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**FOOD PACKAGING AND ITS INFLUENCE ON
THAI' ELDERLY CONSUMER'S FOOD CHOICES**

A thesis presented in fulfilment of the requirements for the degree of
Master in Packaging Technology
At Massey University, Palmerston North, New Zealand

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ABSTRACT

Advancing age is leading to changes in consumer needs, desires and aptitude. One need which is continuous, regardless of age, is the need for food. For some consumer's age associated change can consequently limit their ability in grocery shopping and opening of food packages. Openability of food packaging for aged consumer is seen to be a major problem because some types of packages are difficult to open. As a consequence there is an actual need to provide elderly consumers with more supportive environment when grocery shopping and supportive instrument when using the packages by providing sufficient packaging functions.

This research is in grocery shopping behaviour and attitude of older consumer (60 +) in different culture associated with various different types of food packaging and packaging utilisation. The aim of this research was to determine the different culture of consumers in grocery shopping behaviour and experience of elder consumers in Bangkok, Thailand with the aged from 60 years and over.

Data collection involved quantitative (Questionnaire survey) and qualitative (Focus group) with elder consumers aged from 60 years. The quantitative findings are collected from a consumer questionnaire (n= 100), which mainly focused on consumer grocery shopping behaviour related to packaging utilisation and problems encountered. The result of questionnaire collections were then analysed using the Statistical Package for Social Science (SPSS) version 15. Next, qualitative Focus groups defined in depth the grocery shopping experience as well as packaging utilisation. Each focus group consisted of six or seven adults and was carried out in a familiar social setting. Both the qualitative and quantitative results have identified shopping patterns and motivations for purchase decisions among this age group, and show that elderly consumer interface with both positive and negative experiences when accessing food products.

The result shows that the majority of elder people in Bangkok normally go grocery shopping on a weekly basis in one of the multiple food retailers. Most of the participants had already retired from work and they are commonly living with their family member but they do their own house work. However, living situation did not

have any affect in grocery shopping or packaging utilisation. Education and income could be factors that affect purchase decisions and packaging used. Packaging labels seems to be a major problem for aged consumers, as they find them difficult to read. In terms of packaging utilisation, most problems occurred with the packaging closure rather than packaging itself. Consumer health can affect packaging utilisation and openability of some type of packages which could lead to injury. The thesis discusses the advantages and disadvantages of various different types of food packaging.

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ABBREVIATIONS

CRC Child-resistant closure

CHAPTER 1

INTRODUCTION

1.1 GENERAL OVERVIEWS OF FOOD PACKAGING

Food packaging is pervasive and crucial especially in preservation, storage, transport, distribution and retailing throughout the end-use of the products (Robertson 1993). Without packaging, materials handling would be difficult, unproductive and a precious implement. Packaging performs numerous primary objectives which directly related to packaging functions including protection, containment, convenience, and communication as well documented by Paine and Paine (1992); Robertson (1993), Soroka (2002). These packaging functions are not only made a massive contribution in maintaining quality during production processes but also extending shelflife of the products and influencing consumer on grocery shopping and purchase decision as confirmed by Silayoi and Speece (2004).

The improvement of packaging technology and innovation is directly associated with peoples' lifestyle. Nowadays, peoples' lifestyles have changed tremendously and packaging has become a critical marketing component. Convenience food products are among the most rapidly growing categories, and this development is resulting in packaging more presentable and convenient to use. However, such development of food packaging technology could lead consumer purchase decision difficulty as well as opening difficulty especially for an aged consumer due to aged issues associated with human strength and dexterity as well documented by Yoxall, Luxmoore, Rowson, Langley and Janson (2008). There numerous research have been done on openability food package for aged consumers especially bottles and jars (Voorbij and Steenbekkers (2002); Yoxall, Janson, Bradbury, Langley, Wearn, and Hayes (2006); Yoxall, and Janson(2008); Yoxall, Kamat, Langley and Rowson (2009); Yoxall, Langley, Janson, Lewis, Wearn, Hayes and Bix (2009). Yoxall, Langley, Janson, Wearn and Manson (2006). Yoxall, Langley, Luxmoore, Janson, Taylor and Rowson (2010).

Yoxall, Luxmoore, Austin, Canty, Margrave, Richardson, Earn, Howard and Lewis (2007): Yoxall et al. (2008)).

According to Lumpkin (1985) and Meneely, Strugnell and Burns (2009), the aged population worldwide have dramatically increasing. Thailand is one of the Asia countries that have noticeably increase in the number of aged population (Fujioka and Thangphet 2009). In this research, Thailand was selected as a research region because Thailand is not only well known as one of a major world exporting market of food products and packaging products and materials but also there is rapid growth of modern retailing, supermarkets and department stores (Silayoi and Speece 2004). These development factors could lead people lifestyle changes especially for aged consumers including grocery shopping behaviour and using food packaging products. There are four main types of packaging materials that commonly used including plastic, paper, metal and glass and these will be reviewed in depth in the review of literature session.

1.2 FOOD PACKAGING DEVELOPMENT AND PROBLEMS INTERFACED BY AGED CONSUMER

As previously mentioned that packaging has been developed promoting food safety, convenient to use, and obviously attractive to consumers as regarding to packaging functions (Soroka 2002, Robertson 1993). Yet, some types of packaging materials and design could influence consumer purchase decision making, especially utilising or opening difficulties. Yoxall et al. (2006) found that 99% of packaging has become more difficult to open compared to the last 10 years for older consumers, and the difficulties with perception can cause problems to especially with newer types of packaging. For example, consumers are unable to understand instructions of how to open or use the new types of packaging correctly. Haigh (1993) also mentioned that the packaging design could be developing products and packaging appropriate for the older generation.

A research had been done with the elderly consumers in Albany, Auckland, New Zealand (Han 2005) found that the elderly consumers were not keen to change the food packaging. Elderly people were not influenced by the food packaging when making a

purchase decision. They did not stop buying the food products just because of the packaging problems or difficulties. Opening problems and reading labels were discovered to be the main packaging difficulties encountered by the elderly consumers in this research.

Elder consumer can encounter problems with food packaging due to physiological and physical changes as well as the health issues. According to Haigh (1993); Imrhan (1994) and Person, Warell, Karjalainen and Rahe (2009), the most relevant physical capabilities to consider for elderly are vision (i.e. eyesight), hearing, mental ability and hand function (i.e. size, grip and turning). Various research have been done on openability of elderly consumer with particular food packages closure (i.e. lug closure, twist on and off) (Kuo, Chang, Lin, Hsu, Ho, and Su (2008); Langley et al. (2005); Lewis, Menardi, Yoxall, and Langley. (2007); Voorbij and Steenbekkers (2002); and Yoxall et al. (2009)). Such physical changes can affect grocery purchase determination and the ability to open particular types of food packaging products. Other physical symptoms that could impact the consumers ability to open packages, include rheumatic, arthritis, not enough strength, dexterity, precision, coordination, and joint mobility

1.3 DIFFERENT LIVING LIFESTYLE AND CULTURES INFLUENCING IN FOOD CHOICES

Previously, research had been done with the elderly consumer in New Zealand by focusing on the behaviour of grocery shopping and problems encountered when the package was used by the elderly.

This research is to investigate if different living lifestyle and culture could be influencing in grocery shopping behaviour as well as openability of various types of food packaging materials. Thailand was selected as a research region due to the obviously increasing number of elder population (Fujioka and Thangphet 2009). This increasing of elderly population, is leading to changing lifestyle by increasing the number of elder only households rather than the traditional family based living. (Caffrey (1992); Knodel, Saengtienchai, and Sittitrai (1995); Siriboon and Knodel (1994)). Such

changes lead my interest in doing this research to find changes in grocery shopping behaviour and problems encounter when opening food packaging for elderly Thai consumers.

1.4 RESEARCH STRUCTURE AND OBJECTIVES OF THE THESIS

This research is purposing to investigate the problems encountered when elderly people in Thailand using packaging. This thesis is divided into 6 chapters including;

1.4.1 Research structure

In chapter 2, the literature pertaining to the problem interface of aged consumer related to grocery shopping and problem encounter when using packages. The literature review relates to the factors that possibility reduce the ability of aged consumers during grocery shopping and using the packages. Also, the review indicates the factors that may influence food choices during grocery shopping and problems encounter when used the package in different countries compared to Thailand.

In chapter 3, the methodology session presents materials and methods implementation in this research consist of Quantitative (Questionnaire survey) and Qualitative (Focus group). And the statistical analysis method has been mentioned in this chapter as well.

In chapter 4, the results of both quantitative and qualitative methods are presented. Each method will be analysed, evaluated and discussed logically which additionally supporting information and reasons from the literature review.

In chapter 5, the conclusion of this research and classify the specific factors that it could possible to be to improved the experience of the Elderly with packaging.

In chapter 6, recommendations and research recommendation for further study will be mentioned.

1.4.2 Aim and objectives of thesis

The research expectation is to search the factors that influence the Thai's aged consumer when grocery shopping and selecting products. Then, the product selections are being determined by the package utilisation or difficulties utilising a particular package.

The main objectives are:

1. To identify the factors that influence aged consumers in terms of grocery shopping behaviour and purchase determination. To identify what factors are the most frequently involved in making the purchasing decision such as graphic, colour, shape and size of the packages, and product information.
2. To investigate whether or not living situation, income, education, location, transport and the supermarket environment contribute to the way older people grocery shopping and use packaging.
3. To investigate problems encountered when utilising of the different types of food packages. To Discovery the various issues relating to packaging including packaging opening, resealing among the older consumers using common food packaging types found in the supermarket
4. Examine consumer expectation and need for packaging improvements, including packaging materials, packaging design and packaging quality. To make recommendations and suggestions that can be used to develop appropriate food packaging.

CHAPTER 2

REVIEW OF THE LITERATURE

2.1 INTRODUCTION

As packaging technology has been developed, packaging functions become more obviously important prior to suit people lifestyle. For instance, the high protection packaging which seal properly and convenient to use and carry and clear information and instruction of how to use with an efficient containment material. However, there are some types of packaging materials and design could lead consumer opening or using difficulties especially for ageing consumers. Haigh (1993) indicates the increasing number of aged consumer so that it could be a target in designing packaging effectively. Robertson, Duizer, Han and Bisht (2009) also confirmed that the packaging design, utility and convenience feature can be tremendously important for ageing consumers which, also associated to the physical and physiological changes. There are various researches have been done on packaging opening difficulty for aged consumers (Duizer, Robertson and Han (2008); McDaniel and Baker (1977); Voorbij and Steenbekkers (2002); Yoxall et. al. (2008). All factors that lead packaging opening difficulty for aged consumer will be reviewed in detail in the following sections.

2.2 GENERAL FOOD PACKAGING

Food packaging can be defined in several ways as well documented by Robertson (1993), Soroka (2002), and Maesh and Bugusu (2007). Although, the definition is different, the purpose of packaging would be expressed the same way including containing, protecting, and identifying of the products consequently facilitating all producing process throughout the distribution, market and consumer (Robertson (1993) and Soroka (2002)). Packaging is available in three main levels which important in different priority consist of primary packaging, secondary packaging and tertiary packaging (figure 2-1) and four major packaging functions which are necessary

implementation for all packaging levels (Paine and Paine (1992); Robertson (1993) and Soroka (2002)). There are various packaging materials available in the market consist of plastic, paper, glass and metal and these materials are used to make packaging closures as well. All of these materials have been intensively reviewed in the following sections.

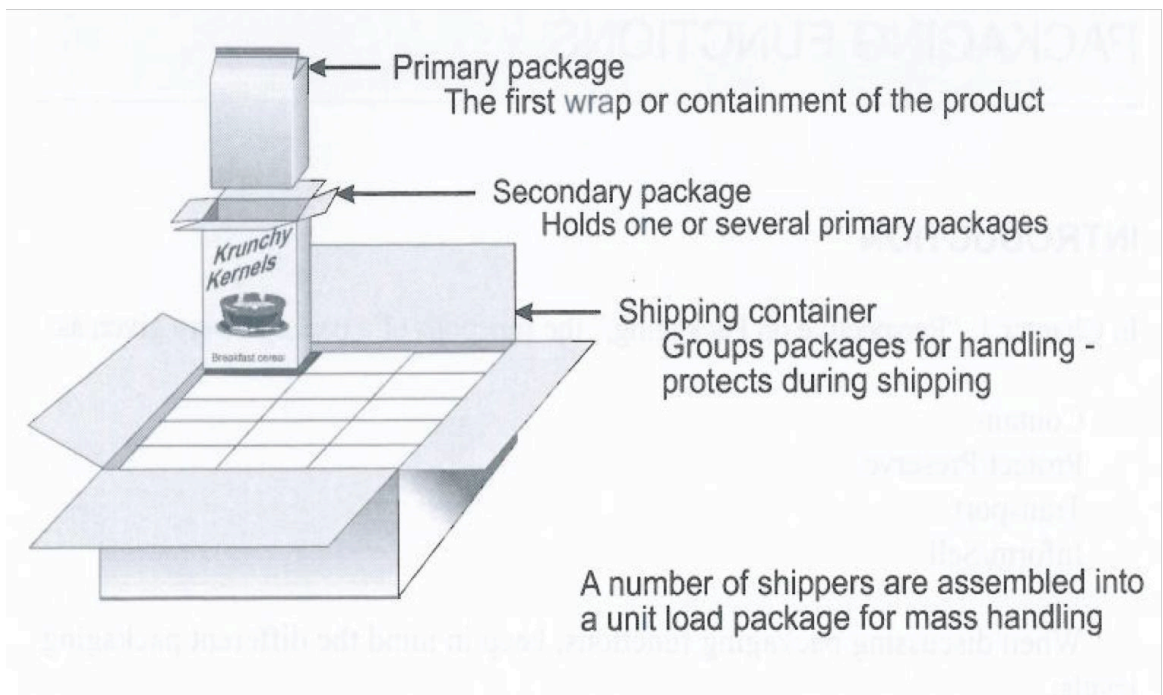


Figure 2-1 Packaging can have many levels. All levels of the system must work together (Soroka 2002)

2.3 PACKAGING MATERIALS

Food packaging materials consist of assorted materials including plastic, glass, metal, and paper with a board range of performance characteristics. In terms of packaging utilisation, packaging closure also plays a major important role and it could lead problem while opening the package. These packaging materials and package's closure have been in depth reviewed in the following statement.

2.3.1 Paper and cardboard packaging

There are numerous authors have been described and explain the process of paper and cardboard packaging were made (Lee, Yam and Piergiovanni (2008); Robertson (1993); Soroka (2002)). Paper packaging is commonly use worldwide and some countries are required to be recycle after used. Paper and cardboard packaging are commonly used especially for dried products, snacks, instant drink products and bakery products because paper package is cheap and not require a barrier properties. In Thailand, there are many type of food packaging that conducted by paper materials consist of paper cup, plastic coated packaging food box, and many types of cardboard packaging boxes. Unfortunately, there is no research have been done in problem utilising occurrence of paper packaging. Figure 2-2, shows examples common paper packages that available in the market.



Figure 2-2 paper packaging

2.3.2 Glass packaging

Glass has numerous advantages for food packaging applications including it is impermeable to gases and vapours, so it maintains product freshness for a long period of time without impairing taste or flavour. Also, it is odourless and

chemically inert with virtually food products, the properties of glass packaging were well reviewed by (Lee, Yam and Piergiovanni (2008); Robertson (1998); Soroka (2002)). Glass packaging is rigid, provides good insulation, and can be produced in numerous different shapes, size and colour and add more value to the products. Lastly, glass packaging benefits the environment because it is reusable and recyclable. Like any other materials, glass has some disadvantages namely heavy weight and breakable. Figure 2-3 illustrates the sample types of glass packaging.



