. A total of 135 responses were received within four weeks. Secondary data was collected from journal articles, books, news articles, websites. On average, three fourth participants reported that they take a look at nutritional information at the point of purchase. People in Ireland mostly prefer buying products with health claims like low fat, 100% natural, and high fibre. Customers also reported back-of-pack labelling easy to understand compared to front-of-pack labelling. The study also shows a positive association between nutritional labelling and healthy lifestyle. Furthermore, demographic factors like gender, age, income, education have a significant impact on the customer's decision-making process. More investigation is required because most people look at nutritional labels; most people understand content mentioned on nutritional labels; still, the obesity rate is increasing in Ireland. The government will need to implement new strategies, as mentioned in the study to educate people about nutritional labelling as most people read nutritional labels and want to live a healthy life.

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CHAPTER 1: INTRODUCTION

According to a news article, one in every four adults and one in every five kids are obese or overweight in Europe (Hutton, 2019). Professor Carel le Roux, head of pathology at University College Dublin and spokesman for the Irish Society of Nutrition and Metabolism (IrSPEN) stated that "among all countries in EU, Ireland is the one with lowest medical treatment" The Health Service Executive (HSE) ends up spending much of its economy on the treatment of obesity in Ireland.

According to the WHO (2002), a person with BMI (Body Mass Index) $25.\text{kg/m}^2$ considered to be overweight, and a person with BMI $30.\text{kg/m}^2$ is considered to be obese. The BMI of most people in North America and Europe is around $25\text{-}27 \text{ kg/m}^2$. It was further analysed that higher intake of free sugar and saturated fat has increased the rate of obesity in China, Eastern Europe, North America, Middle East and the UK since 1980. As per audit conducted in retail stores across Europe, it is being observed that the shell space devoted to processed food which contains a high level of saturated fatty acids, sugar and salt largely exceed then the space allocated to healthy eating (Kelly and Jewell, 2019). It was also noticed that generally one-quarter of food purchased by household across Europe is processed food and there also exist a direct correlation between the families purchasing high processed foods are ones with the high level of obesity.

The obesity rate in Ireland is increasing at a rapid pace, and few responsible factors are, country's economy, expeditiously growing fast food industry and people's attitude towards the diet. HSE Ireland surveyed in 2016, and they found out that overall, 60% of people are suffering from obesity among which 37% are overweight and the remaining 23% are obese (Health Ireland Survey) (Ipsos, 2016). HSE also observed that 91% are willing to improve their health by adopting a healthy lifestyle Ipsos (2016). This shows that the idea of implementing nutritional labelling as a tool was executed long back. Hence, now it is essential to find the customer's attitude towards nutritional labelling and their knowledge about it. Therefore, this research will help to contribute to the pre-existing study on the subject as well as will be very

helpful to get the latest perspective towards customer's understanding of nutritional labelling.

So, the aim of this research (title) is '**Importance of Nutritional Labelling on packed food items and customer's buying preference towards it in Ireland**'.

A healthy lifestyle can be adapted through consuming healthy food, proper exercise. Reading nutritional labels on food packages plays a very vital role in it. Hence, the study of nutritional labelling and public perception towards it is essential. Nowadays, many large-scale food chains such as McDonald's are actively adopting nutritional labelling to help their customers make informed and healthy buying decisions (Samsundin *et al.*, 2011). The science of nutrition was the source to evolve nutritional labelling. This term 'Nutritional Labelling' emphasises on the nutrients and its critical role in an individual's daily food intake (Scott and Worsley, 1994).

According to Melia and O'Regan (2019), the rate of obesity and overweight has increased two-third times from 2015 till 2017. To control the economic spending on overweight and obesity (which costs in billion in most of the western countries), nutritional labelling on a packed food item is considered a most effective tool to encourage people in choosing healthy food.

1.1 RESEARCH BACKGROUND

Thomas (2018) has stated in one of the articles (in Journal.ie) that one in every four kids in Ireland is obese and or overweight. This is considered to be a significant problem because these children might persist in their obesity and/or overweight in the coming age. Alan Farrell (Chair of the Oireachtas Committee on Children and Youth Affairs) has stated that providing appropriate knowledge (regarding food the young generation select), skills and necessary support to children can help them to adopt a healthier lifestyle in the present and will continue in future (Thomas, 2018).

A study carried out by Trinity College Dublin (TCD) in 2018 detects that the immune system of the obese population is not strong enough to fight cancer (McDermott, 2018). 1.9 billion of the adult population (around the globe) is obese and/or overweight. This had led to a booming rate of Type-2 Diabetes and heart-related diseases. Out of all types of cancers, half of the tumours are connected to obesity. Immune surveillance system (cells which fight cancer) struggles to fight cancer due to

surplus fat level in the body. The Annual Heart Ireland Survey analyzed that people in Ireland have the wrong perception about their health (Hennessy, 2017). One in every five people smoke, one-third of Ireland's population consumes alcohol, and more than half of the country's population (60%) is overweight. Even though knowing all these figures, the result was shocking. 84% of people assume that their health is either good or excellent.

It is a mandatory practice in the European Union to provide nutrition information on pre-packed food items (Gomes *et al.*, 2017). It is very challenging to explain to consumers that diet and health go hand in hand. It was being observed that nutritional information (labelling) on packed food proved to be very beneficial in changing customer's buying behaviour. Nutritional labels supply correct information about the pre-packed food at the point of purchase which benefits the consumer to make a healthy buying decision. Many studies have shown that younger people and consumers belonging to middle age group (compared to people of other age groups) make use of nutritional labelling at the point of purchase (Campos, Doxey and Hammond, 2011). People ranging from the age group of 22 to 54 years old were found to be using nutrition labelling more often than people ranging in the age group of 55 years and above (Kerr *et al.*, 2015).

H₁: Customers belonging to younger-age and middle-age groups look at nutritional labels to buy healthy food items.

Taking a glance at the current situation, it has been discovered that, in France, UK and United States (US) overweight and obese people were at higher risk to be affected by pandemic COVID-19 (Cavendish, 2020). The COVID-19 virus attacks the lungs, but it has been analyzed that more body fat is considered as a matter of concern even more than smoking or lungs and cardiovascular diseases. The above statement states that obese people are more vulnerable to COVID-19 and other diseases; there is another perspective to this situation.

1.2 RESEARCH PROBLEMS

Many studies have shown that obesity rate in Ireland in increasing rapidly. It is essential to reduce obesity as it leads to many diseases like cancer, diabetes, cardiovascular diseases. One of the most effective tools to reduce the obesity rate is nutritional labelling. Previous studies have shown that most people in Ireland are

aware of nutritional labelling on pre-packed food items. Still, it is essential to find out how many people actually (in real life) read nutritional labels before making a food buying decision. According to a study carried out in 2015 in Ireland, the price was considered as the most crucial factor while buying a food product (Broderick, Bouchier-Hayes and Larkin, 2015). This shows that people are concerned about money over health. The current study will try to find out different socio-demographic factors associated with the customer's decision-making process. This research can be a small source to reduce the rate of obesity and heart-related diseases in Ireland. The main of this research is to find out up to what extent people understand nutritional labels and use nutritional labels to make their buying decision.

1.3 RESEARCH AIM AND OBJECTIVES

To find the importance of nutritional labelling in Dublin and customer's buying preference towards it, the aims and objectives of this study are as follows:

1. The main aim of this study is to find out up to what extent do people consider nutritional information as a part of their daily diet choice.
2. To find out whether the consumer implements his/her knowledge about nutrition before making a purchasing decision.
3. To find out obstacles faced by the consumers in interpreting nutritional information.
4. To find out whether front-of-pack nutritional labelling is more effective, or the back-of-pack labelling is more effective in Dublin, Ireland.

1.4 RESEARCH QUESTIONS

1. Has the regulation of nutritional labelling on packed food products been a vital source in keeping consumer informed/aware and make changes in their buying behaviour?
2. Among various factors, personal/individual and or sociodemographic, which factors have a significant impact on the processing and interpretation of nutritional labelling information?
3. Do customers look at Nutritional information? And which customers look at nutritional information?
4. What is customers perception towards nutritional warning? And does it affect their purchasing behaviour?

1.5 RESEARCH STRUCTURE

The structure of this study consists of 7 chapters with main topics and their sub-topics. The first chapter is the introduction, and this amplifies on the background of the study, research problems, aims and objectives of this study, research questions. The literature review is the second chapter of this project. This topic concentrates on the previous studies carried out in the same area. It gives detailed knowledge about the obesity, reasons and problems of obesity, different types of nutritional labels used around the globe, customer's perception towards nutritional labelling, various factors which make an impact on customer's decision-making process.

Third and the most important chapter is the research methodology. In this chapter, one will find an in-depth explanation of, research approach, research purpose, design and methodology, methods of data collection, different tools and techniques used for data analysis, utilised for this study. It also emphasises on the sample size used for the primary data collection. Ethical consideration, pilot study and limitation (which research came across while working on this project) are also the parts of chapter three. Followed by research methodology is finding, which forms the fourth chapter. This chapter focuses on answering the research questions. A detailed explanation is provided about the finding obtained from different tests performed. All numerical and analytical data are explained theoretically.

The fifth chapter is the discussion; this part concentrates on finding out up to what extent the already existing data (secondary data) matches with the primary data. The new analyses made from the survey collected has been discussed in this chapter. Conclusion forms the sixth chapter of this study. This part gives over-all gist of the primary and secondary data. Some recommendations are also made in this chapter. All the sources used in the study are presented in the seventh part, which is the references.

CHAPTER 2: LITERATURE REVIEW

2.1 THEORETICAL BACKGROUND

Nutrition-related non-communicable diseases are increasing rapidly throughout the globe (Mandle *et al.*, 2015). Heart-related diseases, cancers, respiratory diseases, and diabetes are considered as nutrition-related non-communicable diseases (WHO, 2013). One main factor which is responsible for the rise of nutrition-related non-communicable diseases is an unhealthy diet. Many people worldwide are adapting the 'Western Diet' which is choosing pre-packed food items over homemade food. Due to the increase in the nutrition-related non-communicable diseases, the Government started enforcing effective policies. Nutritional labelling mentioned on the pre-packed food items is one of these policies.

According to Borgmeier and Westernhoefer (2009), the concern toward obesity and other diseases relates to overweight are spreading globally. Among the whole population of Europe (in the year 1985-1999), 1.6 million people were categorised to the age of 15 years and more. As per the author, almost half of the population at that time was obese, and more than half were overweight as per the IBM data 1985 -1999. Though data was old but alarming situation started from that time. Thus, to overcome the numbers, WHO placed the law which instructed to place nutrition information on packed food which can help the customer to choose ingredient as per their healthy diet. In October 2008, the European Parliament implemented new regulation, Regulation (EU) No. 116/21, which made nutritional labelling mandatory in Europe. In December 2014, nutritional labelling became compulsory on all pre-packed food items (printing nutritional information on pre-packed food was already started from 2008). Later, after two years (i.e. December 2016), nutritional labelling became compulsory on all other food packages as well (Gomes *et al.*, 2017). Many researchers have disclosed that nutrition information has made an adverse effect on customer buying behaviour by changing their product from an unhealthy option to a healthy one. Looking at the nutritional information, the customer considers purchasing product based on its nutritional value (Azman and Sahak, 2014).

Nutritional labelling is one source through which any consumer can acquire information about food product they wish to buy. There are a growing need and importance for nutritional labelling because of lack of direct contact between

consumers and manufacturers. So, nutritional labelling helps customers to purchase healthy food options (Wandel, 1997). There exists perplexity between the desire to provide consumers with detailed knowledge about the food products on the one hand and also not keeping that confusing which will be difficult for the consumer to interpret. The study carried out by Chen, Liu and Binkley (2012) showed that women compared to men are more conscious towards the nutritional values in the food they eat. Also, women state that nutritional labelling has a positive impact on making their food buying decision (Campos *et al.*, 2011).

H_2: More women, compared to men, make use of nutritional labelling on packed food items at the point of purchase.

2.2 OBESITY

The survey collected from seven different regions around the globe showed that BMI (Body Mass Index) of humans have started rising rapidly (Finkelstein *et al.*, 2012). They also stated that the risk of obesity had become a matter of concern from the 1970s. As BMI increase, so does the diseases related to obesity increases (WHO,2020). A study carried out in America by Cohen and Babey (2012) demonstrated that people have personal beliefs, and it is under their ethic that every individual is responsible for his/her own decision and action. Which ultimately means that they are accountable for the unhealthy food choices they make. So, it has been predicted by many researchers that by 2030 the large population of America will be obese (Finkelstein *et al.*, 2012). Obesity level is not only rising in adults but also many small children (Gregor and Hotamisligil, 2011). The rapid increase in obesity among children has created a panic situation for the Government in America. Thus, obesity and diseases related to it are not only in America but has become an alarming situation on public health globally.

The research carried out in Ireland revealed figures that obesity in Ireland is increasing rapidly, so much so that one in every four children are obese (Geaney *et al.*, 2015). As discussed earlier as well, Delfraissy (Epidemiologist Chief in France) stated that obese people had more risk to be affected by pandemic COVID-19 (Rathborn, 2020). Further, Lee (2020) said that 48.3% of people who were admitted in hospital due to COVID-19 (in March 2020) were obese. Overweight and obesity have more chances to be affected by the coronavirus and other worst diseases. The worst situation in the

United Kingdom was raised when Prime Minister Boris Johnson was affected by COVID-19. Also, many cabinet members showed COVID-19 positive report. Later, doctors analyzed that, Boris Johnson's situation became critical due to his overweight (Middleton, 2020).