Figure 2-3 Glass packaging

2.3.3 Metal packaging

Most common metal food packaging can be found as food can, tin can and aluminium foil (Lee et al., 2008). This type of packaging material is a most versatile form of packaging which offers combination of excellent physical protection and barrier properties, formability and decorative potential, recyclability and consumer acceptance (Robertson (1993); Soroka (2002)). Metal cans exhibit advantages of being relatively inexpensive, capable of being thermally processed, rigid, and easy to process on high-speed lines and readily recyclable (Paine and Paine, 1992). Soroka (2002) has been well review the

process of can making as well as offering the advantages and disadvantages of metal cans. The history of metal packaging can also be found in Robertson (1993). The following statement has been state the most common type of metal food packaging including aluminium packaging and tinplate packaging.

2.3.3.1 Aluminium packaging

Aluminium is commonly used to make cans, foil, and laminated paper. It provides numerous advantages including lightweight, highly resistant to most forms of corrosion and highly effective barrier to air, temperature, moisture and chemical attack (Paine and Paine (1992) and Robertson (1993)). Additionally, aluminium is ideally material for recycling because it is easy to retrieve and process into new products. Pure aluminium is used for light packaging of primarily soft-drink cans, pet food, seafood, and rethreaded closures (Figure 2-4). However, there are some disadvantages of aluminium available due to its high cost compared to other metals and its inability to be welded, which renders it useful only for making seamless containers (Lee et. al., 2008).



Figure 2-4 Aluminium can

Another type of metal packaging materials that have been used for many types of food products such as snacks and cooking ingredients are Aluminium foil and Metallise bag (Figure 2-5). Robertson (1998) and Soroka (2002) have well reviewed of the process making aluminium foil. Moreover, aluminium foil is available in a wide range of thicknesses, with thinner foils used to wrap food and thicker foils used for trays. Foil provides an excellent barrier to moisture, air, odours, light, and microorganisms as same as Metallise bag which, have low permeability contributing the product last long especially for the nut or oily products.



Figure 2-5 Metallise bag

2.3.1.2 Tin plated steel packaging

Tinplate produced from low-carbon steel is well documented by various authors (Lee et. al., (2008); Robertson, (1993); Soroka, (2002)). Although, tin provides steel with some corrosion resistance, tinplate containers are often lacquered to provide an

inert barrier between the metal and the food product (Paine and Paine, 1992).

In addition to its excellent barrier properties to gases, water vapour, light and odours, tinplate can be heat-treated and sealer hermetically, making it suitable for sterile products. Because it has good ductility and formability, tinplate can be used for containers of many different shapes. Thus, tinplate is widely used to form cans for drinks, processed foods, aerosols and packaging closures (Figure 2-6). Lastly, tinplate is easily recycled many times without loss of quality and is significantly lower in cost than aluminium.



Figure 2-6 Tin can

2.4 PLASTIC PACKAGING

There are assorted different types of plastics are being used as materials for packaging food including PET (polyethylene terephthalate), LDPE (low density polyethylene), polyolefins, polyesters and PVC (Polyvinyl chloride) (Figure 2-7) as well defined by

Paine and Paine (1992); Robertson (1998) and Soroka (2002). On the one hand, there are a number of advantages of plastic packaging involves flexibility, inexpensive, and lightweight. On the other hand, a plastic is variable permeability to light, gases, vapours, and low molecular weight molecules. Despite these safety concerns, the use of plastics in food packaging has continued to increase due to the low cost of materials and functional advantages such as thermosealability, microwavability, optical properties, and unlimited size and shapes over traditional materials such as glass and tinplate.



Figure 2-7 Plastic packaging

2.5 OTHER HYBRID PACKAGING SYSTEMS

A popular package is the Tetra Pak a type of aseptic carton. Its composite structure usually encloses paper, polymer, and aluminium foil. Tetra Pak has good heat resistance, provides effective light and external environment protection and the surface of the package is also printable (Paine and Paine 1992). The aluminium foil is an excellent gas, water, and light barrier particularly when laminated between two plastic layers and it is thermally stable (Soroka 2002). (Figure 2-8). Aseptic cartons are used extensively for products such as fruit juice, milk, and other drinks.

Tetra Pak's innovation is in the area of aseptic processing liquid food packaging which, when combined with ultra-high-temperature processing (UHT), allows liquid food to be packaged and stored under room temperature conditions for up to a year. Composite packaging materials are created by blending disparate materials such as plastics with metals. It can create new packages with desirable properties to increase shelf life, very attractive appearance.



Figure 2-8 Tetrapacks (Left) and Composite Packaging (Right)

2.6 COMMON FOOD PACKAGING CLOSURES

Packaging is normally enclosed with various different types of packaging closures. There is various definition of the packaging closure, it is known as a mechanical device that seals the contents within a container and can be removed to allow the contents to be dispensed (Robertson, 1998; Soroka, 2002). Packaging closure involves corks, stoppers, lids, and caps and these closures are predominantly conducted from metal or plastic materials. Furthermore, packaging closure is a part of the fundamental packaging functions containing, persevering and protecting the content. Soroka (2002) was also stated the requirement of closure design for both producers and the end-use. Package closure and opening types are important for the consumer especially for aged consumers. The following statement will be described the various different types of

packaging closures that is commonly implemented in food packaging including ring pull, peel-able seal, slide closure, screw-on and off lid or cap, twist on and off cap and cut open by using opener and more.

2.6.1 Ring pull

Ring pull is commonly implemented particularly in aluminium cans, tin, glass bottles and plastic bottles. There are two main types of ring pull have been implemented in the package including aluminium ring pull and plastic ring pull. The ring pull is easy opening container, it is still requires the pulling force to pull ring tab upwardly and away from the top of the container. As pulling force require it may cause many problems such as broken fingernails and cut in fingers. The research have been done by Winder et al. (2002), mentioned that about 42% of the consumer estimated from 67,000 people in the UK who accounted of packaging accidents particularly with tins, traditional, ring-pull and key-opened. Furthermore, for elderly people and people afflicted with arthritis is possibility unable to open the containers or even lift the ring tab. Figure 2-9 indicates the example of the package with the ring pull closure.



Figure 2-9 Ring pull

2.6.2 Peelable seal

Peelable seal is normally found underneath the flip top and sealed of containers (Figure 2-10). It sealed with the heat sealer as described in the Robertson (1998) and Soroka (2002). Paper, plastic and aluminium are the most common materials used for sealed package of products (Kaye 2000). Polystyrene is most commonly inventing relates to a heat sealable packaging film produce. Various containers made from polystyrene are used for packaging liquid and pastry products such as dairy products (yoghurts, creams, cream cheese, water and ice-creams) and ready cooked.

Presumably the peelable seal closure may contribute openability problem especially for elderly consumer as well documented by Yoxall et al. (2006) that the difficulties with perception can cause problems for newer types of packaging, with consumers unable to understand instructions or find pull tabs as well as fail to open because they are unable to apply the required forces.



Figure 2-10 Polymer package with a Peelable seal

2.6.3 Screw-off lid/cap

A screw cap can be metal and plastic cap that screws onto threads on the neck of a plastic and glass bottles and even Tetra Pak (Figure 2-11). Soroka (2002), indicate the process of how the screw cap made. There are some problems occurred with the user especially for the elderly when open and close this type of package closure because of the dramatic reductions in physical strength, which can have a massive impact on a consumer's ability to open packaging as well documented by Yoxall et al. (2006a). Yoxall et al. (2009), confirmed that the aged consumer are likely to have relative difficulties with strength, dexterity and cognition with the grip forces applied when squeezing or opening various different types of bottles. Therefore, Langley et al. (2005) have been creating the method to improving openability particularly for a sort of screw on and off closure prior to reduce the openability problem especially for aged consumers.



Figure 2-11 Screw cap

2.6.4 Twist-on and off cap or Press-on/twist-off metal closure

This type of packaging closure is frequently cause problem especially for aged consumer because it required a twist force. According to, the greatest problems were caused by the lack of proper squeezing grip and key pinch grip; some rheumatic patients can only use a thumb-palm grip. Voorbij and Steenbekkers

(2002) found that the opening vacuum-sealed jar can create a huge problem for the elderly consumer because they are unable to exert sufficient twisting force.

Twist force could be related directly to hand function including hand strength, dexterity, precision, coordination, joint mobility and sensitivity (Haigh 1993). However, many authors have been done the research on the opening difficulties by designing a user-friendly of food packaging designing particularly for an ageing population by measuring wrist strength for twisting jar lids and openability (Yoxall et al. (2006a); Yoxall et al. (2007)). In addition, there are some tools available in the market which can be used to open this type of package closure as well documented by Yoxall et al. (2010).

Crawford, Wanibe and Nayak (2002) have done the research on the interaction between lid diameter, height and shape on wrist torque exertion in younger and older adults. Opening vacuum-sealed jars can pose a problem for a large percentage of the elderly population because they are unable to exert sufficient twisting force (Kuo et al. (2008); Voorbij and Steenbekkers (2002); Yoxall et al. (2006a); Yoxall and Janson (2008); Yoxall et al. (2009)).



Figure 2-12 Twist on and off cap

2.6.5 Crown closure

Crown closures can be found mostly on the bottle of beer, and carbonated drinks (Figure 2-13). It is the familiar crimped-on metal caps which, made from

predecorated tinplate as mentioned in Soroka (2002). The crown closure is conducted mainly for oxygen sensitive product like beer and carbonated drinks. However, this type of package closure requires a tool to open which may limit the ability of some aged consumer to open. With a packaging technology development, the twist-off crown is a variation. These crowns are of slightly lighter gauge, reduced temper tinplate than regular crowns (Soroka 2002).



Figure 2-13 Crown cap

2.6.6 Zip lock

Zip lock bag is a resealable plastic bag which has innumerable advantages including its economical, reusable, very convenient to use and good protection and keep the content safe last longer. The ability to be opened and then reclosed to protect the contents is very useful.



Figure 2-14 Zip lock bag

2.6.7 Child-resistant closure

Child-resistant closure (CRC) has a special safety closures designed to reduce the risk of children ingesting dangerous items including drugs, household cleaning agents, pesticides and other products defines which substances are regulated (Figure 2-15), by making the closure difficult to open. However, this type of package can be affected in ability to manipulating and opening food or medicine packaing of elderly consumer (Yoxall et al. 2007).



Figure 0-15 Child-resistant closures

2.7 ELDERLY CONSUMERS

The definition of elderly in this report is defined as 60 years of age and older and the aged range can also be found in Fujioka and Thangphet (2009). Jitapunkul and Bunnag (1999) has reviewed that the Thai elderly population increased from 1.21 millions in 1960 and continuous to 4.02 in 1990 and will reach over 10 millions in three decades (Figure 2-16).

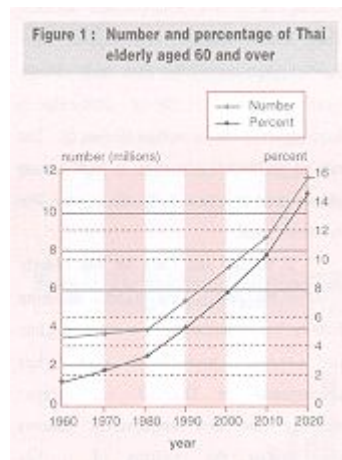


Figure 2-16 indicates the aged population in Thailand (Jitapunkul and Bunnag (1999)).

Figure 2-17 indicates the proportion of aged population in New Zealand (Statistics New Zealand (2009)). The population aged 65 and over have been increased continuously over decades and throughout the future. The similarity for both countries showed the noticeable increasing of elderly population and continuously increased over decades.

Figure 1

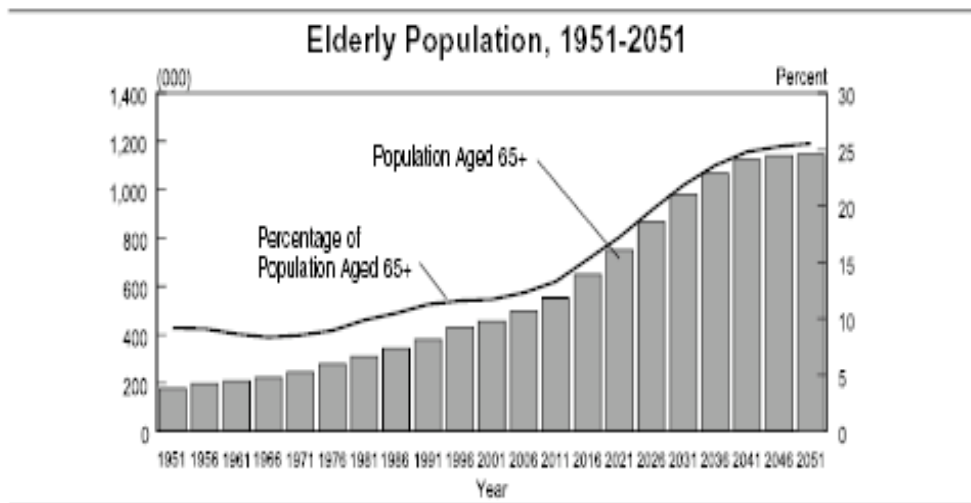


Figure 2-17 indicates the aged population in New Zealand over decades (Statistics New Zealand (2009)).

2.8 THE CIRCUMSTANCES OF ELDERLY POPULATION WORLDWIDE AND THAILAND

Population ageing is increasingly a global phenomenon. According to Jitapunkul and Bunnag (1999), presented the demographic statistic of aged population increasing about from to and will be increased to about in 2050. There is an aging population explosion in many countries. Martin (1990) has shown that the population of elderly people in south Asia is increased. Elderly populations are growing at an exceptional rate everywhere in the world. The elderly population also increased in Australia (Booth and Tickle 2003) as well as New Zealand (Statistics New Zealand 2009). The population of the world is ageing and the number of people aged 60 years in the United Kingdom and Ireland is increasing (Meneely et al. 2009).

In most traditional Asian societies, the elderly live in extended, multigenerational households and rely primarily on their adult children for financial support and personal care (Knodel, Saengtienchai, and Sittirai, 1995). Today, the traditional family support system is under pressure from demographic, social, and economic change (Knodel, and Saengtienchai, 1999). The elderly have few adult children to provide support, and many

of these children have moved away from their family home (Siriboon and Knodel 1994).

Official statistics show that the number of people aged 60 and over in Thailand has continued to grow dramatically as second fastest in South-East Asia, next to Singapore as mentioned in Fujika and Thangphet (2009). The proportion of older persons in the total population has more than doubled, from 5 percent in 1950 and 1975 to 11 percent in 2007 and it will reach a predicted 19.2 percent in 2025 and 27.8 per cent in 2050 (Fujika and Thangphet 2009).

2.9 COMMON HEALTH PROBLEMS OF AGED CONSUMER THAT EFFECT ON GROCERY SHOPPING AND PACKAGING USED

The increased number of elderly population associate with the physical and physiological changes that will arise, provide a challenge to the way products and packages are designed. And this factor can be related directly to the grocery shopping behaviour, product selection and could lead to the problem when used of various different types of packages. In terms of packaging utilisation, the loss of strength and dexterity presents the most difficulties as well as the ability to manipulate and open food packaging is becoming concern associated with aging. Eyesight is obviously stated as a major problem when going grocery shopping because it is difficult to read the label of the products (Haigh 1993).

Changing physical strength or muscle function is one of the obvious features of aged people (Haigh (1993) and Imrhan (1994)). And not enough strength could cause difficulties opening the package especially glass jar or bottle with vacuum sealed twist open (Voorbij and Steenbekkers, (2002); Yoxall et al., (2006); Yoxall et. al., (2007)). Furthermore, health problems such as Arthritis, osteoporosis (brittle bones), rheumatism could be affecting the ability in opening food package as well. Arthritis is common disease suffered by older people. Broken bones as a result of osteoporosis are potentially lead problem opening packaging or container.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The purpose of this chapter is to present the theoretical assumptions underpinning this research, as well as to introduce the research methods and materials applied. This research is to define the scope and limitations in elderly grocery shopping habit and problems encounter packaging used. The main data collection techniques applied in this research study was structured to be similar to the previous research in Auckland, New Zealand (Han 2005). There research is structured in two major sections consisting of the quantitative determination (Interviews Questionnaire Survey) and qualitative determination as a Focus Group study. Next, all data from the questionnaire survey were statistically analysed in specific statistical program (SPSS) and then the results were interpretative and discussed logically in the next following chapter.

3.2 ETHICAL CONSIDERATIONS

This study involved human subjects, and protection of human subjects is essential in the conduct of research. This means that all the participants have the right to be informed about research in which they participate. Therefore, all document (e.g. the information sheet and participant consent form) involved in this research have had approved by Massey University Human Ethics Committee (MUHEC: PN) in accordance with ethical standard. Then, all approved document were translated in Thai language and approved by the research consultancies at Kasetsart University, Thailand before materials were approached and the data were collected. All documents can be found in Appendices section.

In this study, a complete explanation and written description about the purpose, the method, the potential risks and benefits of participation and protection of confidentiality

were given to each participant who met the criteria for participation (Appendix I). The participants were given opportunities to ask questions and decline, or agree, to participate in this study. Participants who agreed to participate were asked to sign a consent form (Appendix I). All documents were translated into the Thai language for participants.

All data, apprehended in the form of audiotape recordings, transcripts, and field notes, were coded to protect participant's identities and to record the outcome of the interaction. For example, indicated the name (A) of a participant who was interviewed. Codes have been used in the inscription of the data chapters. No real names have been used in any publications or reports of this study. Then, all interview tapes and information will be destroying 6 month after the research has been completed.

3.3 SELECTION OF THE STUDY SITE

Bangkok province, Thailand was selected as the site for this study primarily because it is a capital city and there are varieties of people living in different situation and working in this city.

3.4 DATA COLLECTION METHODS

This research method have been distributed into two major sections including quantitative (questionnaire survey) and qualitative (focus group). To start with questionnaire survey, the researcher gathers data from the first questionnaire interviews or observations and then uses the initial emerging ideas to develop further interviews and observations. This means that the gathering of data becomes more focused and specific as the process develops. These specific questions and answers were listed and applied in next section.

3.4.1 Consumer questionnaire survey

Basically, questionnaire survey is to gather information from respondents and then the data were analysed statistically for the responses. The advantages of questionnaire survey is standardised answers that make it simple to compiled data however, it is limited by the fact that respondents must be able to read and understand the questions. Thus, this method has been applied in this study. The purpose of this research is to observe the shopping habit of the elderly, product selection, utilisation and problems encounter with the packaging opening difficulties. The questionnaire survey was restructured, modified and translated from Han (2005), prior to suit the Thai consumer. This involved translating the questionnaire into Thai, and using examples of local food products available in supermarkets.

3.4.1.1 Preliminary

Initially, the materials used for this research have to be approved and certified that it is effective, easy to understand and understand correctly by all respondents. Therefore, a preliminary experiment was conducted as a pre-tested to test the Thai language questionnaire and to ensure the questions were appropriate for Thai Elderly. Twenty Thai respondents who are living in Palmerston North, New Zealand with various different status including 2 elderly, 1 researcher, 6 PhD students, 7 restaurant chefs and 4 housewives were invited to answer the questionnaire.

All respondents answered the questionnaire survey and then discussed the contents with the researcher identifying any mistakes or question miss understandings. The questions were modified and rechecked again by the same group of respondents for second times to ensure that the questionnaire was understood correctly. Then, all the research procedures including the questionnaire survey (comparable version) were submitted for a final approval by the Dr. Pisit Dhamvitee at Kasetsart University in

Department of Agroindustry, Product Development and Packaging institute and Associate Professor Vanee Chonhenchob, Department of Agroindustry, Packaging Technology institute, Kasetsart University.

3.4.1.2 Research questionnaire survey

A hundred elderly consumers who are over 60 years were randomly invited respectfully to complete the interview questionnaire survey on grocery shopping habits, utilising and problems facing on food packaging. All respondents were recruited from various different places including supermarket, shopping department store, mini-mart, local grocery shop, market, elderly community and general village in Bangkok, Thailand. Before the questionnaire interview started, the interviewer quickly introduced herself and explained the purpose of this research to the respondents individually. To comply with Human Ethics procedures, an information sheet (Appendix II) of this research was presented to the respondents individually, and also a consent form (Appendix I) was agreed and signed individually by the respondent prior to the completion of the questionnaire survey.

Questions associated with the purpose of this study are separated into five major parts including, customer shopping habits, food packaging attributes with various different types of packaging materials, health status of the respondents, food packaging problems encountered in their everyday lives and their demographic information (Refer to Appendix III). All respondents then completed the questionnaire survey by reading through all the questions contained in the questionnaire survey by themselves. The interviewer also was able to clarify each question by asking some further information for each question individually.

In the section of the questionnaire on packaging materials and packaging utilisation, some types of packaging materials were illustrated and

demonstrated by the interviewer to the respondents to distinguish the understanding of the questions. Furthermore, the respondents could share their experience with the different types of packaging materials and problems encountered; this was also the purpose of indicating the packaging samples.

All data received from the questionnaire survey were recorded by assigning a number as a rating scale (Appendix IV) to each response question were then analysed to each response question using SPSS (Version 13). (Appendix IV). The data were analysed using the correlation relationships between the various nominal variables were analysed by using the cross-tabulation and Chi-Square tests in SPSS based on the significance value. All the variables related to the respondents on the packaging survey questionnaire were identified as well as the frequencies of responses were calculated for each question.

3.4.2 Focus group study or group study or group discussion

This section is aiming to comprehensively discover the potential improvements of the food packaging selection by the elderly people who are regularly going grocery shopping by their own. This section will allow the Elderly to elucidate the problems encounter when utilising the packaging and the solutions that they applied. The questions in this section, use a comprehensively focus group study, were based on the information collected from the questionnaire survey.

3.4.2.1 Preliminary

Prior to the two focus group studies, a preliminary focus group study was conducted as a pre-tested with 8 participants (1 researcher, 4 PhD students and 3 restaurant chefs) arranged by convenience sampling

method at Massey University (Turitea campus). Thereafter, the questions were modified to include questions that could elicit more detailed information about food packaging utilisation consist of opening and resealing practices. Moreover, all the research procedures including the questionnaire survey and the focus group study procedure were submitted and approved by Dr. Pisit Dhamvitee at Kasetsart University in Department of Agro-industry, Product Development and Packaging institute and Associate Professor Vanee Chonhenchob, Department of Agro-industry, Packaging Technology institute, Kasetsart University.

3.4.2.2 Research focus group study

A total of 13 participants voluntarily agreed to take part for further discussions in potential improvement of the food packaging after the questionnaire survey were completed. This section was distributed into two separate sessions which depending on where and when was most convenient for the participants. First session contained 6 people and was conducted at the Elderly community, Simai, Bangkok. And the second session contained 7 people and was conducted at the Elderly community, Phahonyothin, Bangkok, Thailand. During the discussion there was an audio and videotape recorded, as well as transcribed verbatim. The transcripts verbatim (Refer to Appendix IIV) were summarized, classified and categorized in-depth through qualitative data analysis method. Each group discussion process took an average 90 minutes.

Firstly, all participants received warm welcome by the researcher and then the researcher explained all research procedure and conditions about this focus group study and the research objectives. Meanwhile, all participants received the information sheet (Refer to Appendix II), consent form and the questionnaire survey prior to comply with the Ethic committees (Refer to Appendix I). The participants then introduced themselves to every participant prior to familiar with each other as well

as to make everyone feel more comfortable. The researcher were then lead all participants into the topic by starting with the warm-up questions about their experience in grocery shopping habit and share their experience with any influential factors affecting their purchasing decision, this is prior to make the participants more comfortable with the topic (Refer to Appendix IIV).

During group discussion the researcher was presenting various types of packaging materials and discussed each type of packaging individually. All questions were asked progressively and the participants were encouraged to open and reseal the various different types of food packaging during the discussion. Meanwhile, open-ended questions focused on the advantages, disadvantages and possible improvement were discussed among all the participants. The verbal transcription can be found in (Appendix IIV).

QUANTITATIVE (QUESTIONNAIRE SURVEY)

4.1 INTRODUCTION

The aim of Questionnaire survey interview is to define the grocery shopping behaviour of Thai elderly which associate to the problems encounter with food packaging. This section is to analyse the result of questionnaire survey in each individual question and it will discuss the factors that impact grocery shopping and packaging utilisation.

4.1.1 Demographic characteristics of the participants

To start with the demographic, a hundred elderly were respectfully invited to participate in completing the questionnaire surveys. Figure 4-1 indicates the overall demographic scale for all participants, there were more female than male about 69% and 31% respectively. According to Fujika and Thangphet (2008) and Jitapunkul and Bunnag (1999), the number of female is higher than male approximately 10% since 1950 till now and continuously to 2050.

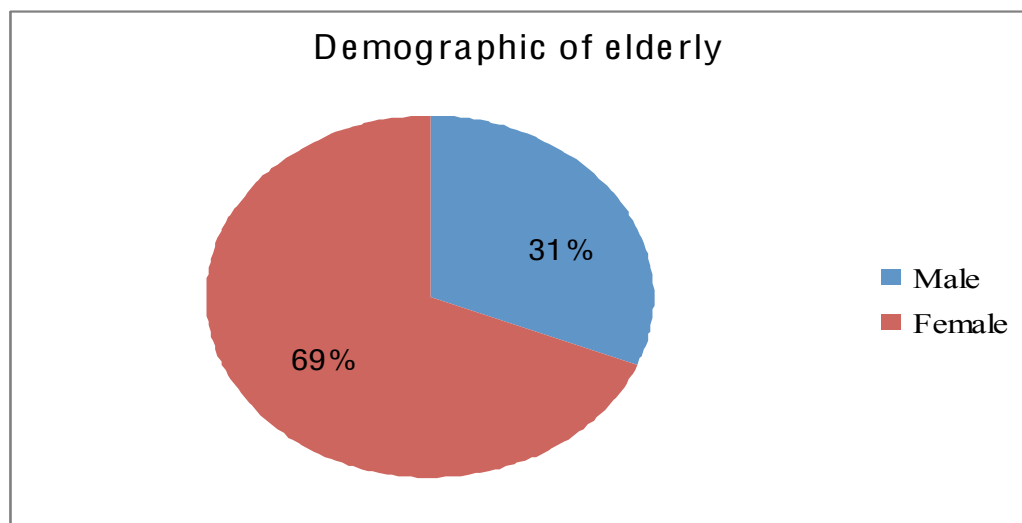


Figure 4-1 Percentage of Male and female in the initial survey

In terms of aged group, the majority people are aged of 60-65 years 58% following by 22% of 66-70 years, and then 15% of 71-75 years and over 76 years was only 5%. (Figure. 4-2). Some people with aged between 60 and 65 are still be able to work in some organisations but the aged from 66 and over are mostly stay at home look after their children or grandchildren at home and being a housekeeper.

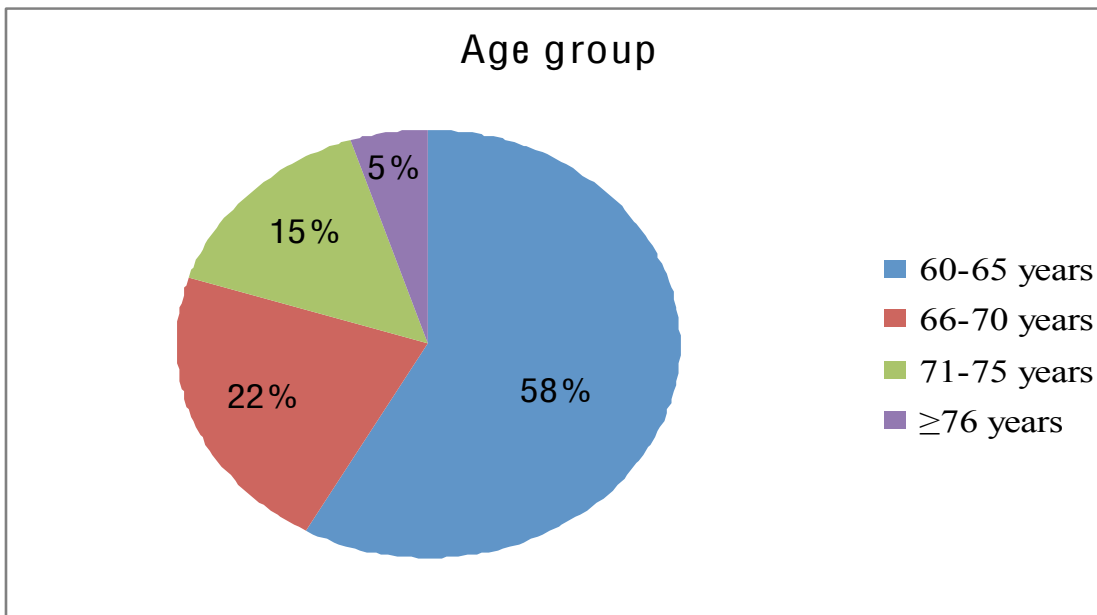


Figure 4-2 The demographic of elderly consumer in Bangkok, Thailand with different living situation. (N=100)

There were not many elderly who are living alone only 6% compare to 45% who are living with family members but they do their own housework and grocery shopping and 44% who are living with family members but the family member do help them with their housework and grocery shopping and only 5% who are living alone but I have someone comes to help me with my housework and grocery shopping (Figure 4-3).

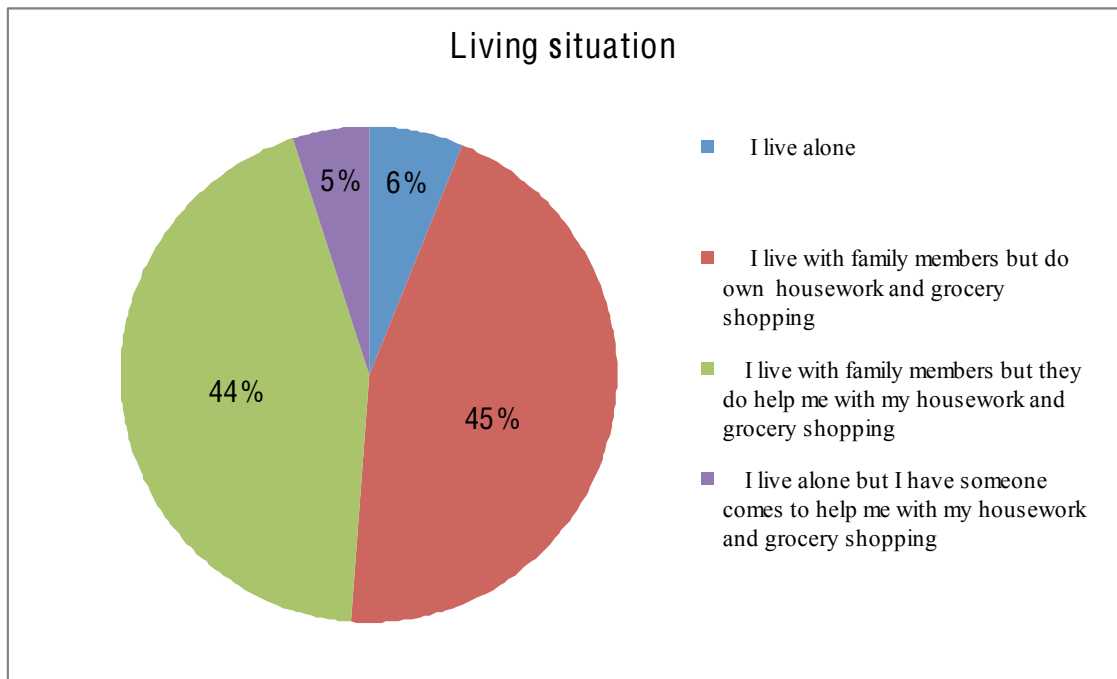


Figure 4-3 The demographic of elderly consumer in Bangkok, Thailand with different living situation. (N=100)

According to Han (2005), the geographic location, socioeconomic issues and psychology influential factor were recommended for further study. Thus, this research have been taken all recommendation and applied as a research finding. To start with education levels and income status, these could play a potential role to food choices because these aspects were ranged prior to relate with the grocery shopping habit and produce selection (Figure 4-4). Elderly incomes were 10,001-20,000 Baht (NZ\$450-900) per month with 36% following by 23% who earn less than 5,000 to 20,000 Baht (NZ\$225-900) per month and then 18% earn 5,001-10,000 Baht (NZ\$225-450) per month. There was very low numbers of elderly earn high income from 30,001-40,000 (NZ\$1,300-1,800) and higher with only 4% and 6% respectively (Figure 4-4).