Other diseases like diabetes type-2, cardiovascular, breathing problems, hepatic steatosis, neurodegeneration, biliary, cancers, all these are either totally or partially connected to obesity (Gregor and Hotamisligil 2011). Obesity is not only affecting individual physically, mentally and financially, but it also affects the Government employers, insurance financially (Finkelstein, Strombotne and Popkin, 2010). Further, the study conducted by these researchers revealed that it costs around $21,500 for level 1 to $29,460 for level 3 for the treatment of obesity per individual. Walsh and Pilgrim (2017) stated that in Ireland, obesity costs around approximately €16000 for an individual's treatment. In Northern Ireland, the costs go around £18000/person. So, the World Health Organization stated that nutritional labelling on a pre-packed food product is the most effective tool to control this (rapidly rising obesity level) situation (WHO, 2018). Easy to understand nutritional labelling can change a customer's choice from unhealthy to healthy food.

2.3 TYPES OF NUTRITIONAL LABELLING

The significance of nutrition labelling has been noticed by some of the great organizations and authorities like Codex, who adopted its original guidelines on nutrition labelling in 1985 (Food Safety Authority, 2010)**.** Nutrition labelling implementation varies as per nation like in the United States it's mandatory to have to nutritional labelling on all pre-packed food. At the same time, in Asian countries like Malaysia and Thailand, it is compulsory to have food labelling only for some specified food product. While in Europe, it is a voluntary decision to have nutritional labelling or not; however, it is compulsory if there is a nutritional claim on a product label. If a voluntary decision is made, then it should be implemented as per the legislative requirements.

The federal government placed law that 98% of the packed food product must have nutritional information mentioned on their panel. In Europe, about 84% of packed food items have nutritional information mentioned in it (Miller and Cassady, 2015). Initially, providing nutritional information on packed food was started by the high

growing economic countries like USA, Canada, UK and Australia (Campos *et al.*, 2011).

According to the US Food and Drug Administration (2013), nutritional information must be present in the second language as well. The information in the second language can be mentioned in the same table or on a separate table (followed by the translation of the same information in the English language also). Writing nutritional information in a foreign language helps those consumers to understand the information who cannot read, write English.

Due to fast-growing need for nutrition information on packed food, the federal government placed the order to put the nutrition information at the back of the pack. Gradually, with the increasing demand (of nutritional information on food packages), the information was printed on the front of the pack as well (Hersey *et al.*, 2013). Additionally, the manufacture and retailer who participated in this policy came up with multiple symbols and icons which flooded the market with different types of food labels.

Nutritional food labelling on packed food items can be categorised in two ways (Feunekes *et al.*, 2008)**:**

I. Detailed nutritional labelling which focuses on the critical nutrients present in the food item more conveniently.
II. Simple labelling format which provides information in such a way (symbols) which consumer can absorb very quickly.

Consumers do not even invest a minute but just takes seconds to make a purchase decision at the supermarket. Further, it was observed that buyers just take a quick look at nutritional labelling on packaged foods without interpreting it. It was being analysed through this study that; front-of-pack labelling will aid in making a healthier decision by embodying valuable information which is easy for the consumer to understand.

As Andrews *et al.* (2014) explains, front-of-the-pack labelling has three types of effects on the buyers:

I.   Short term effect
II. Intermediate effect
III. Long term effect

Focusing on buyer's short-term effect is front-of-pack boosts the awareness about the importance of nutritious food. The intermediate result is encouraging customers to understand about the different types of nutrients, and long-term outcome is front-of-pack labelling helps buyers to improve their dietary habits from unhealthy to healthy. Front-of-pack labelling is not only limited to these three effects but also shows an overall impact on the consumer as it (front-of-pack labelling) helps reduce obesity and heart-related diseases.

H₃: Most of the customer feel that the front of pack labelling is easy to understand.

The study carried out in New Zealand by Scott and Worsley (1994) showed that consumer finds it easy to understand descriptive format labelling (like high, medium, low) compared to the traditional numerical format labelling. This study also stated that using pictures and graphs on the label decreases processing load.

Guideline Daily Amounts (GDA), which indicates the amount of sugar, calories, saturated fat in grams and percentage and the Wheel of Health is considered as detailed labelling formats (Borgmeier and Westernhoefer, 2009). According to Weinehall *et al.* (2001), Green KeyHole (which was initially known as Norsjo heart symbol and was renamed in 1989) is considered a simple symbol labelling format. Also, other formats like, Shop Smart with Heart, Pick the Tick was also regarded as simple symbols.

The Colour-Coded GDA Labels (CGDA), this format is the same as the above mentioned GDA format. The additional feature in this format is that along with nutritional ingredients (mentioned on the package), green, amber, and red coloured symbols are also printed. These colour symbols are similar to the traffic light format (Borgmeier and Westernhoefer, 2009).

2.4 DIFFERENT TYPES OF FRONT-OF-PACK LABELLING FORMATS ACROSS EUROPE

The Traffic Light labelling format was implemented in the UK in June 2013 (WHO, 2018a). The UK was part of the European Union for 47 years and left the EU on 31st January 2020 (The Editorial Board, 2020). It was being analysed that people found it very easy to understand this format compared to other forms. This labelling style

consists of green, amber, and red colour coding. Food industries and companies can also use terms like low, medium, and high. It took 12 long years to execute this format.

Nutri-Score labelling format is used in France (WHO, 2018a). The colours from green to red and letters from A to E indicates how nutritious a particular product is. People who face difficulty in identifying colours uses letters from A to E. The content of energy in Kilo Joule, Sodium in milligram, total sugar in grams, saturated fatty acids in grams are indicated by positive points from 0 to 10 on the scale. On the other hand, nutritious ingredients like fruits, fibre, nuts, vegetables, proteins are indicated by negative points from 0 to 5. So, the scales consist of numbers from -15 to +40 where -15 is considered to be very healthy, and +40 is deemed to be least healthy option respectively.

Finland uses Salt Warning labels and symbols like 'Better Choice' heart symbols (WHO, 2018a). Printing content of salt and also salt warning symbols on the pre-packed food products has been a mandatory practice in Finland from 1980s. The heart symbol on the food package symbolises that the particular product in its product group is a better option for their health (Lahti-Koski *et al.*, 2012).

Nordic Keyhole labelling format has been used in many countries like Norway, Denmark, Sweden, and Iceland. This labelling helps consumers to understand that the product (which he/she tend to buy) has a certain amount of fibre, salt, sugar, and fat which is essential. Customers find this labelling very convenient.

2.5 CUSTOMERS BUYING PREFERENCE TOWARDS NUTRITIONAL LABELLING

The study carried out by Cowburn and Stockley (2005) revealed that the majority of consumers found nutritional labelling very useful while purchasing the product they were unaware of. This helps them to make healthy and right buying decision. According to Wandel (1997), most people in Western European countries pursue a healthy and nutritious diet. This chases them to make a healthier food choice. A healthy lifestyle is considered the dynamic force that attracts people to read nutritional labelling on packed food. The consumer who is already equipped with following healthy diet used nutritional labelling as a means to make a healthier choice (Azman and Sahak, 2014).

The use of nutritional labelling is very high in Europe. 60% of the EU population claims to make regular use of nutritional labelling before purchasing packed food (Kerr *et al.*, 2015). This study has further stated that people who believed and understood the importance of following a healthy diet and who want to include a high intake of iron, fibre are the ones who

It has been commonly observed that people suffering from non-communicable diseases like diabetes, hypertension, heart diseases, tumour highly use nutritional labelling to choose and purchase food product as recommended (Kerr *et al.*, 2015).

In the last decade, many researchers have developed several methods to help consumers to familiarize nutritional labelling if they are willing to change their purchasing behaviour. Abdul Latiff *et al.* (2016) conducted research based on consumer's attitude towards purchasing food products. It is believed that consumer attitude directly affects the purchasing decision he/she makes, and it is possible to educate consumers about nutritional labelling by changing their attitude towards it. Authors further analyzed that different parameters relate to consumer attitude such as beliefs, knowledge, emotions, and behaviour (see Figure 1: Influence of consumer attitude on nutritional labelling (adapted and improved from Abdul Latiff et al., 2016).below). It is possible to implement an understandable nutritional labelling format by studying these parameters.
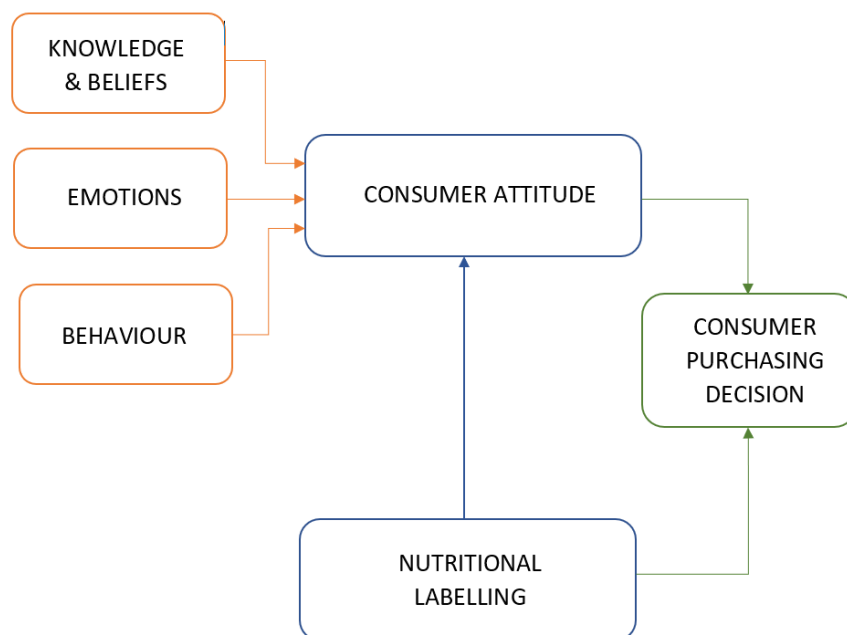
Figure 1: Influence of consumer attitude on nutritional labelling (adapted and improved from Abdul Latiff et al., 2016).

Dr Susan H. Babey from the University of California conducted similar research to do a behavioural analysis of consumers while purchasing food products (Cohen and Babey, 2012). Dr Babey proposed a dual processing theory which states that consumers use two different systems to process nutritional information, one is cognitive and second is in-cognitive. The cognitive system is when an individual invests a lot of time and effort to make a decision. Individual compares positive and negative side before making any kind of choice. On the other hand, non-cognitive means when an individual makes a decision based on a quick response. It was also stated that most of the consumers think cognitively while purchasing, which creates an inverse impact on their health results in rising health problems (Cohen and Babey, 2012).

Eating habits play a significant role in consumer's decision-making choices when it comes to purchasing pre-packed food. In last few decades, many studies have proved that eating habits, negligence are also one of the significant contributors to the lack of awareness in nutritional information (Yahia *et al.*, 2008; Hayes and Ross, 1987). According to Koenigstorfer and Groeppel-Klein (2010), eating habits can be changed by incorporating a proper and controlled diet, changing brands which have healthy nutritional elements and serving sizes mentioned on the labels. An awareness about nutritional information can be spread by using different media channels, social networking and through other possible mediums. The nutritional knowledge in youngsters can be incorporated in various environments such as schools, colleges, playgroups and homes (Brown, McIlveen and Strugnell, 2000). In other age groups, awareness can be spread through television advertisements, newspapers, and social media on the internet. Handling an individual's life balance is a difficult task hence, individual needs to deal with nutrition and healthy food options on one side and elements such as taste, shopping limit, pricing, is on the other hand. It has been suggested that it is essential to spread awareness and educate people about nutritional information so it can be adopted into their daily life (Aygen, 2012).

Sanlier and Karakus (2010) conducted a small experiment with a group of people to test that after educating them with the nutritional information, whether they were able to choose healthy food options or not. A survey was collected after an informative lecture about nutrition in food products and nutritional labelling. They concluded that most of the people from the group were able to choose healthy product with specific

nutritional information on them and also successfully able to calculate the servings per day.

2.6 DIFFICULTIES FACED BY CUSTOMER IN UNDERSTANDING NUTRITIONAL LABELLING

Nowadays, in this urban lifestyle, everyone wants to save time in shopping. Customers have a lot of choices when it comes to choosing a specific food product. Factors such as taste, price, design of the product, brand, nutritional information etc. affect consumers purchasing preferences, and usually, they end up buying unhealthy food products (Kempen *et al.*, 2011).

Barreiro-Hurlé, Gracia and De-Magistris (2010) researched in Spain to find out public perception towards nutritional information while purchasing packaged food products. They concluded that there are two categories of people, one who likes to follow a healthy lifestyle and has a high standard of living, pay more attention to nutritional information and others are, people who have less awareness in labelling tend to ignore nutritional information while purchasing.

Majority of consumers in USA, Australia, New Zealand, Europe finds challenging to process numerical and technical representation of nutritional labelling on back-of-pack labelling (Azman and Sahak, 2014; Cowburn and Stockley, 2005). Consumers well understood the concepts like fat, calories, sugar, salt, vitamins (present on packed food) but on contradictory consumers do not understand the relationship between two different nutritional combinations, for example, sodium and salt, sugar and carbohydrates, calories and energy.

The serving size mentioned on packed food is difficult for consumers to decipher (Cowburn and Stockley, 2005). After analysing the difficulties faced by the purchaser to read and figure out nutritional labelling, Azman and Sahak (2014) stated that it is very decisive to simplify the format of labelling. They further advised that buyers highly prefer front-of-pack labelling. With multiple new formats of labelling, consumers find it challenging to understand and follow the information. Therefore, most people use nutrition labelling information to compare two different products while purchasing (Gomes *et al.*, 2017). A survey conducted in Ireland (in the year 2007) revealed that most of the people were unaware of the units of salt and sugar they consume every day (Grunert and Wills, 2007).

Also, sometimes people get distracted from the nutritional information on pre-packed food. Experimental research was conducted by Cohen and Babey (2012). A busy supermarket was chosen to put two different kinds of microwaved popcorn boxes, one with trans-fat and second with low calorie and fats. A survey was also conducted based on people's choices. They concluded that most of the customers chose popcorn boxes with a less nutritional claim, but they were concerned about the change in taste. Additionally, they found that few people also considered the image and quality of the product over nutritional claims.