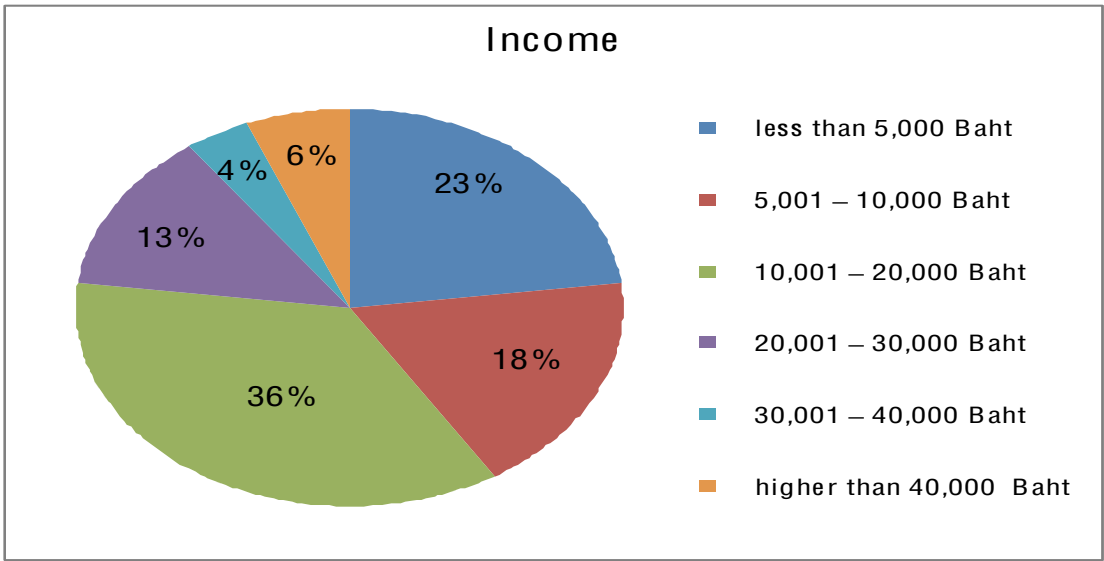


Figure 4-4 The demographic of elderly consumer in Bangkok, Thailand with different living situation. (N=100)

In terms of education levels, the highest number of elderly were finished in primary school with 34%, Bachelor degree was 27%, 21% high school, 11% intermediate school and higher than bachelor was latest amount only 7% (Figure 4-5). Education can be taken into account in terms of product selection and packaging used, however it is also depend on the level of income and living situation as well.

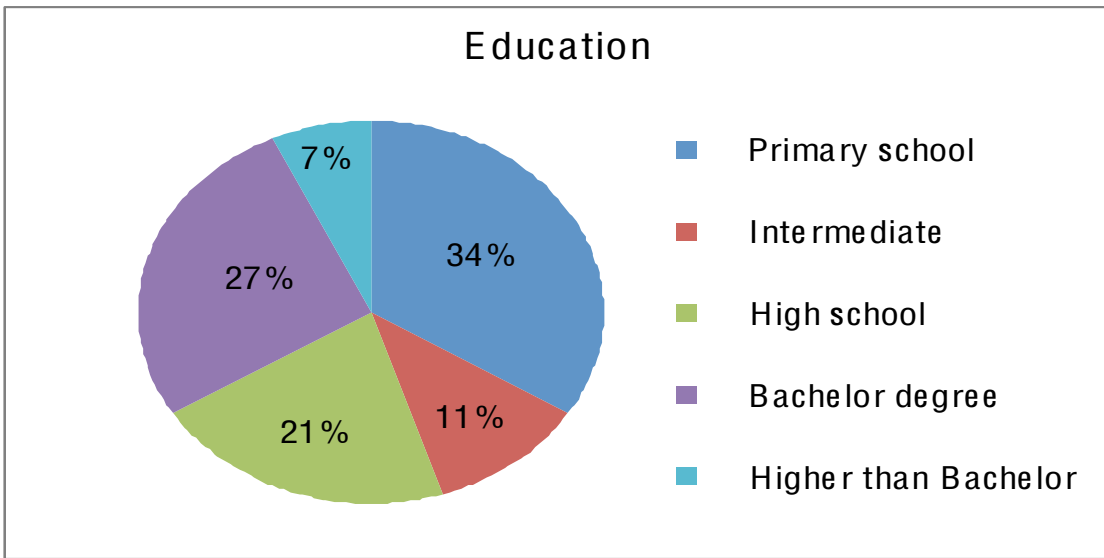


Figure 4-5 The demographic of elderly consumer in Bangkok, Thailand with different living situation. (N=100)

4.1.2 Grocery shopping habits

Figure 4-6 indicates the comparison of frequently between male and female going grocery shopping, analysed by cross-tabulations. Overall, female are going grocery shopping more frequently than male, about 7% female are shopping more than once a day while, male was not shown. Mostly, both male and female prefer going grocery shopping once a day, once a week and every two weeks. The graph shown not significant different between male and female are going shopping once a week and every two weeks time, it can be stated that these period is common time for grocery shopping especially for female.

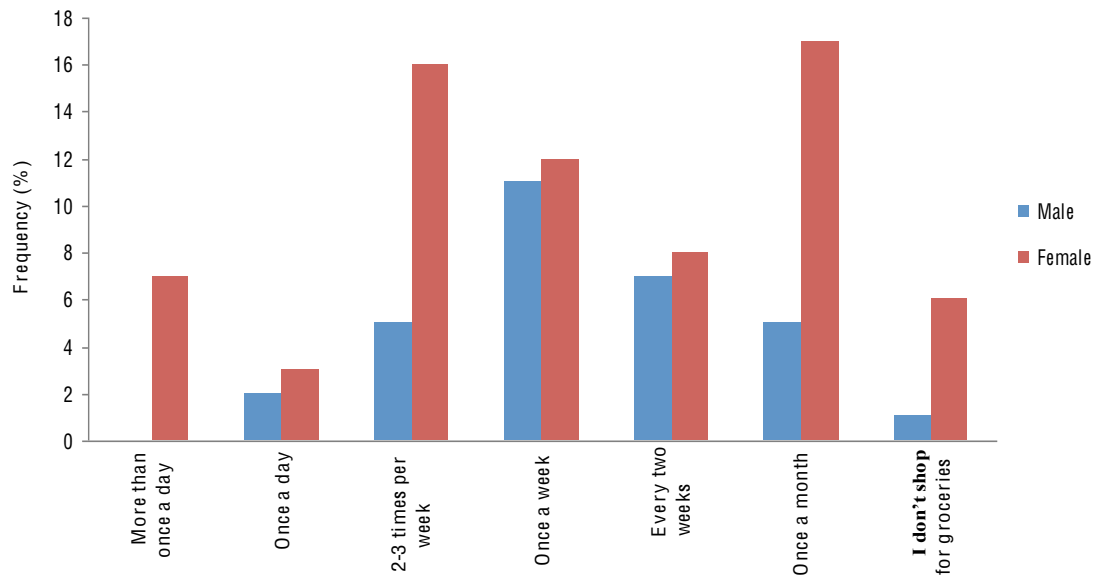


Figure 4-6 Comparable on grocery shopping frequency between male and female

(N = 100)

In terms of age group and grocery shopping frequently analysed by cross-tabulations, the younger were going more often shopping than the older because some elderly among the age of 60-65 years are still working and then they are normally do their house work. People who are older than 75 years are not doing

much shopping (Figure 4-7). Interestingly, the data shows the elderly who are over 76 years are going grocery shopping more regularly including more than once a day, 2-3 times a week, once a week or even every two weeks.

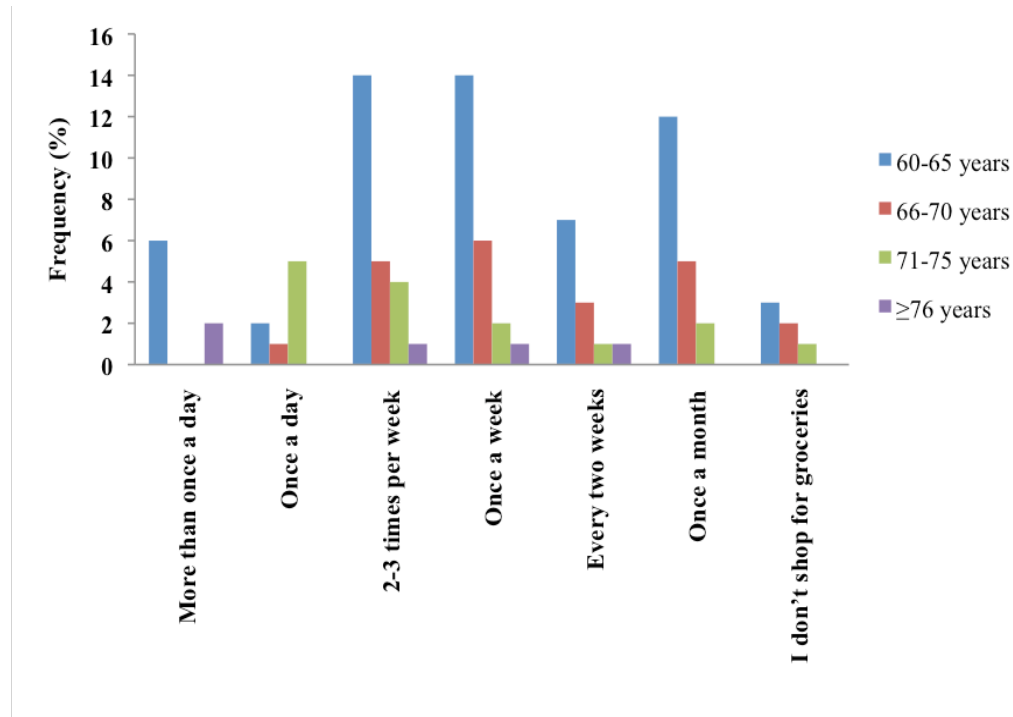


Figure 4-7 Comparable on grocery shopping frequency with the different age group (N = 100)

Living situation can also dictate the frequency going grocery shopping as indicated in the figure 4-8. Participants are living with family members even they do their own house work or the family member help them but very few numbers of elderly who are living alone. The frequency of respondents who live with family member but they do their own housework are shopping grocery more often about 2-3 times per week or once a week. While, the respondents who living with family member but they help doing house work are commonly shopping grocery once a month.

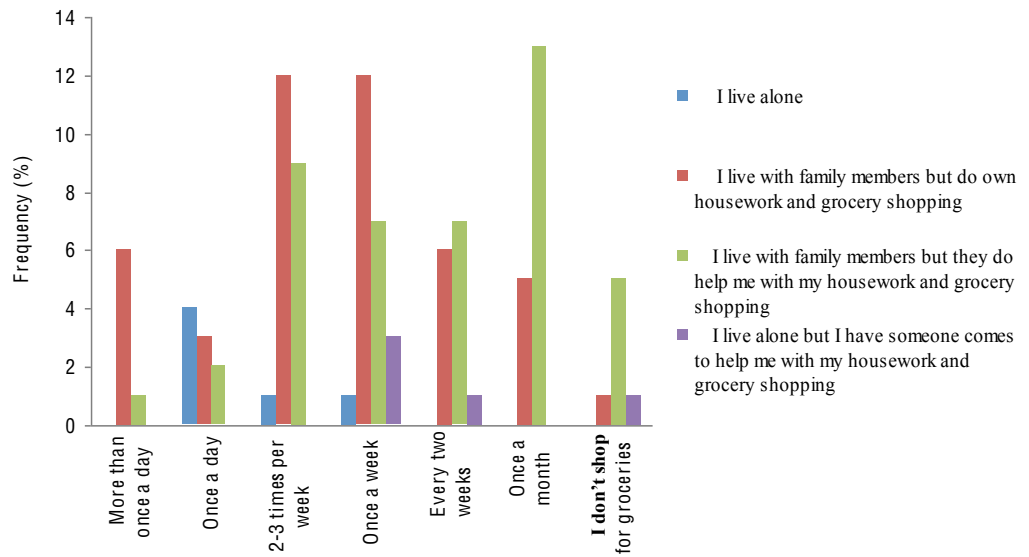


Figure 4-8 comparable of the grocery shopping frequency with the living situation (N = 100)

Table 4-1 indicates the range of grocery shopping that was influenced by many factors. In terms of product selection, there were not significantly difference because mostly people do not concern about the packaging with 32% never choose the product because of the package, 35% seldom chose because of the package, and 21% of sometime chosen but only 12% chose a product because of the package. There was very high number of consumer elderly who chose the products because of the influences by other people when go grocery shopping with 33% seldom influenced, 27% sometime and 21% very often and only 11% of every time influenced. Only 8% of who never influenced by someone because they are normally shopping alone.

Mostly, people who do grocery shopping are mainly cooking their own meals with a very high percentage of 91%, 38% cooking 1-2 times a week, 31% every cooking, 5-6 times 18% and 6% of 3-4 times a week and only 9% who are not cooking, the data can be found in Apendix IV.

Table 4-1 Frequency of respondents' food choices with packaging (N=100)

Characteristic	Frequency (%)				
	Every time	Very often	Sometimes	Seldom	Never/I shopping alone /Not applicable
Choose the products because of the packaging	#	12.0	21.0	35.0	32.0
Choose the products because of the influences of my partner	11.0	21.0	27.0	33.0	8.0
choose the products because of the packaging	1.0	15.0	44.0	32.0	8.0

Note: # stands for Not Applicable to that question

4.1.3 Consumer attitude with food packaging

There are various aspects of packaging attributes which can be an important factor that influence selecting of a food product by the elderly people when grocery shopping by their own. As can be seen in the table 4-2, the most obviously important factor was price followed by the safety with 60% of price and 51% safety respectively. The percentage of respondents rating Packaging characteristics is very important were colour of the packaging 8%, shape of the packaging 2% and size of the packaging 10%. The physical size and the overall geometry of the packaging will have a significant effect upon the decorating medium and its application as well documented by Kaye (2000).

Brand of the product is important with 20 percent very important and 38 percent important. Regarding to Ayanwale et al. (2005) and Jesiolowski (2000), the brand of the product is associated to consumer's perspective which towards to quick recognition and confidence for most consumers. And the different age

categories are significantly associated with certain types of products (Goodwin and McElwee 1999).

Packaging materials, label on package, type of closure or lid, handling, package versatile and package that can be recycle are still importance although, it not significantly importance. Kaye (2000) can be confirmed how important for these parameters, especially for the label on package. Furthermore, some other researches had investigated the relationship of elderly shopping habits with packaging labelling and closures (Duizer et al. 2008). However, aged consumer will be changed in preference for certain service and product factors associated with grocery shopping. And the food packaging design and development can be referred to Moskowitz et al. (2009).

Table 4-2 indicate how important of each factor is to you when you choose a food product. (N = 100)

Parameters	Frequency (%)				
	Very important	Important	Doesn't matter	Unimportant	Very unimportant
Price	60.0	27.0	7.0	5.0	1.0
Brand	20.0	38.0	18.0	13.0	11.0
Materials of packaging	17.0	47.0	17.0	10.0	9.0
Colour of packaging	8.0	21.0	30.0	27.0	14.0
Shape of packaging	2.0	21.0	31.0	19.0	27.0
Size of packaging	10.0	39.0	23.0	21.0	7.0
Label on packaging	21.0	27.0	31.0	11.0	10.0
Type of closure or lid	15.0	30.0	29.0	18.0	8.0
Handling	21.0	55.0	16.0	5.0	3.0
Versatile	16.0	40.0	19.0	18.0	7.0
Safety	51.0	32.0	11.0	3.0	3.0
Recycle	21.0	43.0	23.0	7.0	6.0

4.1.4 Consumer attitude with food packaging materials

Overall, glass bottles and plastic bottles were the most preferable packaging materials with 38% and 25% respectively (Table 4-3). While, the zip lock and Cellophane type wrap represented the highest percentage of dislike very much with 16% and 15% respectively whereas, the other types of packaging materials were just only 10% and less than 10%. However, the number of people who cannot decide whether they like it or not were quite high from about 12% to 43% of each type of packaging material. In terms of packaging materials, plastic was the most preferable following by glass packaging, and then paper packaging whereas, metal packaging including tin can, aluminium can and foil packaging were less preferable.

Table 4-3 the consumer like the different types of food products contained in different types of packaging materials

Materials	Frequency (%)				
	Like very much	Like	Neither like nor dislike	Dislike	Dislike very much
Plastic packaging	14.0	51.0	21.0	12.0	2.0
Cardboard boxes	8.0	36.0	39.0	13.0	4.0
Tin can	4.0	29.0	33.0	26.0	8.0
Aluminium cans	8.0	33.0	29.0	27.0	3.0
Glass bottles and jars	38.0	45.0	12.0	4.0	1.0
Plastic bottles	25.0	44.0	13.0	14.0	4.0
Zip lock bags	9.0	36.0	29.0	10	16.0
Foil packaging	3.0	27.0	39.0	21.0	10.0
Tetra Packs	2.0	35.0	43.0	15.0	5.0
Cellophane	1.0	28.0	36.0	20.0	15.0
Cartons	4.0	41.0	38.0	12.0	5.0
Aseptic packages	18.0	35.0	39.0	5.0	3.0
Sachet	8.0	38.0	29.0	16.0	9.0

4.1.5 Consumer attitude with the package closure or lid associate with opening problems

The highest problem encountered by elderly consumers with the packaging closure were twist on and off cap, screw on and off cap and ring pull. However, some types of packaging closures have never caused any problem with the elderly consumers because most of participants are using a tool to open the packages.

Child-resistant closure caused relatively few problems when open and reseal with 27% encountering a problem but with 50% not having any issues with this closure type. Other packaging systems that seemed not to cause issues with opening include the opening slide, slip lid food tin and flip-top or sport closure. As can be seen in the Table 4-4, label printing that is too small to read properly was a major problem with 13% of very often encountering the problem and 38% frequently occurred. This is not surprising as Haigh (1993) stated that the physical change in elderly especially eyesight.

The package leakage during storage was not a major issue, while lid too tight to take off (29%) were an issue for some elderly. Yoxall et al. (1996) confirmed that packaging closure especially the twist on and off and screw on/off cap cause difficulty for aged consumers. As well, the loss of strength and dexterity presents the most difficulties to opening the food packages (Yoxall et al. 2007).

Table 4-4 The consumer has ever encountered problems with the opening and recloses or reseals the different types of the food packaging (N = 100)

Materials	Frequency (%)				
	Very often	Frequently	Sometimes	Seldom	Never
<u>Problems with the opening and recloses or reseals</u>					
Ring pull	5.0	22.0	37.0	23.0	13.0
The opening slide	1.0	4.0	15.0	31.0	49.0
Screw on and off lid	2.0	5.0	34.0	43.0	16.0
Twist on and off cap	3.0	22.0	32.0	31.0	12.0
Pulling open foil bag	3.0	7.0	28.0	36.0	26.0
Pealable seal	4.0	7.0	36.0	31.0	22.0
Cut open with a can opener	10.0	14.0	32.0	17.0	27.0
Tear off the paper box	3.0	9.0	24.0	22.0	42.0
Tear off the plastic bag	5.0	15.0	20.0	27.0	33.0
Ring pull under cap lids or foil cap	14.0	27.0	30.0	21.0	8.0
Aluminium foil caps	4.0	9.0	25.0	32.0	29.0
Child-resistant closure (CRC)	6.0	4.0	17.0	22.0	50.0
Flip-top or sports closure	2.0	6.0	29.0	16.0	47.0
Lever lid closure	6.0	14.0	31.0	16.0	33.0
Slip lid food tin	3.0	5.0	18.0	25.0	49.0
<u>Problems encounter with package utilisation</u>					
Spillage when opening the package	2.0	13.0	38.0	30.0	17.0
Leakage during storage	0	7.0	21.0	26.0	46.0
Lid is too tight to take off	2.0	29.0	23.0	22.0	24.0
Label printing is too small to read properly	13.0	38.0	26.0	12.0	11.0
Too heavy to carry	3.0	7.0	33.0	23.0	34.0
Awkward to handle	2.0	7.0	28.0	17.0	46.0

4.1.6 Consumer indications of experience on opening and using the packaging that can be harmful or get injury.

A surprising number of people have been injured when opening or using the package (Table 4-5). Most of the common package that can cause injury has been listed in the table 4-6. Mostly, the consumers get injury from the package closure or opener and lids rather than the package itself such as the size or the shape of the package. However, it not serious injured.

Table 4-5 indicates the user have ever had an injury when opening or using a package.

	Frequency (%)
Yes	52.0
No	48.0

Table 4-6 indicates the type of packaging that normally caused problems or injury

	Packaging description	Injury
Situation 1:	Tin can, oval shape and the one that have to use tool to open	Cut their fingers
Situation 2:	Ring pull on the tin can and aluminium can	Broken nail
Situation 3:	Screw on and off closure	Wrists sprain and cut thump
Situation 4:	Twist on and off closure because of to high pressure	Wrists sprain
Situation 5:	Ring pull under the plastic cap lock on plastic bottle	Finger struck in the ring pull, finger scratched

From the Figure 4-9 can be related to the predominant hand that the people normally use to open the package, with, 87% of people being right-handed.

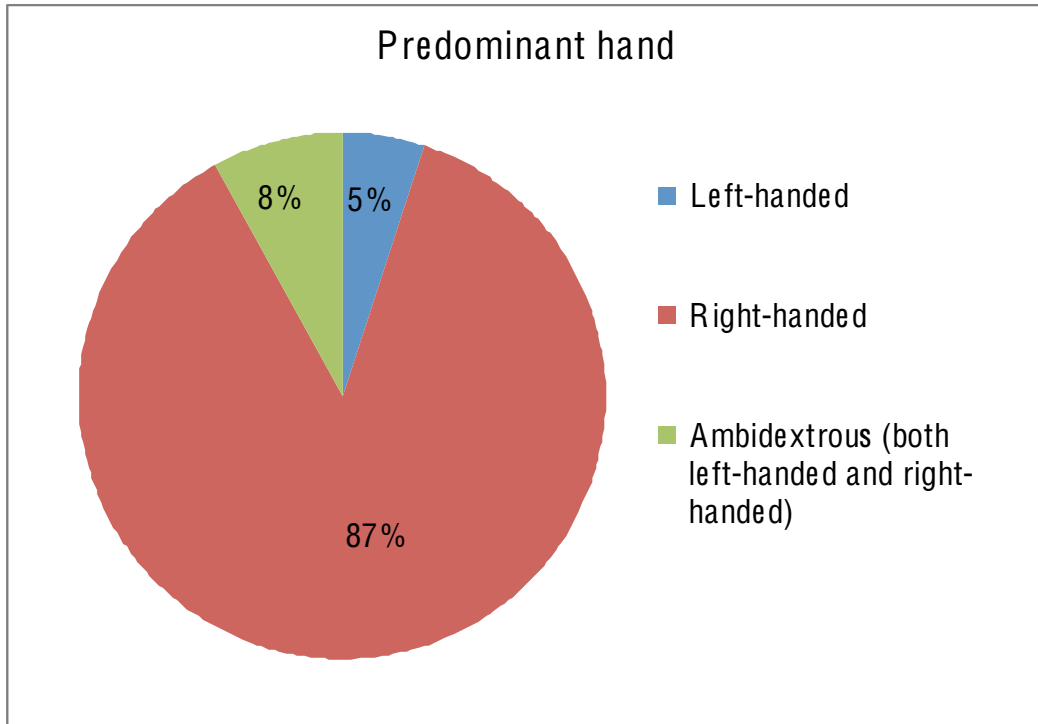


Figure 4-9 indicates what the predominant hand elderly would use to open containers (N=100)

Table 4-7 indicates that 60% of elderly asked for help to open some type of the food packages. There were some situations and types of package list in the table 4-8 that mostly elderly asked for help.

Table 4-7 indicates that the user have ever had to ask people to help you open food packages (N = 100)

	Frequency (%)
Yes	60.0
No	40.0

Table 4-8 indicates the type of packaging that normally participants have difficulties to open and they asked for help

Packaging description	
Situation 1:	Food cans
Situation 2:	Twist on and off lid with the glass jar like coffee jar, jams
Situation 3:	plastic bottles for drinking water, the lid is free to turn
Situation 4:	Ring pull under the cap lock
Situation 5:	Plastic bag and aluminium foil bag which difficult to tear

The opening problem or difficulty can lead consumer stop buying that products as indicates in table 4-9, 38% of elderly were stopped buying a product because of the difficulties with the package. Table 4-10 indicates what type of packaigng that consumer stop buying and the reason why they stop buying that kind of products.

Table 4-9 indicates that the consumer have ever stopped buying a product because of the difficulties with the packaging.

	Frequency (%)
Yes	38.0
No	62.0

Table 4-10 indicates the type of packaging that consumer stop buying these products

	Packaging description	Reason for stop buying
Situation 1:	Plastic bag	Difficult to tear
Situation 2:	Plastic oil bottle with ring pull under cap	The ring pull was broken before it open
Situation 3:	Ring pull on the tin can	Hardly to lift up
Situation 4:	Paper box	There are some brand of the same product contain in the different type of packaging material that can be kept the content last longer
Situation 5:	Plastic lid on water bottle	The material is not strong enough to pull off, it often broken before opened

4.1.7 Health condition that can be affected to the packaging utilisation

Majority of elderly are healthy and in good health conditions as showed in Figure 4-10. Some health conditions or symptom that has possibility to be affected to the ability to open the package with noticeable 50% of elderly mentioned that the most affect was not enough strength in hands, arms, and wrists (Figure 4-11). Arthritis (both osteoarthritis and rheumatoid arthritis) and Eyesight problems can also reduce the ability to open the package with 23% of very often occurred. And Arthritis (both osteoarthritis and rheumatoid arthritis) was more likely to be affected the opening package ability with 33% of frequently occurred and 28% of sometimes occurred.

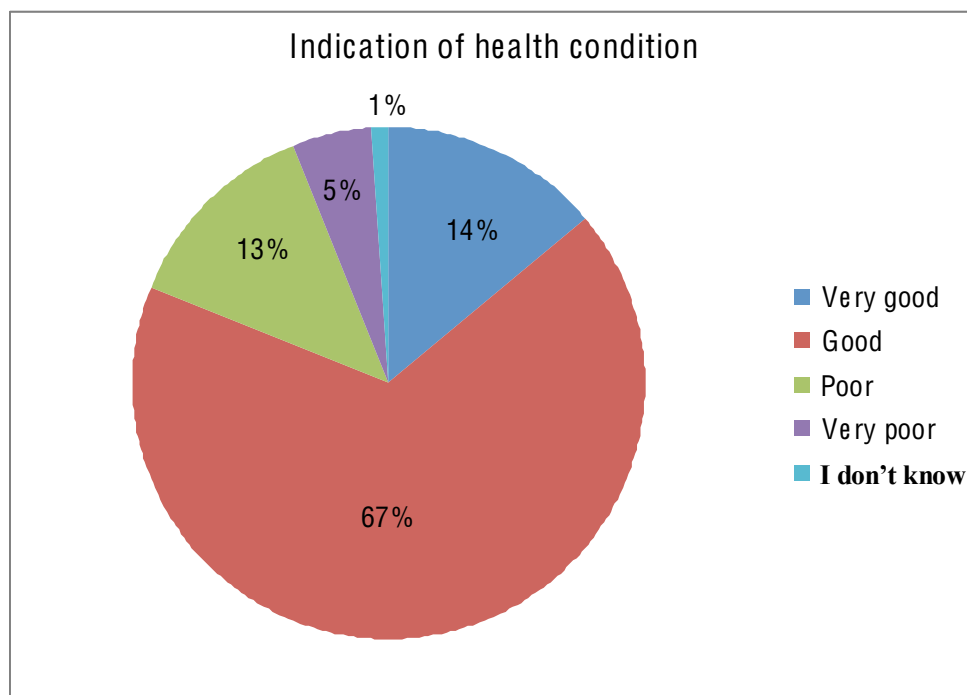


Figure 4-10 indicates of the currently classify of health condition

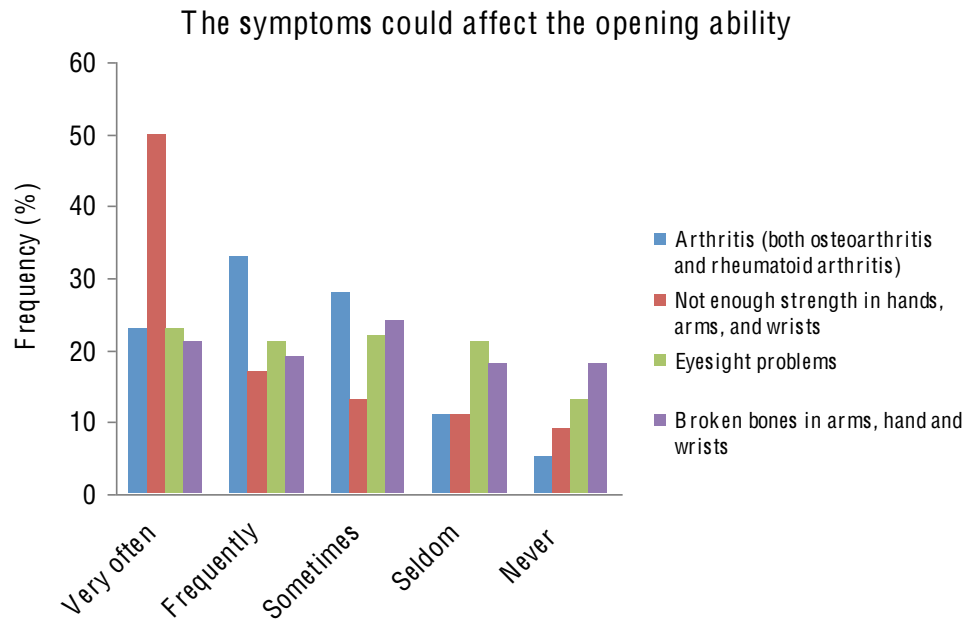


Figure 4-11 indication of symptoms that could affect the opening ability (N = 100)

CHAPTER 5

QUALITATIVE ANALYSIS (FOCUS GROUP STUDY)

5.1 INTRODUCTION

This chapter is purposing to discuss in depth of the information from the result of questionnaire survey prior to finding the factors that can be impact on food packaging utilisation for elderly consumer. Total of 13 participants were respectfully invited to join in the focus group study. This was distributed into two main groups, first group contained 6 participants and 7 participants were in the second group. More information will be stated in the following section.