Advertisement and price are also a few of the major influential factors in consumer's food choices. Studies state that majority of people who live in the family are influenced by advertisement and the price of the products. On the other hand, people who live alone or single showed a positive inclination towards choosing healthy food and aware of nutritional information (Osei, Lawer and Aidoo, 2013). Customers from developed countries are more likely to prefer food products which have nutritional information on it (Mandle *et al.*, 2015). The United State Department of Agriculture has put a lot of efforts to improve the eating habits of people (Chen *et al.*, 2012; Campos *et al.*, 2011). But it seems that the income level of a house is associated with eating habits. Homes with low income tend to eat food with little nutritional values. It was also analyzed that people with high income select the food which contains low calories.

H$_4$: Most people with high income prefer to buy nutritious food after reading the nutritional information present on the pre-packed food items.

A study carried out by Crockett *et al.* (2011) in the United Kingdom demonstrated that it is possible to prevent around 70,000 premature deaths just by changing eating habits (using nutritional information at the point of purchase). It was further interpreted that sometimes people try to adopt a healthy diet and choose healthy, nutritious options, but they find it challenging to continue such habit. Another reason which makes consumers challenging to stick to a healthy diet is, pre-packed food products are easily and readily available. Hence, people tend to prefer poor quality and low nutritious food.

Looking at the industries and companies' response to nutritional labelling, Mandle *et al.* (2015) stated that there is a mixed proof of companies and food industries reaction towards the nutritional labelling law. Most of the food industries support this

regulation. Nutritional labelling law can encourage food industries to transform from unhealthy food production into healthy food production. This can be achieved by changing unhealthy ingredients to nutritious ingredients. In Finland, heart symbol was invented in 2000 by the joint work of the Finnish Heart Association (FHA) and the Finnish Diabetes Association (FDA) (Lahti-Koski *et al.*, 2012). Food companies in Finland had to purchase the right to apply the heart symbol on their products. Food companies and food industries had to pay around €100 to €500 for each product. This practice was not invented for any profits.

2.7 FACTORS INFLUENCING CUSTOMERS TO USE NUTRITIONAL LABELLING

Hieke and Taylor (2012) have stated that there is a significant difference between facilitating customers with very competent, useful nutritional information and use of that information made by customers. The different factors like interest, label format, knowledge, demographic, perception, influence the customers to purchase the food packages with nutritional information mentioned on it (Gomes *et al.*, 2017; Grunert and Wills, 2007). Thus, factors like these (mentioned above) shows a direct link between customer's decision making and nutritional labelling. Another thing which affects the consumer's buying preference depends on what that consumer is searching for. The more the nutritional information is presented or advertised on the packed food (for example, units of vitamins, calcium, calories etc.) the more it becomes accessible to the customer to make his/her purchase decision. The further author has stated that individual's search (regarding healthy food option) depends on his/her attitude (towards health), situation, behaviour and the way of product is displayed (Petrovici *et al.*, 2012).

Knowledge of nutrition is also considered one of the critical factors which influence the customers to buy the pre-packed food (with nutritional labelling on it) (Gomes *et al.*, 2017). In most of the previous research, many researchers have stated that customer knowledge toward nutrition information was not the aim of the study (at many occasions), but this factor was always presented in the background which influences customer buying behaviour (Gomes *et al.*, 2017; Grunert and Wills, 2007). A survey carried out showed that consumer shows his/her labelling and nutritional knowledge by choosing the food product as per the diet they follow and food recommendation. For example, some people look for the labelling, which indicates the

content of low fat, saturated fat, sugar. In contrast, some buyers look for calorie content as it is easy to understand.

It is also observed that demographic factors and nutritional information showed some positive and also some negative impact on customer's buying behaviour (Hieke and Taylor, 2012). Demographic factors such as lower level of education, income and people belonging to smaller age group found it trouble-some to understand the complex terms used on food labels (Cowburn and Stockley, 2005). Three elements which drive purchaser to neglect from reading the nutritional information on the packed food are a shortage of time, unable to understand complicated terms and concepts used on labelling and the size in which nutritional information is conferred on the package. It was found that most women's who were highly qualified and with high income paid more interest on the nutritional label, while it was observed that men paid less attention and gave less interest in it.

It was observed that the use of nutritional label increase with age also with high education mostly, it is noted women highly use nutritional labelling as compared to men (Kerr *et al.*, 2015). About 12.3% of consumers never looked at expiry details and Genetically Modified foods (Azman and Sahak, 2014). If education was considered, people who are highly educated used nutritional labelling as a source for choosing their product more often than less educated people. A study carried out by Lahti-Koski *et al.* (2011) has shown that people with higher education have a better understanding about the nutritional values and are well aware of the heart symbols on the packed food items. Many previous studies have also shown that people with higher education tend to make more use of nutritional labels (Campos *et al.*, 2011).

H₅: People with higher education have more knowledge of nutritional labels and show a higher tendency to purchasing pre-packed food items after reading nutritional information.

Acton and Hammond (2020) stated that in Canada pre-packed food products which contain a high quantity of saturated fats or sodium, energy drinks which contains high caffeine and Sugar-Sweetened Beverages (SSBs) have high health-oriented taxes. This strategy had a very positive impact on the buyer's decision as people decreased the purchase of packed food items containing high sugar and calories (as they were highly taxed).

An experimental study was carried out in China to find out whether consumers use nutritional labels for purchasing familiar food products (Zheng, Xu, Wang, 2011). They concluded that Chinese consumers do not use nutritional labels often while buying food products. Zheng *et al.'s* (2011) study proved that it is not caused by negligence but the lack of awareness, education, and lack of promotion through Government. Additionally, they also concluded that consumers give more importance to the quality, quantity, and safety of the product rather than nutritional information. The consumer must gain awareness and understanding of nutritional labels to choose healthier options while purchasing food products. A study was conducted by Aygen (2012), in Istanbul to find out how Turkish consumers understand and make use of nutritional labels. It has been analyzed that people neglect to check the nutritional information on their daily routine food items. The author specifically emphasized on religious and cultural factors such as most of the Islamic community in Turkey have large claim and affection towards meat that is only considered as 'Halal'. Thus, religious and cultural beliefs are one of the significant influencers in awareness of nutritional information and directly make an impact on consumers choice of food products while purchasing.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 RESEARCH APPROACH

The researcher needs to know what approach he/she is going to use for conducting a study. Deductive and Inductive are the two main types of research approach (Ali and Birley, 1998). Deductive starts for a necessity to examine the already existing theory, and inductive starts to develop a new theory. In the current study, the researcher has used a deductive approach. The deductive approach begins with studying the already existing theories, developing hypothesis from those theories, collecting data through different methods, findings, testing hypothesis and lastly revising the whole theory (Bryman, 2004). The inductive approach is another way around; the theory is developed from the findings and observations.

3.2 RESEARCH PURPOSE:

The main objective of this research is to enlighten people that nutritional labelling is a handy and essential tool to select healthy pre-packed food items which ultimately leads to a healthy lifestyle. The primary focus of this study is to find out customer's perception towards nutritional information present on the pre-packed food items. This research concentrates on the customer's preference and their buying behaviour towards nutritional labelling. It was essential to carry this research in Ireland because a survey carried out in Ireland from 2001 until 2017 showed that eating habits and food choices of people have massive changed (Pope, 2017). About 77% of people in Ireland prefer purchasing food items which are easy to cook and about 69% of people select the food which can be prepared quickly. Almost half of the people surveyed (50%) stated that they prefer buying pre-packed food items. Even though huge Ireland's population go for easy cooked, pre-packed food items, 40% of the people surveyed were aware that this kind of food items are made from low-quality ingredients. So, this research will help people to select healthy food items by just taking a glance at the nutrition labelling. Pope (2017) also stated that 31% of the participants were convinced with the pre-packed food items and addressed that pre-packed/easy to cook food items are worth the money paid. Also, very few (only 20%) of the participants enjoyed cooking food during weekdays, which means that most people opt for pre-packed food items. Taking all this into consideration, the researcher felt a need to carry out this study in Ireland. This study will help to aware such

(scenario as mentioned above) people about the importance of nutritional labelling. The targeted participants were under the age group 18-70 years old. Participants approached were randomly selected. As the google form was uploaded online, so it was way available to everyone. But correctly, to choose people living in Ireland and people above age 18 years, two screening questions where been asked to the respondents at the very beginning of the survey. The primary purpose of this research is to test the hypothesis. The hypothesis based on the previous studies' results and findings.

3.3 RESEARCH DESIGN & METHODOLOGY:

According to Gelo, Braakmann and Benetka (2008), quantitative methods help to collect the psychological data in quantity, numbers and statistics. The advantage of using quantitative methodology is that large sample size can be used, and this methodology helps to find the correlation between different variables (Campos *et al.*, 2011). The main difference between quantitative and qualitative methods is the way data is collected and analysed (Gelo *et al.*, 2008).

According to Mann (2003), there are three main types of observational study patterns which research can use. They are as follows: Cohort, Case-Control, and Cross-sectional. Cross-sectional is primarily used to observe the commonness within the population. This study is also considered less expensive and consumes less time. Therefore, chosen the study design is the analytical cross-sectional. This study design will allow the researcher to analyse the factors responsible for awareness of nutritional labelling and how they are affecting on consumer's decisions to buy prepacked food products.

For this study, the researcher has used the quantitative methodology in which online survey technique is utilized to collect data for random participants using a questionnaire set. The research carried out by Tierney *et al.* (2017) has used the same technique to collect data. The authors used quantitative methodology, and the online survey approached to collect data for the research. Also, the age group selected for this study was between 18-75 years. Further, Buchanan and Hvizdak (2009) have stated that the online survey helps the researcher to execute and further forward the study to his/her respondents in a very user-friendly and convenient manner.

The online survey is further considered to be the very effortless and economically sound technique to collect data for participants (Regmi *et al.*, 2016; Buchanan and Hvizdak, 2009). Also, it becomes very convenient for the researcher to manage the collected data and transfer it to different software's like SPSS, Excel, and so on for further analysis. Therefore, this current study has used a similar technique to collect data.

3.4 METHODS OF DATA COLLECTION:

The current study is based on primary data and secondary data. Primary data was collected by conducting an online survey, and secondary data was gathered from news articles, journals, books, websites.

The researcher has used quantitative methodology to collect primary data. For the current study, self-administered mode of online survey technique was being utilized. The survey carried out by Tierney et al. (2017), published their research on Survey Monkey to collect responses from the participants. Screening question was asked at the very beginning of the study to ensure that all respondents were above 18 years. Before publishing the survey online, the authors (mentioned above) conducted a pilot study. The current study has used designing of questionnaire set, instrumentation, and few questions from Tierney *et al.* (2017).

In the same way, the current study published an online survey on the google form so that it could be accessible to respondents. Two screening questions were asked at the very beginning of the survey to ensure that all participants were residing in Ireland and were above 18 years. Before publishing a survey on the online platform, the researcher conducted a pilot study by forwarding the questionnaire set to four (n=4) random participants. Changes in the questionnaire set, designing of the questionnaire set, and the approach used to collect data was made based on the feedback received from the pilot study. Finally, the questionnaire set was published on the Google form and promotion of this survey was done on social media sites such as Facebook, LinkedIn.

Also to get all required information from the participants, the researcher has also referred to seven more studies of- Dudhate (2017), Thakur, Mehta and Gupta (2017), Ambak *et al.* (2014), Osei *et al.* (2013), Aygen (2012), Sanlier and Karakus (2010) and Singla (2010). To take questions directly from these already published papers,

researcher emailed authors of all seven papers to seek permission. Out of seven, three authors reverted and granted permission to use questions from the questionnaire set.

The questionnaire set consists of all close-ended questions. The questionnaire (of the current study) was short so that respondents could complete the survey in mentioned time (3-5 minutes). The questionnaire was broken into different sections as follows; a brief explanation of the study, the purpose of the survey was being explained to the participants in the first section. The second and third section consists of screening two questions, followed by demographic questions (section fourth). With the demographic questions, the researcher will get to know about the respondents' age, gender, educational level, and income level. Demographic questions were placed at the beginning as this helps the study to get more responses from the participants and reduces the rate of participants leaving the survey (Teclaw, Price and Osatuke, 2012). The fifth section has Yes or No questions. 5point Likert Scale questions are being asked in the sixth section where participants can choose their level of (dis)agreement towards nutritional labelling from 1= strongly agree, 2= disagree, 3= neither agree nor disagree, 4= agree, 5= strongly agree. Last section (seventh) has the checkbox questions where respondent's knowledge and awareness regarding micronutrients, health claims were being investigated. Researcher carrying out study in different fields such as business, marketing, emotions of people, people's opinion make use of Likert-scale questions in their study (Gliem and Gliem, 2003). Rensis Likert invented Likert scale. This is a tool which measures people's attitude, their level of agreement or disagreement.

According to Sukamolson (2007), causal-comparative research, survey research, experimental research and correlational research are the four types of quantitative research. The author has further stated that with survey research, any member of the population can be a part of the survey (sample). Also, different types of survey methods are being explained in this paper: in-person interviews, Omnibus survey, Self-administrated questionnaires, and Telephonic survey. For the current study, self-administrated- questionnaire survey research has been used. This method is considered to be economically and less time consuming to collect data (Sukamolson, 2007). Also, with an increasing number of people using computers, it becomes easy for respondents to fill and submit the survey online. A survey carried out in Ireland in 2019 showed

people in Ireland almost spends four and a half hours on their mobile phones, mostly surfing on social media sites (Pope, 2019).

The researcher carried out the promotion of the survey on different social media sites for two weeks, and the Google form was available to the participants for four weeks. All the primary data collected for the survey was automatically saved into the Google form. The online survey was carried on a safe and secured platform- Google Form. Ones the required members of respondents were collected, the researcher enabled the new participants to access the survey. Later all this data was transferred to MS excel. This MS Excel file is stored in a folder with a strong password. To analyse the data, the researcher has used IBM SPSS software, and the software was downloaded based on the college's guidelines. All the analyzed data (from SPSS) is also stored in the same folder, which is protected with a strong password. The only researcher has access to the device in which data is stored, and the only researcher knows the password. A secure password protects even the device in which data is stored.