5.2 FOCUS GROUP STUDY AT THE BANGKOK ELDERLY COMMUNITY

Table 5-1 indicates the percentage of demographic of 6 participants in the first round, the data shown significantly more female than male who go grocery shopping regularly. Mostly, participants are 61 to 75 years and majority of participants are living with family members. Moreover, some participants are still working while some of them are already retired and do mainly house work. Income and education might be affected to the grocery shopping habit especially relate to the product selection, the data were referred to questionnaire survey section.

Table 5-1 Focus group participation

Characteristic	Frequently
Gender	
Male	23.1
Female	79.9
Age Group	
60-65	-
66-70	76.9
71-75	23.1
76 and over	-
Living situation	
Living alone	
Living with family member but I am doing my own house work and shopping	15.4
Living with family member but my family member help me to do house work	69.2
Living alone but someone help me to do house work	15.4

In terms of health condition, all of participants have a good health, with none suffering from arthritis symptoms or anything, except some of them have problem with eyesight. And all of the participants agree that the eyesight problem could influence their ability to open the package of food. Also, there is a major problem associate to the opening ability especially for some people who have not enough strength for their hand, arm or wrist.

Firstly, the research process started with a warm-up question for each group discussion, the participants were asked to indicate how frequently they went grocery shopping and what factors were most influential when grocery shopping. The product's quality, expiry date and price were the three most influential factors mentioned by the participants when they go grocery shopping. Apart from these factors, brand of the products and promotion for a new product also influenced their food choice when they go grocery shopping as well. Ayanwale et. al. (2005), confirmed that the brand of the products could influenced consumer food choices.

For packaging aspects towards their food purchasing decision, participant addressed various aspects including size of the package, labels on the package, materials, safety and hygiene of package. However, these aspects were latest factors recognition. In terms of the size, most participants' preferred small sized package instead of large size or family size package because they can finish at once or do not have to leave it for long time. They also prefer transparent packaging materials such as plastic bottles and glass bottle and jar because they can see through the food content inside.

In term of the package opening and closures, it was stated that the twisting action required to open was awkward. The seal foil under the cap lock or seal foil for a yogurt cap was difficulty to open. The ring pull under cap lock particularly on the oil bottle was indicated a major problem for all participants. Zip lock bag was popular for all participants because it convenient to keep the rest of content that they cannot finish at a time although, it's more expensive than normal design.

After the warm-up questions, common food packages in different food categories including coffee, canned food, biscuit, oil, snack and drink were discussed by participants individually, and their feedbacks were summarized from the transcripts (Refer to the Appendix IIV). Although participants were asked questions by food category, in order to understand the advantages and disadvantages of each packaging type, for ease of understand, the results from the focus group study will be discussed by packaging type as follows:

5.3 GLASS PACKAGING

5.3.1 Glass jars

Firstly, glass jars had been presented prior to discuss of all advantages and disadvantages of each types as well as defining the personal preference of each consumer with these different package characteristics. Starting with coffee jars "Moccona" and "Nescafe" were used to discuss as the glass packaging

representative. All participants preferred the “Nescafe” rather than Moccona because of the package’s closure in particular. Moccona is twist or a press on lid (Figure 5-1). The “Moccona” lid could minimise the storage life of the product because it was not seal properly when open and close it many times. And the size of the Moccona is too big which not easy to hold compared to the size of “Nescafe” is suitable to hold and the lid is good seal and easy to open and close, this is good for storage. Furthermore, the package is reusable which can be used for something else after finished the coffee. Whilst, the “Moccona” is too heavy and difficult to handle, it is easily leading to spoilage and drop the package. The verbal discussion can be found in the Appendix IIV.



Figure 5-1 Glass jar

Another type of food jar can be found in figure 5-2. All participants were frequently encountering the problems especially with the package’s closure when opened the package. However, most participants like this type of package because it has a good seal which can keep product safe,

long shelf life and hygiene. Moreover, the package is reusable and it can keep the content last longer particularly for the dry products.



Figure 5-2 Glass jar with the lug closure or twist on-off closure

5.3.2 Glass bottles

There are varieties of glass bottles which not only including beverage bottle but these also include the cooking ingredients (Figure 5-3). In terms of cooking ingredients, most of the participant prefer and appreciate similarly type because it depends on the situation that they want to use (Refer to Appendix IIV). Size is not a main factor for the bottle. An advantage of glass bottle for the food ingredient is not sensible to the flame when cooking.

Breakable is a major consideration for glass package especially for the family who have children. Also, the weight of the glass bottle is heavier than plastic one. Normally, soft drink is contained in two different types of package material consist of glass and plastic. Most participants preferred the glass because they believe the glass package can be effectively maintain the gas inside.



Figure-5-3 Glass bottle

5.3.3 Glass packaging closures

The packages closure were discussing particularly in this section. These three types of package closure are mostly caused problem when open. Aluminium twist on and off cap can be very shape and easy to get injury. Secondly, cap is hard to open and inconvenient to use, it requires a tool to open. Lastly, the screw on and off cap or vacuum closure were difficult to open because of the vacuum inside of the jar that can make the jar hard to be open. Mostly have to use some tool such as knife or hard tool to knock it before open it. Sometime it causes arm clacking.

5.3.3.1 Screw cap

There were both sides of the screw cap with like and dislike because sometime the cap cannot be taken off easily especially when the hands are wet or slippery (Refer to Appendix G). Also, it requires high force to

open it because some brand the material is not good enough and the lid is free to turn consequently a tool needed to be applied. Figure 5-4 illustrates the screw cap on the glass bottle.



Figure 5-4 Screw cap

Most participants like this type of package closure (the screw cap on the wide mouth jar) (Figure 5-5) because it easy to open and reseal and also good for long storage. The screw cap on the wide mouth jar is commonly reusable for all participants. However, some brand of the products that contained in this type of package can be difficult to open because the quality is insufficient.



Figure 5-5 Screw cap with wide glass jar

5.3.3.2 Twist-on and off or Lug closures

All participants had difficulty opening this sort of package (Figure 5-6), yet each of the participants do have different techniques to open the package such as using the tool to open, dip in the warm water, knock the lid up to open and even destroy the lid to open. Presumably the glass bottle is easier to handle than jar.

All the participants have difficulties opening this type of package closure (Refer to Appendix IIV). However, there are different between the bottle (Figure 5-7) and the wide mouth jar, all participants agree that the wide mouth jar was so difficult to open rather than the bottle consequently a tool needed to be applied. Regarding to Voorbij and Steenbekkers (2002) stated that opening vacuum-sealed jar can pose a problem for a large percent of the elderly consumers because they are unable to exert sufficient twisting force. Yoxall et al. (2006) confirmed that openability of this packaging type is becoming a major issue particularly for ageing consumers as age increases past 60, strength and dexterity begins to reduce rapidly.



Figure 5-6 illustrated the lug closure for wide mouth jar and the bottle.

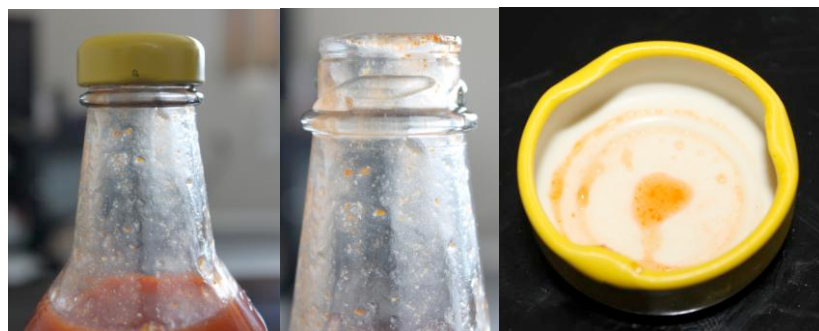


Figure 5-7 Twist on and off cap

5.3.3.3 Crown cap

This is an original style of package closure which cooperates with an opening tool (Figure 5-8). This type of package closure is not suitable for elderly people as mentioned by all participants because it requires a tool and force to open (Refer to Appendix IIV). Some product brand is too tight especially carbonated drinks; it could break the glass when open because it required high force as well as the tool should be appropriated. Also, the crown cap is too sharp which has high possibility caused injury. However, it not frequently happened, just depends on the products and the tool used.



Figure 5-8 Crown cap

5.3.3.4 Flip top

All participants like this type of lid because it is easy to use and handy especially when travelling (Refer to Appendix IIV). But this type of bottle and closure is more expensive than the normal plastic screw cap. It is commonly found in the cooking ingredients packages such as soy sauce, fish sauce and other sort of liquid products (Figure 5-9). Furthermore, some participant mentioned that some brand of the product has inadequate quality of material used consequently open and reclose difficulty (Refer to Appendix IIV).



Figure 5-9 Flip top

5.3.3.5 Ring pull

Ring pull is popular for all participants because it is easy to open (Refer to Appendix IIV). The ring pull cap is easy to use without any problems (Figure 5-10). However, there are not many type of product using this type of packaging closure and all participant are not frequently buy this type of packaging.



Figure 5-10 Ring pull

Nevertheless, all participants mentioned to another type of ring pull which difficult to be pulled off and this can be found under the flip top cap involve oil bottle (figure 5-11). They mentioned that it is too tight to pull and the ring pull is too small to hold and it often broken before it completely opened. In contradictory, this type of packaging closure have numerous advantages involves reducing weight and saving on raw material which purposing to perform safety, sealing and hygiene as well documented by Laburu (2010).



Figure 5-11 Ring-pull under flip top cap

Table 5-2 The summarizing if advantages and disadvantages of glass packages

Packaging Description	Brand	Advantages	Disadvantages	Improvements
Round glass jar with plastic sealed inside on the screw top	“Moccona” Temptation instant coffee (Netherland)	Can be reused	Spoilage Not proper sealed Heavy and difficult to handle	Change the type of closure to screw on and off cap
Glass jar with plastic screw top	“Nestcafe” Instant coffee	Reusable The closure is firmly closed	Slippery sometimes on the lid	The size of lid should be created with appropriate size which easy to open
Glass bottle with metal screw top lid	Chili sauce	Easy to open and close	Slippery lid	The material should be changed or generate a new design which easily to be open
Glass bottle with ring pull	“Grape juice”	Easy to open	Spoilage Cannot resealed Material is not strong enough to pull	Change the ring pull to screw cap
Glass bottle with plastic screw top cap	Soft drinks	Easy to open	Difficult to open when the bottle wet	The design of the cap should be make to be easily to open
Glass bottle with flip top lid	“Fatty baby” Soy sauce	Easy to open reusable	Label too small to read	Bigger word and brighter colour on label

5.4 PLASTIC PACKAGING

Plastic package was more popular with all participants rather than glass package because the package is unbreakable, light weight and cheaper (Refer to Appendix IIV). However, some of the participants were concern about the chemical contamination from the package into the content.

5.4.1 Plastic bottle

Plastic bottles (Figure 5-12) were preferred by all participants because of many factors including price, weight and easy to use and store. However, some types of products still were a cause for concern about chemical contamination such as vinegar.



Figure 5-12 Plastic bottles

Some types of closure can lead to a problem, particularly the ring pull under the flip lock cap “Oil bottle” (Figure 5-13). There are many problems with the ring

pull because it broken before the lid can be opened, and list the other problems here as well – ie difficult to get your fingure into to pull open. (Refer to Appendix IIV). And, some brand that use this type of package closure is difficult to open and reclose because it will not be sealed properly. However, for more information and discussion of cap for bottles containing edible oil and other food liquid can be found in Laburu (2010).



Figure 5-13 Ring-pull under flip top cap

In terms of carbonated beverage (Figure 5-14), plastic bottles are popularly used because it lighter than glass and easy to carry. Most of participant mentioned that the carbonated beverage in plastic bottle was not appropriate for long storage so, they used at once. However, most of the participants not often buy the carbonated beverage; carbonated beverage in the can would be more common.



Figure 5-14 Plastic bottle for cabonate drinks

Figure 5-15 indicates the plastic bottle with screw cap. Some participants have difficulty to open this type of package closure because the closure is too tight and sometime too slipperly. Cabonated beverage is particularly cause the problem to open because of the pressure inside the bottle. Yet, most participants mentioned that they prefer the plastic screw cap rather than the metal or aluminium one.



Figure 5-15 Plastic bottle with screw cap

5.4.2 Plastic jars

All participants like this type of packaging even sometime the ring pull around the lid is broken before completely open (Figure 5-16) (Refer to Appendix IIV). It quite handy to carry to any places because it has a lightweight and the packaging can be reused for something else after finish the content inside. The price of the product contained in this type of packaging material is normally cheaper than glass.



Figure 5-16 Plastic jars

Plastic jar with screw cap (Figure 5-17), all participants agree that the plastic jar with screw cap is easy to open and reclose which, also reusable. The wide mouth jar with the screw cap is easily to be open than the screw cap with the bottle. But some brand of the products is not easily to be open because of the quality of the packaging material is insufficient.



Figure 5-17 Plastic jar with screw cap

5.4.3 Pottle

For the peelable seal (Figure 5-18), a few participants indicated that it was difficult to peel off due to the seal too tight especially on the edge (Refer to Appendix IIV). Most of participants did not like this type of packaging closure because the content cannot be kept after the package has been opened. And some type of product is not easily to be opened and the lid is not easy to be left up.



Figure 5-18 Plastic pottle

Table 5-3 The summarizing if advantages and disadvantages of plastic bottles and jars packages

Packaging Description	Brand	Advantages	Disadvantages	Improvements
Round plastic jar with plastic sealed inside on the screw top	Lays	Can be reused	Spoilage Not proper sealed Heavy and difficult to handle	Change the type of closure to screw on and off cap
Plastic jar with plastic screw top	Fish	Easy to open and reclose	Some brand the lid is difficult to open as well as the jar is too soft	The lid should be designed to more easy to open not too slippery
Plastic bottle with plastic ring pull under flip cap lid	Dimon	Easy to reclose	Difficult to pull out the ring pull Ring pull is too small	Change ring pull to aluminium seal
Plastic tube with aluminium foil under plastic lid	Pinkle	Convenient Easy to open and store	Aluminium foil is not easy to open	Should design to have a pulling out
Plastic bottle with plastic screw top cap	Singh	Easy to open	Some brand the bottle is too light and it difficult to open	The size of the lid should be suitable to many different aged
Plastic pottle with a plastic or aluminium peelable seal	Duchmill	Easy to open	It cannot be keep if not finish at once	Sould have a lid that can be recloseable

Table 5-4 The summarizing if advantages and disadvantages of plastic bag, sachet and zip lock bag and foil packages

Packaging Description	Brand	Advantages	Disadvantages	Improvements
Plastic bag without tear strip	Doso	High security	Have to cut by scissors Spillage	Should indicate where can be tear to open or applied tear strip
Plastic bag with tear		Easy to tear	Sometime it over tear because the plastic is too light	Shoould indicate the direction for tearing to open
Plastic sachet	Rai Tip	Easy to use	Some time the content inside is high humidity	The material should have low permeability that can prevent the water get into the package
Plastic Foil sachet	Mama	Easy to tear	Less head space inside the package so that the content is easily to be broken	Design the suitable size of the package which can protect the content to be damaged
Zip lock bag	Tao Kea Noi	Easy to open and reclose	Sometimes it over tear or tear over the zip lock	The tear strip should be easy tear
Pulling to open foil bag	Ray	Easy to open and take out	Have to cut by scissors Spillage, sometimes the bag broken from the back	Should design the instruction of how to be open easily
Foil package with plastic tray inside	Pingkle	High protection for the product inside the package	Hard to tear and not good for storage	Should design for long storage
Foil package	Knor	Well keeping the content inside	Have to cut by scissors	Should have a tear strip to be opened easily

5.4.4 Plastic bag and sachet

Plastic bag without tearing line were the major problem for all participants because it's required tearing force (Figure 5-19). All participants' uses scissors to cut instead of tearing by hand because they used to encounter problem when tearing the package and the content inside was spoilage all over around the place (Refer to Appendix IIV). About two or three times after they tried to tear by hand unsuccessfully, they used a knife or scissors to cut it.



Figure 5-19 Plastic bags

5.4.5 Aluminium foil bag and Zip lock bag

Zip lock bags were the most preferable for all participants, although these bags cost more (Figure 5-20-a). They mentioned the zip lock bag is easy to use due to it can keep the food if they cannot finish at once (Refer to Appendix IIV). Also, it is reusable for something else after finished the content. And none of the participants were found any problems using the zip lock bag.

Foil package without tearing strip, all participants were used a scissors cut to open without trying to tear by hand (Figure 5-20-b). Also, even the package with tearing strip all participants won't open by tearing by their hand. Foil package with plastic tray inside is good protection for the content inside but the participants did not like it because it not easy to store if they cannot finish at once. By comparison, the participants rather pay for a composite can than this kind of package, although the composite can is more expensive.



a.

b.

Figure 5-20 Foil package with plastic tray inside (a.), Zip lock bag (b), Aluminium foil without tearing step

Table 5-5 The summarizing if advantages and disadvantages of aluminium can and tin can

Packaging Description	Brand	Advantages	Disadvantages	Improvements
Aluminium can with ring pull	“Fanta” can driks (Thailand)	Suitable capacity for one time Light weight Remarkable label	Difficult to life the ring pull	Bigger ring pull Put a small pin under the ring pull to make it easy to life up
Tin can with ring pull under plastic lid	Maree	Can keep the left over content	The ring pull hard to be opened sometimes	Design the suitable ring pull or have a instruction of how to be opened
Tin can without ring pull	Rosa	Cheap	Have to use a tool Difficult to handle can opener	Design the size to be easy to hold
Tin can with ring pull	Bird	Easy to use	Difficult to life up the ring pull Difficult to pull the lid back Edge is shape which easy to get injury	Bigger ring pull
Tin can with aluminium seal under plastic lid	Maree	Can keep if not finish at once	Too many lid, unnecessary	The aluminium seal should be more easily to be open
Tin can within the plastic package	Seaload	Convenient	Expensive Plastic package is unnecessary	The material use for the plastic package and the size
Tin can inside a cardboard box	Seaload	Convenient Good attraction	The paperboard box is unnecessary	Should take off the paper box

5.5 ALUMINIUM CAN AND TIN CAN

A variety of aluminium cans and tin plated steel cans were presented and discussed in the group discussion (Refer to Appendix IIV). Most of the participants disliked the aluminium can with the ring pull on the top (Figure 5-21). They mention that the ring pull was difficult to lift and pull to open the cans. Sometime they have to use a knife to lift up the ring pull before open it. Another problem encountered very often was the ring pull was too small that lead the finger stuck and difficultly to open the package.



Figure 5-21 Metal packaging

In addition, the same difficulties of lifting up the ring and pulling the full opening lids open tin coated steel cans can such as Tuna were reported (Figure 5-22). Moreover, the edge of the lid after they opened the Tuna can was too sharp and could lead to potential injuries. Some of participants prefer the can that they have to use a can opener rather than the ring pulls because they it was less possibility to get injury than the ring pull.



Figure 5-22 Tin cans

Most participants like the can with a plastic closure because it not only enabled them to keep the content if they cannot finish at once but also it allowed the can to be reusable (Figure 5-23).



Figure 5-23 Tin cans with plastic cover cap

Lastly, all participants dislike the steel can contained in the plastic package container because it too expensive (Figure 5-24) Also, the plastic closure could lead the problem or injury when they open the package because the plastic package is quite sharp.



Figure 5-24 Tin can within plastic cover pack

Table 5-6 The summarizing if advantages and disadvantages of Tetra Pak and Aseptic packages

Packaging Description	Brand	Advantages	Disadvantages	Improvements
Tetra Pak with plastic twist cap	Tipco	Outstanding image Easy to store in the refrigerator	Cannot see the content inside The content spoilage before expiry date	Transparent package Can see through inside The cap should be longer in order to easy open
Tetra Pak with the plastic flip lock	Malee	Easy to open and close	The aluminium foil under the plastic flip lock is difficult to peel off	The lid or cap should contain a cutter which can cut the aluminium foil under the cap to be open
Aseptic package U.H.T	Mali	Easy to handle and carry	Cannot see the content inside	Should have something that can be indicated the changes of content inside the package

5.6 TETRA PAK AND ASEPTIC PAKAGING

All participants agree that the Tetra Pak is very handy and easy to use but they not prefer to buy it because they cannot see the content inside the package (Figure 5-25). Rather than buying the product in Tetra Pak, plastic bottle will be better choice because they can see through the content inside the package. Some of participants had encountered a problem with the contents inside the package spoiling before the expiry date. Some spoiling directly after the package has been opened but some occurred after storing in the refrigerator for a while.



Figure 5-25 Tetra Pak

In terms of image, graphics and information on the package is very attractive, all the participants were agreed. These types of package are easy to keep in the refrigerator and easy to open and storage. (Refer to the Appendix IIV). Aseptic packaging includes U.H.T milk and fruit juice, sterilise milk and drinks. Also, the screw cap closure on the Tetra pak, all participants were agree that sometime its difficult to be open or reclosed be because the size of the screw cap is too small and its difficult to handle (Figure 5-26)



Figure 5-26 Tetra Pak with plastic cap

Table 5-7 The summarizing if advantages and disadvantages of cardboard and paper packages

Packaging Description	Brand	Advantages	Disadvantages	Improvements
Cardboard box with plastic covered with cellophane inside	Violet	Colour of cardboard box is attractive Label on the cardboard box is clear	The content can be kept longer if not finish at once	The cellophane and plastic covered should be stronger and water resistant
Cardboard box with a cellophane wrapped outside	Tea	Good security	The cellophane wrap outside is not strong enough which is easy to be open	The cellophane wrap should be stronger which will be able to protect the natural effects
Cardboard box with the aluminium bag inside	Oleo	The package is attractive with good graphic	The cardboard box outside is unnecessary	The cardboard box should be taken off
Cardboard box with small sachet inside	Lipton	Easy to take and store	Too much packaging used and some do not label	Should label the sachet individually

5.7 CARDBOARD AND PAPER PACKAGING

There are various types of cardboard or paper packages. Figure 5-27 indicated the sample of paperboard box. The paperboard box is very light weight and easy to open and the shape is easy to store. But, it was not preferred by most participants because the contents spoiled rapidly after the package have been opened especially some snacks. The participants did not particular like these types of package (Refer to Appendix IIV). Figure 5-28 indicates the tear strip on the paper packages which all participants were agree that its helpfull to open and reclose the package.



Figure 5-27 Paper box



Figure 5-28 Paper box with tear strip

5.8 POSSIBILITY TO IMPROVE PACKAGING

During the focus group discussion, the participants were asked for the possibility in improving packaging after the disadvantages of the certain packaging had been described. And the followings were the summarisation of the improvements from the participants. These improvements can be divided into four categories including types of packaging materials, labelling, packaging closures and improvements to the packaging itself.

Table 5-8 Summarising of possibility to improve packaging

Packaging materials	Improvement
Cardboard box	Stronger cardboard box and have a clip to reseal
Plastic bottle	Some type of product contained in the low quality of the packaging material and this should be improved such as the thickness of the bottle
Tetra Pak	Transparent should be applied or some indicator should be created to be commercialised.
Label on packaging	The font of the words should be bigger which can be easily to read and see. Also the opening instructions should be applied into the package
Packaging closure	
<ul style="list-style-type: none"> • Peelable seal under lid/cap 	Bigger tap on the peelable seal or change to plastic lid. And it will be excellent to be applied the opening instruction on the lid as well
<ul style="list-style-type: none"> • Ring pull under cap lock 	The ring pull should be bigger and stronger prior to easy to pull out the whole lid
<ul style="list-style-type: none"> • Ring pull on aluminium can and tin can 	The ring pull should be designed bigger or should have a pin or button under the ring pull prior to easy to lift up

CHAPTER 6

CONCLUSION

6.1 CONCLUSION

This research can be concluded that the aged consumers 60 years and over have difficulties when they go grocery shopping associated to packaging purchase decision and packaging utilisation. Both the questionnaire survey participants and the participants in the focus group stated that price, safety, pack size, expiry date, brand and packaging material were important factors when choosing food products. The factors indicated as least important included pack colour, shape and package closure. Even though a number of closures were highlighted as causing opening problems, for example lug closure, screw cap, continuous thread, and ring pull on three-piece metal cans, these did not stop the participants from purchasing products packaged in pack with these closures. For zip lock bag and child-resistant packaging are preferable for aged consumer. However, it is still not clear whether these types of package can cause problems when used or not because some participants have never used them before.

As previously mentioned about health condition of the elderly consumer that associated with the physical and physiological changed, provide a challenge to the way products and packages are designed. Also, these factors have related directly to the grocery shopping behaviour, product selection and could lead to the problem when used of various different types of packages. One of the obvious problem was the vision ability to read small labels on package. Thus, most participants are normally looking for the same package or label that they familiar. In terms of packaging utilisation, the loss of strength and dexterity presents the most difficulties as well as the ability to manipulate and open food packaging. And all the participants agree that the health problems such as Arthritis, osteoporosis (brittle bones), rheumatism can affect the ability in opening food package as well. Arthritis is common disease suffered by older people. Broken bones as a result of osteoporosis are potentially lead problem opening packaging or container.

By comparing to Han (2005), the majority of the elderly consumer were not enthusiastic to change the food packaging even when they encounter the problems when used the packages. There were found similarity on the problems encounter when packaging utilised including the label is too small which, difficult to read, the closure is not easily open and the size of the packages not suitable for holding. Also, the health condition is a major factor that affects the opening ability or packaging utilisation including Arthritis, osteoporosis (brittle bones), rheumatism and broken bones. Also, the result showed the similarity on the type of packaging closure which most participants have difficulty when open consist of lug closure, screw cap, twist-on-off and ring pull.

Finally, this research study had covered all the factors that were recommended from previous studied involved geographic location, socioeconomic issue and psychology influential factors. These factors are obviously influenced on grocery shopping behaviour especially for product selection and food choices which associated to the packaging utilisation and problems encounter. Thailand was an excellent geographic location that the research had been done because of the noticeable increasing of aged population and variety of people living lifestyle. In terms of socioeconomic issues, it stated clearly that people who have high income is using the high quality of products. In order to satisfy the demands of the elderly consumers, the manufacturing should be taken into account.

6.2 RESEARCH RECOMMENDATIONS

The recommendation for this research is focusing particularly to the packaging materials including:

- The glass jar closure should design to suit to be more easily to open
- The ring pull should be bigger and stronger
- Ring pull on the aluminium can should have a tiny pin or button that could help opening or lift up the ring pull easily
- Packaging label, information should be bigger and more distinguish to see
- The opening instruction should be applied on the package closure or useful aids or opening tools.
- Expiry date of the product should be more obvious and easy to see
- The foil or metal closure on the pottle package should have a cap lock on top

The recommendation for the future research work should be considered from the following aspects:

- Geographic location and Socioeconomic issue are interesting to be studied because the population, people lifestyle and socioeconomic are different so that there will be a variety of issues occurrence.
- Packaging material and packaging design should be more specified individually

REFERENCES

Ayanwale,A.B., Alimi,T., and Ayanbimipe. (2005). The influence of advertising on consumer brand preference. *Journal of Social Science* 10(1). Pp.9-16

Berns,T. (1981). The handling of consumer packaging. *Applied Ergonomics*.Vol. 12 (3). Pp. 153-161

Bettman,J.R. (1979). Factors in consumer choice: A review. *The Journal of Marketing*. 43(2),pp.37-53

Boelen,B., Hartog,H.D., Weijde,H.V.D. (2004). Product performance of polymer coated packaging steel, study of the mechanism of defect growth in cans. *Progress in Organic Coatings*. No. 50. Pp.40-46

Booth,H., and Tickle,L. (2003).The future aged: new projections of Australia's elderly population. *Australasian Journal on Ageing*. Vol 22 (4),pp.196-202

Briston,J.H. (1982). New Materials for food packaging- the future. *Food Chemistry*. 8,pp.147-155

Brody,A.L., Bugusu, B., Han,J.H., Sand,C.K., and McHugh,T.H. (2008). Innovative food packaging solutions. *Journal of food science*. Vol. 73 (8). Pp. 107-116

Burt,S., and Gabbott,M. (1995) The elderly consumer and non-food purchase behaviour. *EuropeanJournal of Marketing*. Vol. 29 (2). Pp. 43-57

Caffrey,R.A. (1992).Family care of the elderly in northeast Thailand:changing patterns. *Journal of Cross-Cultural Gerontology*. No.7. pp. 105-116

References

Collins-Dodd,C., and Lindley,T. (2003). Store brands and retail differentiation: the influence of store image and store brand attitude on store own brand perceptions. *Journal of retailing and consumer services*. No. 10.pp. 345-352

Crawford,J.O., Wanibe,E., and Nayak,L. (2002). The interaction between lid diameter, height and shape on wrist torque exertion in younger and older adults. *Ergonomics*. Vol 45 (13). Pp.922-933

Demirbilek,O., and Demirkan,H. (2004). Universal product design involving elderly users: a participatory design model. *Applied Ergonomics*. 35. Pp. 361-370

Deshpande,S.D. (2003). *Packaging: packaging of liquids*. Elsevier Science Ltd. Bhopal, India

Duizer,L.M., Robetson,T., and Han,J. (2008). Requirements for packaging from an ageing consumer's perspective. *Packaging technology and science*.

Fujioka,R., and Thangphet,S. (2009). *ILO Asia-Pacific Working Paper Series*. International Labour Organisation

Giles,G.A. (2000). *Design and technology of packaging decoration for the consumer market*. Sheffield Academic Press, CRC Press. United state and Canada

Goodwin,D.R., and McElwee,R.E. (1999). Grocery shopping and an ageing population: research note. *The International Review of Retail, Distribution and Consumer Research*.9 (4).pp.403-409

Guerrero,L., Colomer,Y., Guardia,M.D., Xicola,J., and Clotel,R. (2000). Consumer attitude towards store brands. *Food quality and preference*. No. 11.pp. 387-395

Guy,C. (1985). The food and grocery shopping behaviour of disadvantaged consumers: some results from the cardiff consumer panel. *Transactions of the publishing on behalf of the royal geographical society (with the Institute of British Geographers)*. 10 (2).pp. 181-190

Haigh,R. (1993). The ageing process: a challenge for design. *Applied Ergonomics*. Vol. 24 (1).pp.9-14

Han,J. (2005). Food packaging and its influence on aged consumer's food choice. Research report (P.G.Dip.Tech). Massey University

Han,J.H. (2005). *Innovations in Food Packaging*. Elsevier Academic Press

Hawkes,C. (2010). Invited commentary Food Packaging: the medium is the message. *Public Health Nutrition*. 13 (2). Pp. 297-299

Imrhan,S.N. (1994). Muscular strength in the elderly-Implications for ergonomic design. *International Journal of Industrial Ergonomics*. Vol. 13. pp. 125-138

Jensen, B.G. and Widding,S.H. (n.d.). Ensuring socially responsible packaging design.

Jitapunkul,S., and Bunnag,S. (1999). Ageing in Thailand. Fact Sheet-Family Planning and Population. Vol. 2 (6). p.1-5

Knodel,J., Chayovan, N., and Siriboon,S. (1992). The impact of fertility decline on familial support for the elderly: An illustration from Thailand. *Population and Development Review*. Vol. 18 (1).pp. 79-103

Knodel,J., Chayovan,N., Graiurapong,S., and Suraratdecha,C. (1999). Aging in Thailand: An Overview of Formal and Informal Support. Comparative study of the elderly in Asia. Population studies center, University of Michigan. <http://www.psc.lsa.umich.edu/pubs/>

Knodel,J., and Ofstedal,M.B. (2003).Gender and Ageing in the developing world: Where are the Men?. *Population and Development Review*. Vol. 29 (4). Pp. 677-698

References

Knodel,J., and Saengtienchai,C. (1999). Studying living arrangements of the elderly: Lessons from a quasi-qualitative case study approach in Thailand. *Journal of Cross-Cultural Gerontology*. Vol. 14. pp. 197-220.