Hence, taking all the positive side of collecting data through online platform and limitation due to Covid-19, researcher finally decided to collect data using quantitative methodology with which cross-sectional research design is being used and mono-method survey (self-administrated questionnaire) research approach has been utilized to collect data. The current study has followed the deductive approach to the research.

According to Tavakol and Denmick (2011), validity focuses on the level up to which instrument (in the current study, the online survey) measures what is expected measured. Validity also tells about whether the information collected will be able to answer the research question (Kadir and Qureshi, 1994). On the other hand, reliability focuses on the potential of the instrument (online survey questionnaire in this case) to measure results consistently (Tavakol and Denmick, 2011). Reliability also means how consistently the result obtained can be imitated (Kadir and Qureshi, 1994). It has further been stated that the reliability and validity of an instrument are depended on each other.

Cronbach alpha is considered to be the most extensively adopted tool to measure reliability (Tavakol and Dennick, 2011). The Cronbach alpha value is indicated between the number 0 to 1. The value of alpha tells about the level of correlation the items of the tests are on each other. The low value of alpha indicates that there is a low

level of interrelatedness between the items of the test. Whereas the higher value of alpha indicates that there is a strong correlation between the items of the test. The value of alpha falling between 0.70 to 0.95 has a different level of acceptance (Tavakol and Dennick, 2011). The acceptance level of Cronbach alpha is as follows:

>0.9 considered being excellent

>0.8 considered being good

Value >0.7 is acceptable

>0.6 is considered to be questionable

Value >0.5 considered being poor

And value below 0.5 is not acceptable in the study (Gliem and Gliem, 2003).

Aygen (2012) used Cronbach alpha to find the internal reliability of the instrument, and Turconi *et al.* (2003) performed Cronbach alpha test (for the same reason mentioned above) and Pearson correlation coefficient.

Inter-item correlation is considered to be the essential tool to perform the item analyses for the set of particular questions in the research questionnaire. Inter-item correlation focuses on the association of one item with all the other items in the scale (Piedmont, 2014). The author has further stated that the value of inter-item correlation falling between 0.20-o.40 is considerable. This value (between 0.20 to 0.40) shows that there is a relationship between the items. The value between 0.20 indicates that there is no correlation between the items and value above 0.40 indicates that there is a high correlation between the items, which means items could be repetitive.

Karl Pearson invented chi-square, a tool for testing hypothesis (Rana, Singhal, 2020). According to Decoster, Claypool, (2004), Chi-Square test is one of the best data analyses method in SPSS. With this test, a researcher can find the relation between the two categorical variables, when there is no relation between those two variables. For an example, if there are two factors in categorical variable 1 (A, B) and two factors in categorical variables 2 (C, D). with Chi-square test researcher can find out the relationship between these two variables and also the relationship of A with C and relationship of B with C. Chi-square test is considered to be a most useful tool in testing the hypothesis (Mchugh, 2013). This test can be used when the variables are

ordinal or nominal. A study carried out by McHugh (2013), showed that since the value of P was higher than 0.05, the null hypothesis was rejected. Null hypothesis means that there is no relationship between two categorical variables (Franke, Ho, Christie, 2012).when the value of chi-square $p > 0.05$ then it can be determined that there is no association between two variable, i.e. null hypothesis is accepted. The value should be below 0.05 ($p<0.05$).

Research performed the Cronbach Alpha test to find the scale's internal reliability. Since the researcher used SPSS's latest version (26), Cronbach Alpha and inter-item correlation test were performed simultaneously.

3.5 SAMPLING METHOD:

For carrying out research, the researcher has to study and investigate the entire population (Acharya *et al.*, 2013). But in reality, it is not possible to study or conduct a survey for the whole population. The word sample represents a small part of a large group. Probability sampling and non-probability sampling are the two techniques in sampling. Probability sampling means any member of the population can be a part of the survey, and the data collected from this particular member can be used. Probability sampling is further divided into, simple random sampling, systematic random sampling, multistage sampling, cluster sampling, multiphase sampling. Simple random sampling represents that, each member of the population under the study has an equal opportunity of being selected. Many high-quality surveys are depended on probability sampling (Langer, 2018). This research has used probability sampling, and the type of sampling is a simple random sample.

3.6 POPULATION & SAMPLE SIZE:

A study carried out by Regmi *et al.* (2016) stated that selecting participants in the appropriate age group is essential for carrying out an online survey. It is so because some older adults are unaware of the internet and computer. As per the Central Statistics Office (2019), showed that 79% of people surveyed (i.e. eight in every ten participants) makes the use of internet daily. It was also seen that 99% of the population falling in the age group 16-29. Whereas on the other on hand, only 68% of the population falling in the age group 60 to 74 made use of the internet three months before the interview was conducted, respectively.

The research carried out for this project is anonymous. The participants were randomly selected for the online survey. According to the sample size calculated the estimated sampling size value was Nm= 116.72, which means 117 participants. So, the targeted participants for this study were 120, and researcher successfully collected 135 participants. Since it was an online survey and due to the social distancing carried out because of COVID-19, the link of the google form was published on different social media sites like LinkedIn, Facebook, email. There were two main screening questions asked at the very beginning of the survey. These questions were regarding the residency of the participants, and the age of participants as the targeted participants for this survey should be from Ireland and above 18 years.

The demographic information in this study consists of participants age, education, income and gender. These elements are essential to find out how customers buying behaviour and food choices change based on their gender or income or education as it was being analyzed that more women than men look at nutritional information before purchasing food item (Su *et al.*, 2015). Also, a study carried out by French *et al.* (2019), analyzed that customer's food purchasing decision is based on one's income level. People with high income prefer purchasing more nutrition food compared to people with low income. So, all this demographic information are different factors on which customer's buying decision is based on. A research carried out in South Korea showed that mostly parents select food for their children (Ahn *et al.*, 2015).

On social media sites, a piece of in-depth information regarding this research was provided to the participants above the link. This information consisted of what the study is about. Why is it essential to carry this research in Ireland? How will the data collected from the participants help to carry out the research? And a brief paragraph about the study. So, after reading all this information, participants (if willing) can click on the link and fill in the survey. This survey automatically saves into the Google form. It approximately took 3 minutes for the participants to read the information provided above the survey link and nearly three to five minutes to fill in the survey.

3.7 DATA ANALYSIS

Quantitative methodology online survey technique was used to collect the primary data. IBM SPSS Version 26 was used to analyse the data collected.

The data collected on google form was transferred to MS Excel, after which the most crucial step was the data cleaning process. According to Abdul Latiff *et al.* (2016), the data cleaning process is most important as it helps to reduce issues associated with sample size, lacking information, for the same purpose researcher conducted the data cleaning process to remove incorrect and incomplete data. One hundred thirty-five responses were being collected by the researcher, but after the data cleaning process, 125 responses were available to the researcher.

After completing the data cleaning process, the data cannot be directly sent for analysis in SPSS due to contrary data. Thus, the data dictionary was built (Appendix 5), which helps the researcher to analyse the data gathered from the survey. In statistical analysis, the deductive method is considered to be the most valuable approach in finding the hypothesis generated based on previous theories (Gallaire, Minker and Nicolas, 1984). According to Woiceshyn and Danellenbach (2018), the structure of the deductive method is as follows: it begins with theory – then generating hypothesis – testing that hypothesis – improving that theory. The current study supports the deductive approach.

According to Matthews (2017), Stanley Smith Stevens in 1946, developed four types of level of measurement, which are nominal, ordinal, interval, ratio. Under descriptive statistic, it is crucial to consider the level of measurement as it defines the affinity among the level of measurement and the numerical value assigned to it by the researcher while conducting the analysis. In the current study, the researcher has used the nominal and ordinal level of measurement for analysing categorical data under descriptive analysis.

Descriptive statistic helps the researcher to represent data collected (online survey for the current study) simply and effortlessly (Kaushik and Mathur, 2014). Thompson (2009) outlines three different types of statistics used under descriptive analysis are as follows:

1. The measure of distribution – Frequency distribution
2. The measure of central tendency – Mean, Median, Mode
3. Measurement of dispersion – range, standard deviation, variance

When a specific value in data arises more frequently is considered a mode method of central tendency. For example: while building a report of the number of patients with

diseases X, Y, Z. The disease detected in most of the patients is considered as a mode. Thus, current research falls under the measure of central tendency using mean and mode method.

To find out the reliability of the questionnaire set (survey) researcher perform Cronbach alpha test and further, to find out the correlation between the items (questionnaire set) inter-item correlation matrix test was performed. Additionally, to test the hypothesis within the research "chi-square" test was performed. The current study doesn't contain any themes, grouping and coding of questions.

3.8 ETHICAL CONSIDERATION

According to Cacciattolo (2015), researcher must address and proper carryout plan for the ethical part before conducting research. The further author stated that, within the time of research, the researcher should make sure that at all the time during the survey (or any method of collecting data) participants are safe and happy with the research. As per the Agunloye (2019), the researcher should take care of participants with the appropriate information related to research. At any point, the participant should not feel that they are under pressure, or they are providing information under any influence. An individual should give consent to the research before participating in research. Many academic researchers who have undertaken an online survey for collecting the data had questions regarding the ethical issues and its guideline. However, many previous researchers have supported that old classical ethic rule and guideline for online/Internet-based survey. Thus, they have questioned how the participant would know the purpose of the research if the survey is internet base (as there would be no one to brief them about research personally). A latest Ethical guideline was published stating that, the researcher should inform about the research in detail and should take consent of every participant before he/she gets involved (Sugiura *et al.*, 2017).

For the current study, the researcher has gone through ethical terms and guidelines carefully. As per the new ethical instruction the researcher has placed a brief introduction page at the beginning of the survey which consists, the title of the research, about the research topic, the purpose of conducting this research in Ireland and then the academic background. Along with all this information, researchers placed a button called "Continue" at the end of the information page. If respondents were

willing to participate in the survey, they gave their consent by clicking the continue button.

After clicking the continue button, participants were asked two screening questions just to make sure that all respondents were from Ireland and above 18 years. The researcher also placed proper precaution to collect and gather primary data and secondary data. The primary data was collected from participants who were selected randomly, and the secondary data which mean the data gathered from previous research paper within the same area of study was collected from journal articles, news articles, websites, books and the references of all these sources is properly mentioned (Chapter 7 in the table of content).

Further, the questionnaire set for current research has been made with the help of previous research questions. Following the ethic, the researcher had mailed all seven authors requesting access and using their research questions for the research. Among all seven, only three authors replied to the email(Appendix 1, Appendix 2,Appendix 3,Appendix 4) by permitting to use the questionnaire.

The data collected from the survey doesn't contain any kind of personal information. GDPR rules have been given extra care in this research. Data collected will be protected and secured under the supervision of the researcher. All the planning and process of collecting, analysing data for this study is being done under the guidance of supervisor allocated by the college.

3.9 PILOT STUDY

A pilot study is considered as one of the crucial steps in research (Hassan, Schattners and Mazza, 2006). The pilot study helps the researcher to pinpoint the problems in the process of collecting primary data. The pilot study is considered as the trial study before carrying out the actual major research (Teijlingen and Hundley, 2002). A pilot study is very essential because it warns the researcher at the very beginning regarding the strategies implemented by the researcher will work or not. So, for the current study researcher did carry out a pilot study. Before conducting actual research, the researcher conducted a pilot study by forwarding the survey link (Google Form) to five random people using the online platform. While sending the survey link, participants were briefed about the research topic. They were asked to give their feedback regarding questions asked, ethics, the pattern of the questionnaire set and form, analyses methods

used to analyze the data collected, or anything regarding the survey or topics which they felt should be either changed or removed. These participants were provided with the researcher's email address where they could revert their feedback. Following were the feedbacks collected during the pilot study. One participant suggested putting the radio button instead of a checkbox for two questions. Since those two questions were such where participants compulsory had to select only one option, with checkbox, participants could choose multiple options, and radio buttons allow only one option to be selected.

Rest other participants stated that form and questions asked were perfect and easy to understand. They also said that the survey did not consume much of their time. There was no permission taken from participants for carrying out this survey. This research was carried out online, so it was an anonymous survey. Also, the participants were random who contributed their opinion to this survey.

3.10 LIMITATIONS:

The most significant limitation faced by the researcher during the study was due to COVID-19 pandemic. Initially, the researcher had planned to distribute the templates to participants with their consent (explaining the purpose of carrying out this study in Ireland, why their opinions were important) outside the supermarkets like Tesco, Lidl, Aldi, Supervalu, Dunnes only in Dublin. Covering different counties would be difficult in this case. After reading and explaining the topic (if participants were interested) were advised to go on the link of the Google form, fill and submit the survey online. But due to pandemic and total lockdown in Ireland, the researcher planned to collect data through online survey only.

Since the survey was collected using an online platform (due to pandemic), all the respondents were only between the age group of 18- 55. There only 5 participants above 55 years. Due to this researcher was not able to study the buying behaviour of the customers belonging to the age group 55-70 years.

As the questionnaire set was uploaded online, the researcher expected a larger number of responses, but only 135 participants filled the survey. Out of 135, seven participants were out of the survey after the very 1st screening question (those participants were not residing in Ireland). Also, three more participants missed one question each to

answer. So, the researcher did not consider the responses of these three participants. Finally, 125 filled responses were available for the researcher.

CHAPTER 4: FINDINGS

Cronbach Alpha

According to Gliem, Gliem (2003), it is crucial for a researcher to calculate Cronbach alpha if the instrument (questionnaire set) has Likert-scale questions. For the current study, the researcher carried out the Cronbach alpha test to find the internal reliability of the instrument. This test was performed on SPSS version 26, which is the latest version. The value of alpha for the current study is p=0.720 which Tavakol, Dennicr, (2011), is acceptable for the research. This states that there is good internal reliability between the items.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.720	0.723	7

Figure 2: Cronbach Alpha value

Inter-item correlation coefficient

The highest correlation coefficient for the current study was 0.599. this was in between the items; one was people who find nutritional information helpful before choosing pre-packed food items, and others were people who compare nutritional information and ingredients on the pre-packed food items. This shows that there is a high correlation between these two items. This also means that people who find nutritional information helpful are the same people who also compare nutritional information and ingredients on pe-packed food items before buying the food products. The other value close to above mentioned was 0.564 which indicates that the people who understand the component of sodium, salt, vitamins & minerals in milligram, gram are the same people who are capable of comparing nutritional information and ingredients in similar packed food items.

The lowest value of inter-item correlation obtained was 0.032. this determines that there is very less association between people who think that food product with high nutritional values are expensive and people who prefer to purchase food without nutritional labels.

Taking into consideration the values stated by Piedmont (2014), it can be noted that people who are worried about the nutritional values of the food, they are also:

a. Find nutritional information helpful while making a healthy purchasing decision (inter-item correlation coefficient 0.392).

b. Able to deal with the content of vitamins and minerals, salt/sodium in milligram, gram (inter-item correlation 0.298)

c. And they also like to try new products which contain high nutritional claims (inter-item correlation coefficient 0.274).

	I usually compare the nutrition information and ingredients in similar packed food with the help of nutrition food labelling?	I deal with nutrition values such as gram/milligram values of sodium/salt, vitamins, and mineral per serving?	I find the information present on pre-packed food labels helpful to choose a healthy diet?	I think that the food product which contains healthy nutrients are more expensive?	I like to try a new product which has high nutrition claims?	I prefer having packed food without nutrition labelling.?	I am worried about the nutritional value of the food I buy?
I usually compare the nutrition information and ingredients in similar packed food with the help of nutrition food labelling?	1.000	0.564	0.599	0.148	0.301	0.258	0.456
I deal with nutrition values such as gram/milligram values of sodium/salt, vitamins, and mineral per serving?	0.564	1.000	0.439	0.080	0.193	0.433	0.298
I find the information present on pre-packed food labels helpful to choose a healthy diet?	0.599	0.439	1.000	0.314	0.447	0.037	0.392
I think that the food product which contains healthy nutrients are more expensive?	0.148	0.080	0.314	1.000	0.160	0.032	0.187
I like to try a new product which has high nutrition claims?	0.301	0.193	0.447	0.160	1.000	-0.042	0.274
I prefer having packed food without nutrition labelling.?	0.258	0.433	0.037	0.032	-0.042	1.000	0.126
I am worried about the nutritional value of the food I buy?	0.456	0.298	0.392	0.187	0.274	0.126	1.000

Figure 3: Inter-Item Correlation Matrix

For Hypothesis

Now it can be seen that approximately 41% of participants falling in the age group of 18-24 years (40.91%, n= 9) and 25-34 (40.79%, n=31) strongly agreed to the point that nutritional labelling helps them to make a healthy buying decision. 72% (p=0.043) of the respondents either agreed or strongly agreed with this point. Only 8.8% (n=11) participants feel that nutritional information on the packed food items is of no use.

Also, it was analyzed that 100% of participants falling in the age group of 55 years and above (n=5) stated that nutritional labelling is the most critical factor for them while purchasing pre-packed food items. In fact, it can be demonstrated that 77.60% (p= 0.017) of all participants selected nutritional labelling as an important factor while making a healthy buying decision. The participants in this survey were between the age group of 18-55 years. The chi-square values for both the statements are below 0.05, which means that H1 is accepted. So, the data collected by the researcher shows that there is an association between age group (younger and middle age group) and nutritional labelling.

H$_1$: Customers belonging to younger-age and middle-age groups look at nutritional labels to buy healthy food items.

Count		I find the information present on pre-packed food labels helpful to choose a healthy diet?										Total	Pearson Chi-Square
		1	%	2	%	3	%	4	%	5	%		
Age Groups	0	0	0%	1	4.55%	4	18.18%	8	36.36%	9	40.91%	22	0.043
	1	1	1.316%	6	7.89%	15	19.74%	23	30.26%	31	40.79%	76	
	2	3	16.667%	0	0.00%	3	16.67%	7	38.89%	5	27.78%	18	
	3	0	0.000%	0	0.00%	2	50.00%	1	25.00%	1	25.00%	4	
	4	0	0.000%	0	0.00%	0	0.00%	5	100.00%	0	0.00%	5	
Total		4	3.200%	7	5.60%	24	19.20%	44	35.20%	46	36.80%	125	

Figure 4: Chi-Square value of I find information on pre-packed food labels helpful to choose a healthy diet vs age group.

Count		I think that the food product which contains healthy nutrients are more expensive?										Total	Pearson Chi-Square
		1	%	2	%	3	%	4	%	5	%		
Age Groups	0	0	0.00%	0	0.00%	6	27.27%	4	18.18%	12	54.55%	22	0.038
	1	2	2.63%	5	6.58%	20	26.32%	16	21.05%	33	43.42%	76	
	2	2	11.11%	2	11.11%	6	33.33%	6	33.33%	2	11.11%	18	
	3	0	0.00%	0	0.00%	1	25.00%	3	75.00%	0	0.00%	4	
	4	0	0.00%	0	0.00%	0	0.00%	4	80.00%	1	20.00%	5	
Total		4	3.20%	7	5.60%	33	26.40%	33	26.40%	48	38.40%	125	

Figure 5: I think that the food product which contains healthy nutrients are more expensive vs age group.

Count		you when purchasing a packed food item? Choose all tha				Total	Pearson Chi-Square
		0	%	1	%		
Age Groups	0	7	31.82%	15	68.18%	22	0.017
	1	11	14.47%	65	85.53%	76	
	2	8	44.44%	10	55.56%	18	
	3	2	50.00%	2	50.00%	4	
	4	0	0.00%	5	100.00%	5	
Total		28	22.40%	97	77.60%	125	

Figure 6: Which factors are important to you when purchasing a packed food item (Nutritional information) vs age group

51.14% female participants (n=20, p=0.025) and comparatively fewer male participants (48.89%, n=44, p=0.025) are worried about the nutritional values present in the food they consume. While stating this, it was seen that among 90 participants, maximum consider nutritional information (82.22%, n=74, p=0.047) as the most important and taste (72.22%, n=65, p=0.002) as the second most important factor when purchasing packed food items. The third is health claims. Most of the men look for the packages which as labels like low fat, low calories, high fibre mentioned on it (68.89%, n=62, p=0.001). Whereas 65.7% of all female participants (n=23, p=0.047) as first most important factor followed by taste (42.86%, n=15, p=0.002). Half of all the women participants 51.43% (n=18, p=0.001) prefer to buy food products which have health claims mentioned on it.

Both men and women emphasize nutritional information while purchasing food packages. But comparing the use of nutritional information from that data collected, it can be seen that more men compared to women look at the nutritional information, health claims while purchasing pre-packed food items. Even though women are more conscious about the food they eat, but they do not look at nutritional labels (more often) when purchasing food items. So, the data collected by the researcher does not accept H2.

H₂: More women, compared to men, make use of nutritional labelling on packed food items at the point of purchase is rejected.

			consider						Total	Pearson Chi-Square
			0	%	1	%	2	%		
Gender	0	Count	14	15.56%	62	68.89%	14	15.56%	90	
		Expected Count	10.8	12.00%	57.6	64.00%	21.6	24.00%	90.0	
	1	Count	1	2.86%	18	51.43%	16	45.71%	35	
		Expected Count	4.2	12.00%	22.4	64.00%	8.4	24.00%	35.0	0.001
Total		Count	15	12.00%	80	64.00%	30	24.00%	125	
		Expected Count	15.0	12.00%	80.0	64.00%	30.0	24.00%	125.0	

Figure 7: Do you consider buying food products which have health claims like low fat, high fiber, light, healthy, low calories present on it vs gender.

			1	%	2	%	3	%	4	%	5	%	Total	Pearson Chi-Square
Gender	0	Count	8	8.89%	9	10.00%	29	32.22%	26	28.89%	18	20.00%	90	
		Expected Count	5.8	6.40%	11.5	12.80%	26.6	29.60%	23.0	25.60%	23.0	25.60%	90.0	
	1	Count	0	0.00%	7	20.00%	8	22.86%	6	17.14%	14	40.00%	35	
		Expected Count	2.2	6.40%	4.5	12.80%	10.4	29.60%	9.0	25.60%	9.0	25.60%	35.0	0.025
Total		Count	8	6.40%	16	12.80%	37	29.60%	32	25.60%	32	25.60%	125	
		Expected Count	8.0	6.40%	16.0	12.80%	37.0	29.60%	32.0	25.60%	32.0	25.60%	125.0	

Figure 8: I am worried about the nutritional value of the food I buy vs gender.

			0	%	1	%	Total	Pearson Chi-Square
Gender	0	Count	16	17.78%	74	82.22%	90	
		Expected Count	20.2	22.40%	69.8	77.60%	90.0	
	1	Count	12	34.29%	23	65.71%	35	
		Expected Count	7.8	22.40%	27.2	77.60%	35.0	0.047
Total		Count	28	22.40%	97	77.60%	125	
		Expected Count	28.0	22.40%	97.0	77.60%	125.0	

Figure 9:Which factors are important to you when purchasing a packed food item (Nutritional information) vs gender

The researched also observed that only half of the population 53.6% (n=67) understand front of the pack labelling. In contrast, three fourth of the population find back of the pack labelling easy to understand (74.4%, n=93). The chi-square for the front of the pack was p=0.37 which is much higher than 0.005. This shows that H3 is not accepted.

H₃: Most of the customer feel that the front of pack labelling is easy to understand is rejected.

			0	1	Total	Chi-Square
Gender	0	Count	44	46	90	
		Expected	41.8	48.2	90	
	1	Count	14	21	35	
		Expected	16.2	18.8	35	0.371
Total		Count	58	67	125	
		Expected	58	67	125	

Figure 10:Customers vs Front-of-pack

In fact, from the data collected by the researcher, it can be seen that customers feel that the back of pack labelling is easier to understand.

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Now 85.71% (n=12) participants with monthly income between €3000-€5000 either agreed or strongly agreed to the statement that they find nutritional information on food packages beneficial to choose a healthy diet. Followed by 76.47% participants with monthly income €1000-3000 (n=52), 72.73% participants with monthly income above €5000+ (n=8, p=0.054). only 56.25% of participants with income below €1000 feel that nutritional information helps them to choose healthy food products.

70.59% (n=48, p=0.043) of participants with mostly income €1000-3000 look at nutritional information at the point of purchase. But their frequency of looking at nutritional labels is 'often' (39.71%, n=27, p=0.007). Only 22% (n=15, p=0.007) belonging to the same income always look at nutritional labels. 36.36% (n=36.36%, p=0.007) of participants with monthly income above €5000 always look at nutritional labels. Participants with monthly income above €1000 mostly look at the content of cholesterol (p=0.023), vitamins & minerals (p=0.011) and saturated fat (p=0.029). Also, they (participants with income above €1000) prefer products with the following health claims: low cholesterol (p=0.033), high fibre (p=0.017) and light (p=0.044). Participants earning above €5000 mostly look at the content of cholesterol (72.73%, n=8) and saturated fat (63.64%, n=7). In health claims, 'light' is the most preferably looked by participants of this income group (63.64, n=7). This shows that people who look at the content of saturated fat in product mostly prefer food items which are light (health claim). 85.71% of participants earning €3000-5000 monthly give most preference to the content of vitamins and minerals. These people also like products which have low cholesterol level (64.29%, n=9).

From the survey, it was also spotted that, most people (43.75%, p=0.023) with monthly income below €1000 feel that nutritious food items are more expensive. This could be the reason that most people with the low-income group do not prefer looking at the nutritional label and buy nutritious food. The chi-square for each statement above is below 0.005, which states that H4 is accepted.

H₄: Most people with high income prefer to buy nutritious food after reading the nutritional information present on the pre-packed food items.

			0		3		Total	Pearson Chi-Square
Income Level	0	Count	18	56.25%	14	43.75%	32	
		Expected Count	14.8	46.40%	17.2	53.60%	32.0	
	1	Count	24	35.29%	44	64.71%	68	
		Expected Count	31.6	46.40%	36.4	53.60%	68.0	
	2	Count	7	50.00%	7	50.00%	14	0.017
		Expected Count	6.5	46.40%	7.5	53.60%	14.0	
	3	Count	9	81.82%	2	18.18%	11	
		Expected Count	5.1	46.40%	5.9	53.60%	11.0	
Total		Count	58	46.40%	67	53.60%	125	
		Expected Count	58.0	46.40%	67.0	53.60%	125.0	

Figure 11:Income vs high fiber

			0	%	2	%	Total	Pearson Chi-Square
Income Level	0	Count	24	75.00%	8	25.00%	32	
		Expected Count	18.2	56.80%	13.8	43.20%	32.0	
	1	Count	38	55.88%	30	44.12%	68	
		Expected Count	38.6	56.80%	29.4	43.20%	68.0	
	2	Count	5	35.71%	9	64.29%	14	0.033
		Expected Count	8.0	56.80%	6.0	43.20%	14.0	
	3	Count	4	36.36%	7	63.64%	11	
		Expected Count	6.2	56.80%	4.8	43.20%	11.0	
Total		Count	71	56.80%	54	43.20%	125	
		Expected Count	71.0	56.80%	54.0	43.20%	125.0	

Figure 12: Income vs low cholesterol

			0		10		Total	Pearson Chi-Square
Income Level	0	Count	26	81.25%	6	18.75%	32	
		Expected Count	22.3	69.60%	9.7	30.40%	32.0	
	1	Count	49	72.06%	19	27.94%	68	
		Expected Count	47.3	69.60%	20.7	30.40%	68.0	
	2	Count	8	57.14%	6	42.86%	14	0.029
		Expected Count	9.7	69.60%	4.3	30.40%	14.0	
	3	Count	4	36.36%	7	63.64%	11	
		Expected Count	7.7	69.60%	3.3	30.40%	11.0	
Total		Count	87	69.60%	38	30.40%	125	
		Expected Count	87.0	69.60%	38.0	30.40%	125.0	

Figure 13:Income vs Saturated fat

			0	%	7	%	Total	Pearson Chi-Square
Income Level	0	Count	13	40.63%	19	59.38%	32	0.011
		Expected Count	15.6	48.80%	16.4	51.20%	32.0	
	1	Count	41	60.29%	27	39.71%	68	
		Expected Count	33.2	48.80%	34.8	51.20%	68.0	
	2	Count	2	14.29%	12	85.71%	14	
		Expected Count	6.8	48.80%	7.2	51.20%	14.0	
	3	Count	5	45.45%	6	54.55%	11	
		Expected Count	5.4	48.80%	5.6	51.20%	11.0	
Total		Count	61	48.80%	64	51.20%	125	
		Expected Count	61.0	48.80%	64.0	51.20%	125.0	

Figure 14: Income vs vitamins & minerals

			0		2		Total	Pearson Chi-Square
Income Level	0	Count	23	71.88%	9	28.13%	32	0.023
		Expected Count	18.2	56.80%	13.8	43.20%	32.0	
	1	Count	40	58.82%	28	41.18%	68	
		Expected Count	38.6	56.80%	29.4	43.20%	68.0	
	2	Count	5	35.71%	9	64.29%	14	
		Expected Count	8.0	56.80%	6.0	43.20%	14.0	
	3	Count	3	27.27%	8	72.73%	11	
		Expected Count	6.2	56.80%	4.8	43.20%	11.0	
Total		Count	71	56.80%	54	43.20%	125	
		Expected Count	71.0	56.80%	54.0	43.20%	125.0	

Figure 15: Income vs Cholesterol

			1	%	2	%	3	%	4	%	Total	Pearson Chi-Square
Income Level	0	Count	5	15.63%	5	15.63%	14	43.75%	8	25.00%	32	0.007
		Expected Count	6.9	21.60%	10.5	32.80%	12.0	37.60%	2.6	8.00%	32.0	
	1	Count	15	22.06%	27	39.71%	25	36.76%	1	1.47%	68	
		Expected Count	14.7	21.60%	22.3	32.80%	25.6	37.60%	5.4	8.00%	68.0	
	2	Count	3	21.43%	6	42.86%	4	28.57%	1	7.14%	14	
		Expected Count	3.0	21.60%	4.6	32.80%	5.3	37.60%	1.1	8.00%	14.0	
	3	Count	4	36.36%	3	27.27%	4	36.36%	0	0.00%	11	
		Expected Count	2.4	21.60%	3.6	32.80%	4.1	37.60%	0.9	8.00%	11.0	
Total		Count	27	21.60%	41	32.80%	47	37.60%	10	8.00%	125	
		Expected Count	27.0	21.60%	41.0	32.80%	47.0	37.60%	10.0	8.00%	125.0	

Figure 16:Income level vs How often do you consider a nutritional information label

			informatio 1	%	2	%	3	%	4	%	5	%	Total	Pearson Chi-Square
Income Level	0	Count	3	9.38%	1	3.13%	10	31.25%	10	31.25%	8	25.00%	32	0.054
		Expected Count	1.0	3.20%	1.8	5.60%	6.1	19.20%	11.3	35.20%	11.8	36.80%	32.0	
	1	Count	0	0.00%	4	5.88%	12	17.65%	20	29.41%	32	47.06%	68	
		Expected Count	2.2	3.20%	3.8	5.60%	13.1	19.20%	23.9	35.20%	25.0	36.80%	68.0	
	2	Count	0	0.00%	1	7.14%	1	7.14%	8	57.14%	4	28.57%	14	
		Expected Count	0.4	3.20%	0.8	5.60%	2.7	19.20%	4.9	35.20%	5.2	36.80%	14.0	
	3	Count	1	9.09%	1	9.09%	1	9.09%	6	54.55%	2	18.18%	11	
		Expected Count	0.4	3.20%	0.6	5.60%	2.1	19.20%	3.9	35.20%	4.0	36.80%	11.0	
Total		Count	4	3.20%	7	5.60%	24	19.20%	44	35.20%	46	36.80%	125	
		Expected Count	4.0	3.20%	7.0	5.60%	24.0	19.20%	44.0	35.20%	46.0	36.80%	125.0	

Figure 17: Income level vs I find the information present on the pre-packed food label is helpful to choose a healthy diet.

			0	%	1	%	2	%	Total	Pearson Chi-Square
Income Level	0	Count	6	18.75%	12	37.50%	14	43.75%	32	
		Expected Count	2.8	8.80%	19.2	60.00%	10.0	31.20%	32.0	
	1	Count	4	5.88%	48	70.59%	16	23.53%	68	
		Expected Count	6.0	8.80%	40.8	60.00%	21.2	31.20%	68.0	
	2	Count	1	7.14%	9	64.29%	4	28.57%	14	0.043
		Expected Count	1.2	8.80%	8.4	60.00%	4.4	31.20%	14.0	
	3	Count	0	0.00%	6	54.55%	5	45.45%	11	
		Expected Count	1.0	8.80%	6.6	60.00%	3.4	31.20%	11.0	
Total		Count	11	8.80%	75	60.00%	39	31.20%	125	
		Expected Count	11.0	8.80%	75.0	60.00%	39.0	31.20%	125.0	

Figure 18: Income level vs Do you look at nutritional information while purchasing pre-packed food products

			0	%	4	%	Total	Pearson Chi-Square
Income Level	0	Count	26	81.25%	6	18.75%	32	
		Expected Count	21.0	65.60%	11.0	34.40%	32.0	
	1	Count	44	64.71%	24	35.29%	68	
		Expected Count	44.6	65.60%	23.4	34.40%	68.0	
	2	Count	8	57.14%	6	42.86%	14	0.044
		Expected Count	9.2	65.60%	4.8	34.40%	14.0	
	3	Count	4	36.36%	7	63.64%	11	
		Expected Count	7.2	65.60%	3.8	34.40%	11.0	
Total		Count	82	65.60%	43	34.40%	125	
		Expected Count	82.0	65.60%	43.0	34.40%	125.0	

Figure 19:Income level vs light

It was seen that 57.60% (n=72, p=0.00) of all participants stated that they understand either most or all nutritional labels present on the food package. That is more than half of the people have knowledge about nutritional labels. 50% of the participants with PhD and 50% with master's degree are familiar with all the contents present on the nutritional labels. Remaining half participants with master's degree (51.56%, n=33) and 54.55% of diploma holders understand most content of nutritional labels. More than half of respondents (51.56%, n=64) are worried about the food they eat, and nutritional values present in the food they purchase. Especially participants who have completed their bachelor's (50%, n=4), master's (54.69%, n=35), PhD (50%, n=2), other degree (50%, n=2) either agreed or strongly agreed about their consciousness regarding the nutritional values present in the food they purchase.

Further, the data collected also shows that participants with PhD degree feel that the content of fat is the most important nutritional element to be looked at while

purchasing food products. That is the reason all participants with PhD (100%) look at the fat content. Secondly, fat is considered an essential nutritional element by respondents with High School (83.33%), master's (73.44%), and bachelor's (71.43%). More than half of the participants 54.40% (belonging to all educational levels except PhD) look at the sugar content before purchasing food item. More than half of the participants (with their educational levels) who look at sugar content are as follows, did not finish school (50%), Bachelor's (50%), master's (67.19%), other (50%). This shows that from all the nutritional elements, the content of fat (68%, n=85, p=0.001) is considered as most important followed by sugar (54.40%, n=68, p=0.038) by the respondents.

Health claims like light (p=0.038) and extra skimmed (p=0.004) from all the other health claims like, 100% natural (p=0.228), healthy (p=0.996), high fibre (p=0.497), low cholesterol (p=0.191), low fat (p=0.902), are considered as most important by participants while purchasing food packages. These results show that with increasing educational level, people start gaining more knowledge about nutritional labelling. It can also be assumed that (based on the survey data) with high education, people start understanding the importance of nutrition in daily food consumption. Also, they become aware that reading nutritional labels and daily consumption of nutritious food are depended on each other. So, the evidence collected for H5 shows that H5 is accepted.

H₅: People with higher education have more knowledge of nutritional labels and show a higher tendency of purchasing pre-packed food items after reading nutritional information.

			0	%	7	%	Total	Pearson Chi-Square
What is the highest degree or level of school you have completed?	0	Count	0	0.00%	2	100.00%	2	
		Expected Count	1.7	87.20%	0.3	12.80%	2.0	
	1	Count	12	100.00%	0	0.00%	12	
		Expected Count	10.5	87.20%	1.5	12.80%	12.0	
	2	Count	9	81.82%	2	18.18%	11	
		Expected Count	9.6	87.20%	1.4	12.80%	11.0	
	3	Count	27	96.43%	1	3.57%	28	
		Expected Count	24.4	87.20%	3.6	12.80%	28.0	
	4	Count	54	84.38%	10	15.63%	64	0.004
		Expected Count	55.8	87.20%	8.2	12.80%	64.0	
	5	Count	3	75.00%	1	25.00%	4	
		Expected Count	3.5	87.20%	0.5	12.80%	4.0	
	6	Count	4	100.00%	0	0.00%	4	
		Expected Count	3.5	87.20%	0.5	12.80%	4.0	
Total		Count	109	87.20%	16	12.80%	125	
		Expected Count	109.0	87.20%	16.0	12.80%	125.0	

Figure 20:Education level vs extra skimmed

			0	%	4	%	Total	Pearson Chi-Square
What is the highest degree or level of school you have completed?	0	Count	1	50.00%	1	50.00%	2	
		Expected Count	1.3	65.60%	0.7	5.73%	2.0	
	1	Count	9	75.00%	3	25.00%	12	
		Expected Count	7.9	65.60%	4.1	37.53%	12.0	
	2	Count	6	54.55%	5	45.45%	11	
		Expected Count	7.2	65.60%	3.8	13.51%	11.0	
	3	Count	22	78.57%	6	21.43%	28	
		Expected Count	18.4	65.60%	9.6	15.05%	28.0	
	4	Count	40	62.50%	24	37.50%	64	0.038
		Expected Count	42.0	65.60%	22.0	550.40%	64.0	
	5	Count	0	0.00%	4	100.00%	4	
		Expected Count	2.6	65.60%	1.4	34.40%	4.0	
	6	Count	4	100.00%	0	0.00%	4	
		Expected Count	2.6	65.60%	1.4	1.10%	4.0	
Total		Count	82	65.60%	43	34.40%	125	
		Expected Count	82.0	65.60%	43.0	#DIV/0!	125.0	

Figure 21:Education level vs light

			0	%	6	%	Total	Pearson Chi-Square
What is the highest degree or level of school you have completed?	0	Count	1	50.00%	1	50.00%	2	
		Expected Count	0.9	45.60%	1.1	54.40%	2.0	
	1	Count	7	58.33%	5	41.67%	12	
		Expected Count	5.5	45.60%	6.5	54.40%	12.0	
	2	Count	8	72.73%	3	27.27%	11	
		Expected Count	5.0	45.60%	6.0	54.40%	11.0	
	3	Count	14	50.00%	14	50.00%	28	0.038
		Expected Count	12.8	45.60%	15.2	54.40%	28.0	
	4	Count	21	32.81%	43	67.19%	64	
		Expected Count	29.2	45.60%	34.8	54.40%	64.0	
	5	Count	4	100.00%	0	0.00%	4	
		Expected Count	1.8	45.60%	2.2	54.40%	4.0	
	6	Count	2	50.00%	2	50.00%	4	
		Expected Count	1.8	45.60%	2.2	54.40%	4.0	
Total		Count	57	45.60%	68	54.40%	125	
		Expected Count	57.0	45.60%	68.0	54.40%	125.0	

Figure 22:Education Level vs sugar

			0	%	5	%	Total	Pearson Chi-Square
What is the highest degree or level of school you have completed?	0	Count	2	100.00%	0	0.00%	2	
		Expected Count	0.6	32.00%	1.4	68.00%	2.0	
	1	Count	2	16.67%	10	83.33%	12	
		Expected Count	3.8	32.00%	8.2	68.00%	12.0	
	2	Count	9	81.82%	2	18.18%	11	
		Expected Count	3.5	32.00%	7.5	68.00%	11.0	
	3	Count	8	28.57%	20	71.43%	28	
		Expected Count	9.0	32.00%	19.0	68.00%	28.0	
	4	Count	17	26.56%	47	73.44%	64	0.001
		Expected Count	20.5	32.00%	43.5	68.00%	64.0	
	5	Count	0	0.00%	4	100.00%	4	
		Expected Count	1.3	32.00%	2.7	68.00%	4.0	
	6	Count	2	50.00%	2	50.00%	4	
		Expected Count	1.3	32.00%	2.7	68.00%	4.0	
Total		Count	40	32.00%	85	68.00%	125	
		Expected Count	40.0	32.00%	85.0	68.00%	125.0	

Figure 23:Educational Level vs fat

			1	%	2	%	3	%	4	%	Total	Pearson Chi-Square
What is the highest degree or level of school you have completed?	0	Count	0	0.00%	1	50.00%	0	0.00%	1	50.00%	2	
		Expected Count	0.0	2.40%	0.8	40.00%	0.9	45.60%	0.2	12.00%	2.0	
	1	Count	0	0.00%	4	33.33%	3	25.00%	5	41.67%	12	
		Expected Count	0.3	2.40%	4.8	40.00%	5.5	45.60%	1.4	12.00%	12.0	
	2	Count	2	18.18%	3	27.27%	6	54.55%	0	0.00%	11	
		Expected Count	0.3	2.40%	4.4	40.00%	5.0	45.60%	1.3	12.00%	11.0	
	3	Count	0	0.00%	12	42.86%	12	42.86%	4	14.29%	28	
		Expected Count	0.7	2.40%	11.2	40.00%	12.8	45.60%	3.4	12.00%	28.0	
	4	Count	1	1.56%	29	45.31%	33	51.56%	1	1.56%	64	0.000
		Expected Count	1.5	2.40%	25.6	40.00%	29.2	45.60%	7.7	12.00%	64.0	
	5	Count	0	0.00%	1	25.00%	1	25.00%	2	50.00%	4	
		Expected Count	0.1	2.40%	1.6	40.00%	1.8	45.60%	0.5	12.00%	4.0	
	6	Count	0	0.00%	0	0.00%	2	50.00%	2	50.00%	4	
		Expected Count	0.1	2.40%	1.6	40.00%	1.8	45.60%	0.5	12.00%	4.0	
Total		Count	3	2.40%	50	40.00%	57	45.60%	15	12.00%	125	
		Expected Count	3.0	2.40%	50.0	40.00%	57.0	45.60%	15.0	12.00%	125.0	

Figure 24:Education level vs Do you understand the nutrition food labelling on packed food items.

			1	%	2	%	3	%	4	%	5	%	Total	Pearson Chi-Square
What is the highest degree or level of school you have completed?	0	Count	0	0.00%	0	0.00%	0	0.00%	2	100.00%	0	0.00%	2	
		Expected Count	0.1	6.40%	0.3	12.80%	0.6	29.60%	0.5	25.60%	0.5	25.60%	2.0	
	1	Count	4	33.33%	0	0.00%	3	25.00%	1	8.33%	4	33.33%	12	
		Expected Count	0.8	6.40%	1.5	12.80%	3.6	29.60%	3.1	25.60%	3.1	25.60%	12.0	
	2	Count	1	9.09%	2	18.18%	4	36.36%	0	0.00%	4	36.36%	11	
		Expected Count	0.7	6.40%	1.4	12.80%	3.3	29.60%	2.8	25.60%	2.8	25.60%	11.0	
	3	Count	0	0.00%	5	17.86%	9	32.14%	8	28.57%	6	21.43%	28	0.056
		Expected Count	1.8	6.40%	3.6	12.80%	8.3	29.60%	7.2	25.60%	7.2	25.60%	28.0	
	4	Count	2	3.13%	8	12.50%	19	29.69%	19	29.69%	16	25.00%	64	
		Expected Count	4.1	6.40%	8.2	12.80%	18.9	29.60%	16.4	25.60%	16.4	25.60%	64.0	
	5	Count	1	25.00%	1	25.00%	0	0.00%	1	25.00%	1	25.00%	4	
		Expected Count	0.3	6.40%	0.5	12.80%	1.2	29.60%	1.0	25.60%	1.0	25.60%	4.0	
	6	Count	0	0.00%	0	0.00%	2	50.00%	1	25.00%	1	25.00%	4	
		Expected Count	0.3	6.40%	0.5	12.80%	1.2	29.60%	1.0	25.60%	1.0	25.60%	4.0	
Total		Count	8	6.40%	16	12.80%	37	29.60%	32	25.60%	32	25.60%	125	
		Expected Count	8.0	6.40%	16.0	12.80%	37.0	29.60%	32.0	25.60%	32.0	25.60%	125.0	

Figure 25:Education vs I am worried about the nutritional value of the food I buy.

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CHAPTER 5: DISCUSSION

The data collected shows that 40.96% of Ireland's population is conscious about their health; they are worried about the nutrition they consume daily. 77.60% of people look at nutritional information as the most important factor on the food package (other than price, brand logo and taste). The survey revealed that 60% of the participants never purchase food products which do not have nutritional labels on it.

From the inter-item correlation coefficient test, there was a most critical point spotted. People who are worried about nutritional values present in food (to live a healthy life) makes an effort to go through the nutritional labels. It can be assumed that customers who are health conscious go through the content of salt/sodium, vitamins, minerals present in milligram, gram. Also, these people like to try new products with high nutritional contents.

From the finding, it can be seen that demographic factors do have an impact on the customer's decision-making process. People with low income have the perception that nutritious food products are costly. So, they do not even compare factors like nutritional information, prices of nutritious food items with the food products with low nutritional content. Front of the pack labelling which is considered to be very useful and efficient in many parts of the globe, but it is not considered to be very effective and efficient in Ireland. People easily understand back of the pack labelling. Hypothesis 4 and 5 (H4 & H5) states that people with high-income level and high education show a higher tendency of purchasing pre-packed food items after reading nutritional information which is proved right as per chi-square test. Also, the data collected shows the same thing. But the results also show that income level and educational level are positively associated with brand logo. When people with high-income level and high educational level were asked to choose an essential element (from nutritional labels, price, taste, brand logo), they consider brand logo as a most crucial component while picking healthy food items. Kapferer (2010) has said that luxury and brand has always been a part of wealthy people. People with strong financial background tend to use brands which they are familiar with.

It was seen that most participants are conscious of the total calories (71.7%), protein (70.9%), and fat (60.6%) content present in the food packages they buy. People look at fat content because the high content of fat (fatty acids) leads to severe heart-related

diseases (Mullie, Godderis and Clarys, 2012). The customers more trust health claims like low fat (66.4%), 100% natural (64.1%), and high fibre (54.7%). The study carried out by Broderick *et al.* (2015) showed the same result that, 62.3% of people in 2011 and 63.1% people in 2013 chose food products with low-fat claims in Ireland. So, since 2009 products with claim 'low fat' are mostly preferred by people in Ireland. It is essential to monitor the eating habits of older people as the survey data collected showed that customers belong to younger and middle-aged group look at nutritional labels. Also, age and weight gain are positively associated with each other, as age increases lead to an increase in weight gain. This leads to a rise in diseases like Type 2 diabetes (van Meer, Charbonnier and Smeets, 2016). A study carried out by Broderick *et al.* (2015) showed that 77.3% of people in Ireland look at the place of origin while purchasing food product. In the current study, it was seen that 48.4% of people look at the place of origin and 25.8% people sometimes look at the place of origin (i.e. in total 74.2%). That is since 2015, the frequency of looking at the place of origin of the product is reducing.

CHAPTER 6: CONCLUSION

The survey showed very positive responses of customers up to some extent. Approximately three-quarters of the customers (77%) look at nutritional labels while purchasing food items. Many have a good understanding of the nutritional labels and aware of how to interpret the information. The data collected in 2015 showed that about 67% of people in Ireland had a good understanding of nutritional labels and were aware of its importance. This indicates that since 2015 the awareness among people has been increased. Some people are very conscious about their health, so they look at nutritional labels and also take an effort in looking at the content of vitamins & minerals, salt and sodium present in gram, milligram. They also like to try new products which have high nutritional contents (68% of participants).

About 46% of participants rarely or never look at the nutritional labels. Some customers feel that nutritious food products are very expensive. Some feel no need and importance to look at nutritional labels. These people completely ignore nutritional labels before buying food products. This could be the reason for the increase in the obesity rate in Ireland.

Internet is considered to be the most used medium for understanding nutritional information followed by nutritional labels. So, manufacturers, retailers, nutritionist, should start enlightening people about nutritious food, methods of choosing nutritious food, the importance of reading nutritional labels, how to read and what to look at in the nutritional labels, by using appropriate methods one such as by writing blogs and publishing it on social media sites. As most people in Ireland spend four- and half-hour surfing on mobile and internet daily. Some people are worried about the food they eat and the nutrients they consume, but 43% of the participants either understand some or none of the content in the nutritional labels. So, it is imperative to educate people about the nutritional labels.

Looking at the alarming situation in Ireland, it is the responsibility of food manufacturers, retailers, Government bodies to investigate it and take effective action. The government should implement new strategies to educate people about the nutritional labels. It is very crucial to educate people about the relation between unhealthy eating habits (low nutritious) and diseases related to weight gain. Schools can start providing small sessions to children, along with their parents regarding the

importance of nutritional labelling. This will help small children to make a habit of reading nutritional information from a very young age. Doward (2020), conveyed that the government is placing multiple tools in the UK to fight against obesity. One of the tools used to tackle the problem of rising obesity rate among children is by providing them with nutritious and healthy free meals in school. This strategy has successfully reduced the obesity rate in children by 7%. From September 2020, Ireland is making an effort to implementing the same strategy- supplying healthy free meals in schools (Holland, 2020). In this way, children can be kept away from unhealthy food items as there is a high risk of increasing obesity rate in children.

Many people who are making efforts to stay fit and healthy, can help their friends, family, colleagues, relatives to adopt the habit of reading nutritional labels. Manufacturers should focus on the nutritional labelling formats as customers spend only a few seconds to make their buying decision. So, formats should be in such a way that by taking a quick glance, customers can get the gist of the nutrients. As the nutritional label is one of the mediums by which manufactures communicate with the customers. This can create a win-win situation for both the customer as well as the manufactures. If manufactures put efforts to make nutritional labels easy and quick to interpret, then there is a chance that customers will stick to the same product and same brand as they will get used to it. According to Aygen (2012), the self-reported method for collecting data is not entirely correct as it sometimes does not show actual behaviour. But participants give valid responses based on their awareness on the topic. So, there is a need for further research in this study. Nutritional labelling is not the only way to fight obesity and non-communicable nutrition-related diseases but is one of the most effective tools from the rest. Apart from all the new, old strategies implemented by manufacturers, retailers, Government, the customer is the one who needs to adapt or be willing to adapt these strategies.

CHAPTER 7: REFERENCES

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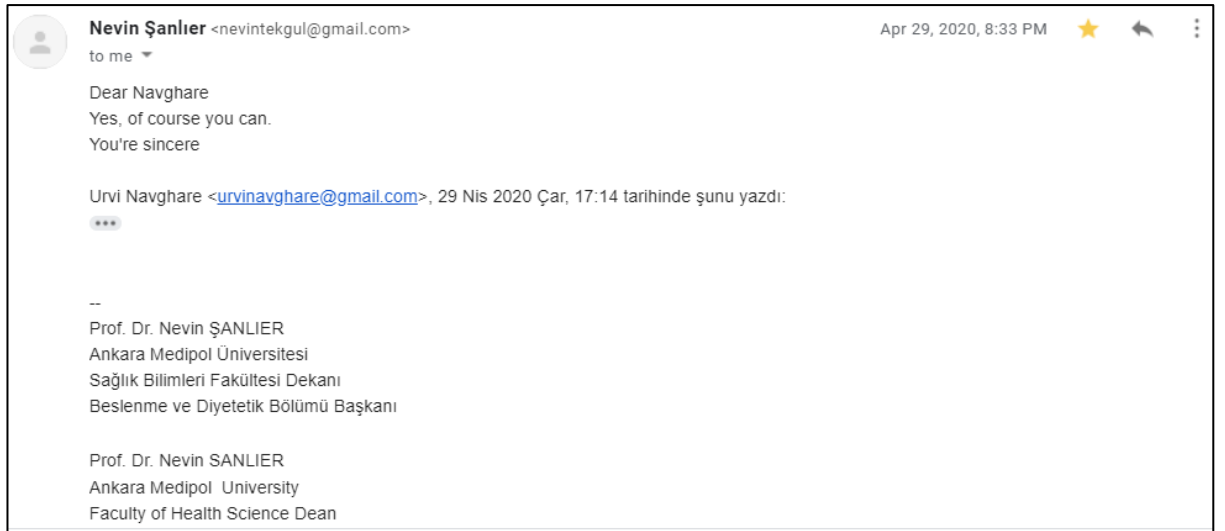
Appendix I:

Permission request to researchers for using questions from thir research questionnaire set.
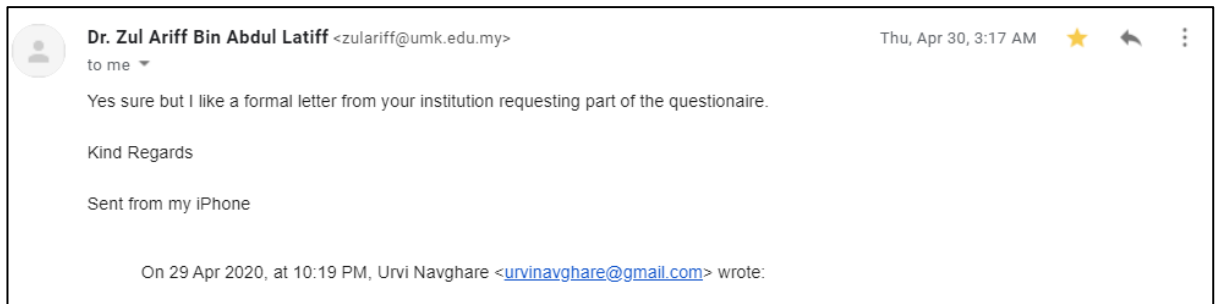

Appendix 1

Appendix II:
Reply from Sanlier and Karakus (2010)

Appendix 2

Appendix III:
Reply from Abdul Latiff *et al.* (2016).

Appendix 3

Appendix IV:
Reply from Manisha Garg.

Appendix 4

Appendix V:
Data Book.

Project Title:	Importance of nutritional labelling on packed food item and customer's buying preference towards it in Ireland.							
Investigators & Affiliators	Urvi Ganesh Navghare, Msc Management							
Column	Abrevation	Full Name of Variable	Definition of Variable	Source	Type of Variable			Coding Option
					Qualitative/ Quantitative	Categorical/ Discr/Contin	Level of Measurement	
A1	1	Are currently residing in Ireland?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Nominal	0=No;1=Yes
B1	2	Are you above 18 years?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Nominal	0=No;1=Yes
C1	3.1	What is your age?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Nominal	0=18-24;1=25-34;2=35-34;3=45-54;4=55 above
D1	3.2	What is your gender?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Nominal	0=Male;1=Female
E1	3.3	Which of the following category best describes your income level before tax (Euro)?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Nominal	0=below-1000;1=1000-3000;2=3000-5000;3=Ab
F1	3.4	What is the highest degree or level of school you have completed?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Nominal	0=Did not finish Highschool;1=Highschool;2=Diploma;3=Bach
G1	4.1	Do you look at the nutrition information while purchasing pre-packed food products?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Nominal	0=No;1=Yes;2=Sometimes
H1	4.2	Do you consider buying food products which has health claims like low fat, High fiber, Light, Healthy, Low calories present on it?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Nominal	0=No;1=Yes;2=Sometimes
I1	4.3	Do you consider the place of Origin on packaged food products while purchasing?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Nominal	0=No;1=Yes;2=Sometimes

J1	5.1	I usually compare the nutritional information and ingredients in simillar packed food with the help of nutritional food labelling?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Ordinal	1=Strongly Disagree;2= Disagree;3= Nither agree nor Disagree;4=
K1	5.2	I deal with nutrition values such as gram/miligram , values sodium/salt , vitamins and minaral per serving?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Ordinal	1=Strongly Disagree;2= Disagree;3= Ninutritionr agree nor Disagree;4=
L1	5.3	I find the information present on pre packed food labels helpful to choose a healthy diet?	Question Self Explanatory	Survey Instrument	Qualitative	Categorical	Ordinal	1=Strongly Disagree;2= Disagree;3= Ninutritionr agree nor Disagree;4=
M1	5.4	I think that the food product which contains healthy nutrients are more expensive?	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Ordinal	1=Strongly Disagree;2= Disagree;3= Ninutritionr agree nor Disagree;4=
N1	5.5	I like to try a new product which has high nutrition claims?	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Ordinal	1=Strongly Disagree;2= Disagree;3= Ninutritionr agree nor Disagree;4=
O1	5.6	I prefer having packed food without nutrition labelling.?	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Ordinal	1=Strongly Disagree;2= Disagree;3= Ninutritionr agree nor Disagree;4=
P1	5.7	I am worried about the nutritional value of the food I buy?	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Ordinal	1=Strongly Disagree;2= Disagree;3= Ninutritionr agree nor Disagree;4=
Q1	6.1	How often do you consider a nutrition information label? [Please select your answer]	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	1=Always;2 =Often;3=S ometimes;4 =Rarely;5= Never
R1	6.2	Do you understand the nutrition food labelling on packed food item? [Please select your answer]	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	1=None of the Nutritional Label;2=So me Nutritional
S1	6.3.1	Which of the following types of nutritional labels do you find easy to understand? Choose all that apply.[Front of pack]	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;1=Fro nt of Pack
T1	6.3.2	Which of the following types of nutritional labels do you find easy to understand? Choose all that apply.[Back of pack]	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;2=Ba ck of Pack
U1	6.3.3	Which of the following types of nutritional labels do you find easy to understand? Choose all that apply. [Guideline Daily Amount (GDA)]	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;3=Gui deline Daily of Gda)
V1	6.3.4	Which of the following types of nutritional labels do you find easy to understand? Choose all that apply. [Other]	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;4=Ot her

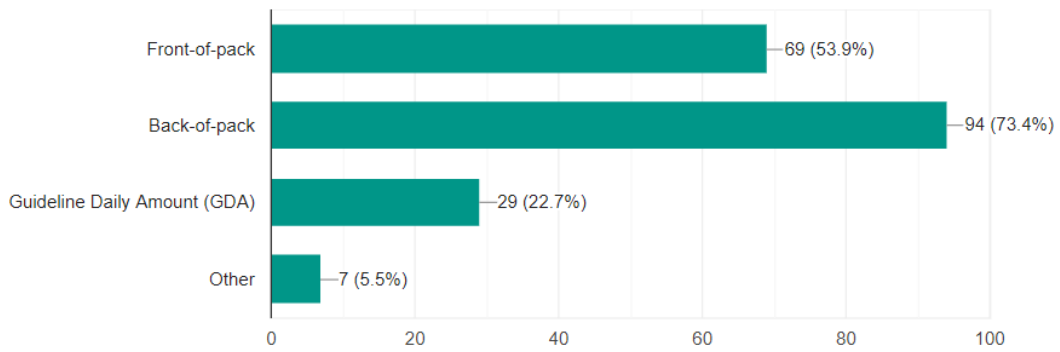|							
W1	6.4.1	**Which factors are important to you when purchasing a packed food item? Choose all that apply. [Nutritional information]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;1=Nutritional Information
X1	6.4.2	**Which factors are important to you when purchasing a packed food item? Choose all that apply. [Brand Logo]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;2=Brand Logo
Y1	6.4.3	**Which factors are important to you when purchasing a packed food item? Choose all that apply. [Taste]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;3=Taste
Z1	6.4.4	**Which factors are important to you when purchasing a packed food item? Choose all that apply. [Price]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;4=Price
AA1	6.5.1	**Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.[Total Calories]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;1=Total Calories
AB1	6.5.2	**Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.[Cholestrol]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;2=Cholesterol
AC1	6.5.3	**Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.[carbohydrate]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;3=Carbohydrate
AD1	6.5.4	**Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.[Protin]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;4=Protein
AE1	6.5.5	**Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.[Fat]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;5=Fat
AF1	6.5.6	**Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.[Sugar]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;6=Suger
AG1	6.5.7	**Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.[Vitamin & Minerals]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;7=Vitamins and Minerals
AH1	6.5.8	**Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.[Fibre]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;8=Fibre
AI1	6.5.9	**Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.[Sodium]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;9=Sodium
AJ1	6.5.10	**Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.[Saturated Fat]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;10=Saturated Fat
AK1	6.6.1	**While shopping in a supermarket which healthy claim factors do you give importance to purchasing food? Choose all that apply. [Low fat]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;1=Low fat
AL1	6.6.2	**While shopping in a supermarket which healthy claim factors do you give importance to purchasing food? Choose all that apply. [Low Cholestrol]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;2=Low Cholesterol

AM1	6.6.3	**While shopping in a supermarket which healthy claim factors do you give importance to purchasing food? Choose all that apply. [High Fibre]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;3=High fiber
AN1	6.6.4	**While shopping in a supermarket which healthy claim factors do you give importance to purchasing food? Choose all that apply. [Light]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;4=Light
AO1	6.6.5	**While shopping in a supermarket which healthy claim factors do you give importance to purchasing food? Choose all that apply. [Healthy]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;5=Healthy
AP1	6.6.6	**While shopping in a supermarket which healthy claim factors do you give importance to purchasing food? Choose all that apply. [100% natural]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;6=100% Natural
AQ1	6.6.7	**While shopping in a supermarket which healthy claim factors do you give importance to purchasing food? Choose all that apply. [Extra Skimmed]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;7=Extra Skimmed
AR1	6.7.1	**Please select the mode of information which support you to understand Nutrition Labelling? Choose all that apply. [Health professional]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;1=Health professional
AS1	6.7.2	**Please select the mode of information which support you to understand Nutrition Labelling? Choose all that apply. [Printed Media]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;2=Printed Media
AT1	6.7.3	**Please select the mode of information which support you to understand Nutrition Labelling? Choose all that apply. [Internet]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;3=Internet
AU1	6.7.4	**Please select the mode of information which support you to understand Nutrition Labelling? Choose all that apply. [Friends-Relatives-Colleague]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;4=Friends-Relatives-Colleague
AV1	6.7.5	**Please select the mode of information which support you to understand Nutrition Labelling? Choose all that apply. [Electronic Media]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;5=Electronic Media
AW1	6.7.6	**Please select the mode of information which support you to understand Nutrition Labelling? Choose all that apply. [Nutritional Labelling]**	Question Self Explanatory	Survey Instrument	Quantitative	Categorical	Nominal	0=No;6=Nutritional Labelling

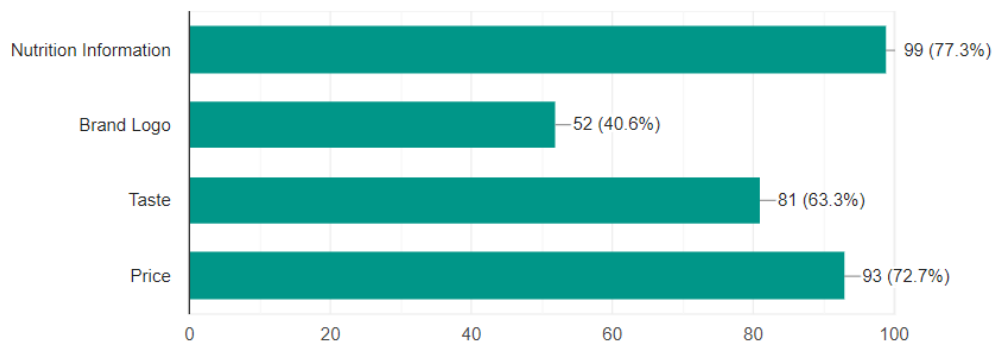*Appendix 5*

Appendix VI:
Reason of H_3 rejected.

Which of the following types of nutritional labels do you find easy to understand? Choose all that apply.

Appendix 6

Appendix VII:
Nutritional Information is crucial factor of while people purchase packed-food.

Which factors are important to you when purchasing a packed food item? Choose all that apply.

Appendix 7

Appendix VIII:
A sample survey response from a random participant.

Importance of Nutrition Labelling on Pre-packed food and customer's buying behaviour towards it in Ireland.

The surveys conducted in Ireland have shown that one out of every five adults and one out of every five children are obese in nature. Therefore, it is predicted that Ireland is going to be the fattest country in Europe by 2035. Many researchers have stated that nutritional labelling is one of the most effective tools which helps people to fight against obesity and diseases related to obesity. So, the aim of this study is to find out whether customers prefer reading nutrition information on pre-packed food item before purchasing it.

I am a student of National College of Ireland pursuing MSc in Management. I have taken up thesis on the topic "Importance of Nutrition Labelling on Pre-packed food and customer's buying behaviour towards it in Ireland." for which I need to carry out a survey in Ireland and to find out customers opinion toward nutritional labelling. I realize how precious your time is. That is why this survey is designed in a way that will take only 3 to 5 minutes of your time. I would request you to fill the survey by choosing an option below.

◉ Continue

Screening Question 1

Are currently residing in Ireland?

◉ Yes

◯ No

Screening Question 2

Are you above 18 years?

◉ Yes

◯ No

Demographic Questions

Whats is your Age?

27

What is your gender?

○ Female

◉ Male

○ Other

Which of the following category best describes your income level monthly before tax (Euro)?

○ Below 1000 euro

◉ 1000 - 3000 euro

○ 3000 - 5000 euro

○ More than 5000 euro

What is the highest degree or level of school you have completed?

○ Did not finish High school

○ High school

○ Diploma

○ Bachelor's

◉ Master's

○ PhD

○ Other

Do you look at the nutrition information while purchasing pre-packed food product?

○ Yes

○ No

◉ Sometimes

Do you consider buying the food products which has health claims like low fat, high fibre, light, healthy, low calories, present on it?

◉ Yes

○ No

○ Sometimes

Do you consider the place of origin on packaged food products while purchasing?

◉ Yes

○ No

○ Sometimes

Please consider the following statements and provide a level of (Dis) Agreement where 1= Strongly Disagree, 2= Disagree, 3=Neither Agree Nor Disagree, 4=Agree,5=Strongly Agree.

I usually compare the nutrition information and ingredients in similar packed food with the help of nutrition food labelling?

	1	2	3	4	5	
Strongly Disagree	○	○	○	◉	○	Strongly Agree

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I deal with nutrition values such as gram/milligram values of sodium/salt, vitamins, and mineral per serving?

	1	2	3	4	5	
Strongly Disagree	○	○	◉	○	○	Strongly Agree

I find the information present on pre-packed food labels helpful to choose a healthy diet?

	1	2	3	4	5	
Strongly Disagree	○	○	○	◉	○	strongly Agree

I think that the food product which contains healthy nutrients are more expensive?

	1	2	3	4	5	
Strongly Disagree	○	◉	○	○	○	Strongly Agree

I like to try a new product which has high nutrition claims?

	1	2	3	4	5	
Strongly Disagree	○	○	○	◉	○	Strongly Agree

I prefer having packed food without nutrition labelling.?

	1	2	3	4	5	
Strongly Disagree	○	○	○	◉	○	Strongly Agree

I am worried about the nutritional value of the food I buy?

	1	2	3	4	5	
Strongly Disgaree	○	○	◉	○	○	Strongly Agree

Please select the desired answer from below checkbox questions.

How often do you consider a nutrition information label?

	Always	Often	Sometimes	Rarely	Never
Please select your answer	○	○	◉	○	○

Do you understand the nutrition food labelling on packed food item?

	None of the Nutrition Labels	Some Nutrition Labels	Most of the Nutrition Labels	All Nutrition Labels
Please select your answer	○	○	◉	○

Which of the following types of nutritional labels do you find easy to understand? Choose all that apply.

- ☐ Front-of-pack
- ☑ Back-of-pack
- ☐ Guideline Daily Amount (GDA)
- ☐ Other

Which factors are important to you when purchasing a packed food item? Choose all that apply.

- ☐ Nutrition Information
- ☑ Brand Logo
- ☐ Taste
- ☐ Price

Which nutritional elements are important to you when purchasing a packed food item? Choose all that apply.

- ☐ Total Calories
- ☑ Cholesterol
- ☐ Carbohydrate
- ☑ Protein
- ☑ Fat
- ☑ Sugar
- ☐ Vitamin & Minerals
- ☐ Fibre
- ☐ Sodium
- ☐ Saturated Fat

While shopping in a supermarket which healthy claim factors do you give importance to purchasing food? Choose all that apply.

- ☐ Low Fat
- ☐ Low Cholesterol
- ☑ High Fibre
- ☑ Light
- ☐ Healthy
- ☐ 100% Natural
- ☐ Extra skimmed

Please select the mode of information which support you to understand Nutrition Labelling? Choose all that apply.

- ☐ Health professional
- ☑ Printed Media
- ☑ Internet
- ☐ Friends-relatives-colleague
- ☑ Electronic Media
- ☐ Nutrition Labelling