Knodel,J., Saengtienchai,C., and Sittirai,W. (1995). Living arrangements of the elderly in Thailand views of the populace. *Journal of Cross-Cultural Gerontology*. No. 10 pp. 79-111

Krishna, A., Currim,I.S., and Shoemaker,R.W. (1991). Consumer Perceptions of promotional activity. *The journal of marketing*. 55(2). Pp. 4-16

Kuo,L.C., Chang,J.H., Lin,C.F., Hsu,H.Y., Ho,K.Y., and Su,F.C. (2009). Jar-opening challenges. Part2: estimating the force generating capacity of thumb muscles in healthy young adults during jar-opening tasks. *Proceeding ImechE Vol. 223 Part H: Journal of Engineering in Medicine*.

Laburu, A.O. (2010). Cap for bottles containing edible oil and other food liquids. Retrieved 10 November 2009. On http://www.assessnow.info/data_sources/Topic.2004-02-09.2730

Langley,J., Janson,R., Wearn,J., and Yoxall. (2005). ‘Inclusive’ Design for Containers: Improving Openability. *Packaging Technology and Science*. No.18. pp. 285-293

Lee,D.S., Yam,K.L., and Piergiovanni,L. (2008). *Food Packaging Science and Technology*.CRC Press. New York

Leighton,C., and Seaman,C.A. (1997). The elderly food consumer: disadvantaged?. *Journal of consumer studies and Home Economics*. No. 21.pp.363-370

Leonard,E.A. (1996). *Packaging: Specifications, purchasing, and quality control*. Mrcel Dekker. New York

Lewis,R., Menardi,C., Yoxall,A., and Langley,J. (2007). Finger friction: Grip and opening packaging. *Wear* 263. Pp.1124-1132

Lumpkin, J.R. (1985). Shopping orientation segmentation of the elderly consumer. *Journal of the Academy of Marketing Science*. 13(2). pp. 271-289

Lupien, J.R. (1997). Food packaging, international standards related to food safety and quality, and trade. *Food Additives and Contaminants*. Vol. 14 (6). Pp. 519-527

Marsh, K., and Bugusu, B. (2007). Food Packaging- Roles, Materials, and Environmental Issue. *Journal of Food Science*. Vol. 72 (3). pp. 39-55

McDaniel, C., and Baker, R.C. (1977). Convenience food packaging and the perception of product quality. *The Journal of Marketing*. Vol. 41 (4). Pp. 57-58

Meneely, L., Strugnell, C., and Burns, A. (2009). Elderly consumers and their food store experiences. *Journal of Retailing and Consumer Services* (16). pp. 458-465

Moskowitz, H., Reisner, M., Lalor, J.B., and Deliza, R. (2009). *Packaging Research in Food Product Design and Development*. Wiley-Blackwell. United States.

Muizniece-Brasava, S., and Dukalska, L. (2009). Consumer awareness of an attitude to biodegradable polymer packaging materials and their implementation in the Latvian market. *Chemine Technologyja*. Vole. 3(52). pp. 5-11

Paine, F.A., and Paine, H.Y. (1992). *A Handbook of Food Packaging*. Blackie Academic & Professional, United States

Person, O., Warell, A., Karjalainen, T., Rahe, U. (2009). "It's a honda! For me..." An exploratory student project on branding and product design for the older adult population. *International Conference on Engineering and Product Design Education*. United Kingdom

Petersen, K., Nielsen, P.V., Bertelsen, G., Lawther, M., Olsen, M.B., Nilsson, N.H., and Mortensen, G. (1999). Potential of biobased materials for food packaging. *Trends in Food Science and Technology*. Vol. 10. pp. 52-68

Phillips,L.W., and Sternthal,B. (1997). Age Difference in information processing: A perspective on the aged consumer. *Journal of Marketing Research*. Vol. XIV.pp.444-457

Robertson, G.L. (1993). *Food Packaging: Principles and Practice*. New York. p.663

Robertson,T., Duiser,L., Han,J., and Bisht,S. (2009). An aging and younger consumer's perspective of packaging. *Proceedings of NZ Ergonomic Society Conference*, Matinborough. New Zealand.

Statistics New Zealand (2009). *The impact of structural population change (Structural change and the 65+ population articles)*. Wellington Statistics New Zealand.

Semeijn,J., Riel,A.C.R.V., and Ambrosini,A.B. (2004). Consumer evaluations of store brands: effects of store image and product attributes. *Journal of Retailing and consumer services*. No. 11. Pp. 247-258

Silayoi,P., and Speece, M. (2004). Packaging and purchase decisions. *British Food Journal*. Vol. 106 (8).pp.607-628

Silayoi,P., and Speece,M. (2005). The importance of packaging attributes: a conjoint analysis approach. *European Journal of Marketing* 41(11/12).

Siriboon,S., and Knodel,J. (1994). Thai elderly who do not coreside with their children. *Journal of Cross-Cultural Gerontology*. Vol 9. pp. 21-38

Siripatrawan,U., Sanguandeeikul,R., Luangsa-ard,N., and Suppakul,P. (n.d.). Food packaging improvement: An effective means to promote international Trade. The 15th IAPRI World Conference on Packaging

Soroka,W. (2002). *Fundamentals of packaging technology*.

Vachon,S., and Klassen,R.D. (2006). Green project partnership in the supply chain: the case of the package printing industry. *Journal of cleaner production*. 14. Pp.661-671

Voorbij,A.I.M., and Steenbekkers,L.P.A. (2002). The twisting force of aged consumers when opening a jar. *Applied Ergonomics*. Vol. 33.pp. 105-109

Winder,B., Ridgway,K., Nelson,A., and Baldwin,J. (2002). Food and drink packaging: who is complaining and who should be complaining. *Applied Ergonomics*. 33.pp. 433-438

Yoxall,A., Janson,R., Bradbury,S.R., Langley,J., Wearn,J., and Hayes,S. (2006). Openability: Producing Design Limits for consumer packaging. *Packaging Technology and Science*. No. 19.pp. 219-225

Yoxall,A., and Janson,R. (2008). Fact or Friction: a Model fro Understanding the Openability of wide mouth closures. *Packaging Technology and Science*. No. 21. Pp. 137-147

Yoxall,A., Kamat,S.R., Langley,J., and Rowson,J. (2009). Squeezability. Part 2:getting stuff out of a bottle.Proceeding ImechE Vol. 244 Part C: *Journal of Mechanical Engineering Science*.

Yoxall,A., Langley,J., Janson,R., Lewis, R., Wearn,J., Hayes,S.A., and Bix,L. (2009). How wide do you want the jar? The effect on diameter for ease of opening for wide-mouth closures. *Packaging Technology and Science*. 23.pp 11-18

Yoxall,A., Langley,J., Janson,R., Wearn,J., and Manson,G. (2006). The use of uncertainty analysis for the design of container closures. *Packaging Technology and Science*. 19.pp. 139-147

Yoxall,A., Langley,J., Luxmoore,J., Janson,R., Taylor,J.C., and Rowson,J. (2010). Understanding the use of tools for opening packaging. *University access Information Social*. 9, pp. 273-281

References

Yoxall,A., Luxmoore,J., Austin,M., Canty,L., Margrave,K.J., Richardson,C.J., earn,J., Howard,I.C., and Lewis,R. (2007). Getting to Grips with Packaging: Using Ethnography and Computer simulation to understand hand-pack interaction. *Packaging technology and science*. Vol. 20.pp. 217-229

Yoxall,A., Luxmoore,J., Rowson,J., Langley,J., and Janson,R. (2008). Size Does Matter: Further studies in Hnad-Pack Interaction using computer simulation. *Packaging Technology and Science*. No.21. pp. 61-72

Zeithaml,V.A. and Fuerst,W.L. (1983). Age differences in Response to grocery store price information. *The Journal of consumer affairs*. 17 (2).pp. 402-420

Zeithaml,V.A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *The journal of marketing*. 52 (3). Pp.2-22

APPENDIX I

ETHIC COMMITTEE COFIRMATION LETTER



Massey University

11 June 2009

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Dear Pittiporn

Re: Research on the Links between Packaging and Shelf Placement of Groceries in Supermarkets and Purchases by Elderly People in Thailand

Thank you for your Low Risk Notification which was received on 10 June 2009.

Your project has been recorded on the Low Risk Database which is reported in the Annual Report of the Massey University Human Ethics Committees.

The low risk notification for this project is valid for a maximum of three years.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis that it is safe to proceed without approval by one of the University's Human Ethics Committees.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

Please ensure that the following statement is included in all information provided to participants during recruitment (eg, information sheet, preamble to questionnaire, etc):

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Research Ethics), telephone 06 350 5249, e-mail humanethics@massey.ac.nz".

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to provide a full application to one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

Sylvia V Rumball (Professor)
Chair, Human Ethics Chairs' Committee and
Assistant to the Vice-Chancellor (Research Ethics)

cc Mr Tom Robertson
School of Engineering and Advanced
Technology
PN456

Prof Don Cleland, HoS
School of Engineering and Advanced
Technology
PN456

Massey University Human Ethics Committee
Accredited by the Health Research Council



CONSENT FORM FOR PARTICIPANTS

The Food Packaging Problems with the Senior Consumers

This consent form will be held for 24 months from date of signing

- ❖ I have read and understood the Information Sheet and have had the detail of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at anytime.

- ❖ I agree to voluntarily participate in this study under the conditions set out in the Information sheet.

- ❖ I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions

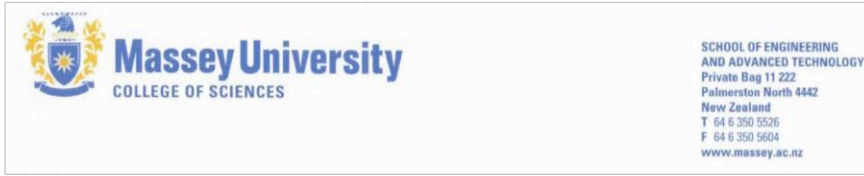
- ❖ I agree/do not agree to be audio taped, but understand that I have the right to ask for the tape to be turned off at any time during the study.

Date :

Name :

Signature :

CONSENT FORM FOR PARTICIPANTS [THAI VERSION]



หนังสือยินยอมการเข้าร่วมโครงการวิจัย

หนังสือยินยอมการเข้าร่วมโครงการวิจัยนี้จะถูกเก็บรักษาไว้เป็นเวลา 2 ปี

- ข้าพเจ้าได้อ่านและทำความเข้าใจ และได้รับการอธิบายเกี่ยวกับรายละเอียดของการศึกษาวิจัยครั้งนี้
- ข้าพเจ้าเห็นด้วยและยินดีที่จะเข้าร่วมในงานวิจัยนี้ด้วยความสมัครใจภายใต้เงื่อนไขที่กำหนดไว้
- ข้าพเจ้าได้ทำความเข้าใจแล้วว่าข้าพเจ้ามีสิทธิในการถอนตัวจากงานวิจัยได้ทุกเวลา และสามารถปฏิเสธในการตอบคำถามบางคำถามได้
- ข้าพเจ้ายินยอม/ไม่ยินยอมให้บันทึกเทปสัมภาษณ์ อย่างไรก็ตามข้าพเจ้าได้ทำความเข้าใจแล้วว่าข้าพเจ้ามีสิทธิในการหยุดการบันทึกเสียงได้ตลอดเวลาระหว่างการสนทนา
- ข้าพเจ้ายินยอมเข้าร่วมการวิจัยนี้ภายใต้เงื่อนไขที่ระบุในรายละเอียดข้อมูลการวิจัย

ลายเซ็นที่: วันที่:.....

ชื่อ - สกุล (ตัวบรรจง)



APPENDIX II

INFORMATION SHEET

Information Sheet



Title of Work: The food packaging problems with the senior consumers.

Researcher (s) Introduction

Researcher name: Pittiporn Ounsuvan
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This research has two sections. In the first section, we would like to invite you to take part in a Questionnaire Survey on Food Packaging. The second section is a focus group study to discuss the improvements to packaging that you currently have problems with. Based on your answers we received from the first section, we may invite you to participate in the second part. You are not required to attend the second section if you do not want to. Please be informed that this focus group study will be audio taped. However, you may ask to have the tape stopped at any point.

It is anticipated that the survey will take 15 minutes to complete, and your participation in the focus group study will take approximately 1-1.5 hours to complete if you are invited. You may withdraw from this study at any time.

We are looking for individuals over the age of 60 years who live and cook for themselves in their own house/apartment.

The information collected in this research will be used to complete a research report in partial fulfillment of the Master of Science (Packaging technology) for Pittiporn Ounsuvan, under the supervision of Mr. Tom Robertson, Associate Professor Vanee Chonhenchob and Dr. Pisit Dhamvithee. The main objective of this research is to study packaging types and problems that individuals over the age of 60 years may encounter when they use them.

All data will be collected as frequency data, and no data will be linked to an individual will be published

If you are interested in being involved with this research, please phone Pittiporn at 0818278157 to request a questionnaire for completion. And if you have any questions about this research, please also feel free to contact one of the people indicated above.

This project has been reviewed and approved by Massey University Human Ethic Committee, PN Protocol HEC: PN Protocol 03/34. If you have any concern about the conduct of this research, please contact Professor Sylvia V Rumball, Chair Massey University Campus Human Ethics Committee: Palmerston North, telephone 64 (6) 350 5249, email S.V.Rumball@massey.ac.nz

INFORMATION SHEET [THAI VERSION]



ชื่อโครงการวิจัย : การสำรวจพฤติกรรมการเลือกซื้อสินค้าในร้านของชำ, ร้านสะดวกซื้อ, ตลาดสด หรือ ซูเปอร์มาร์เก็ต รวมถึงการใช้สินค้าของผู้สูงอายุ

ข้อมูลนักวิจัย

ดิฉันนางสาวพิศติกรณ์ อ้นสุวรรณ ปัจจุบันกำลังศึกษาระดับนักศึกษาปริญญาโท สาขาเทคโนโลยีบรรจุกัมภ์ คณะวิศวกรรมศาสตร์ มหาวิทยาลัยแมสซีย์ ประเทศนิวซีแลนด์ งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาพฤติกรรมการเลือกซื้อสินค้าและการใช้สินค้าของผู้สูงอายุตั้งแต่ 60 ปีขึ้นไป โดยเฉพาะภาษาคนที่ใช้บรรจุกัมภ์นั้นๆว่ามีผลต่อการเลือกซื้อและเลือกใช้ของผู้สูงอายุอย่างไร ดังนั้นแบบสำรวจนี้จึงได้จัดทำขึ้นเพื่อสำรวจความคิดเห็นของผู้บริโภค

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เรื่องย่อโครงการวิจัย

เนื่องจากปัจจุบันภาชนะบรรจุอาหารมีความหลากหลายมากมาย บ้างก็ออกแบบมาเพื่อความสะดวกในการใช้ บ้างก็ออกแบบมาเพื่อความสวยงาม เพื่อดึงดูดความสนใจของผู้บริโภค นอกจากนี้วัสดุที่นำมาผลิตเป็นบรรจุภัณฑ์ก็มีความหลากหลาย เช่น กระดาษ, พลาสติก, อลูมิเนียม, เหล็ก, หรือ แก้ว. มีหลายปัจจัยที่มีผลต่อการเลือกซื้อสินค้า ภาชนะบรรจุก็ยังเป็นอีกปัจจัยหนึ่ง และก็ยังส่งผลไปยังการใช้งานอีกด้วย โดยเฉพาะในผู้สูงอายุตั้งแต่ 60 ปีขึ้นไป ส่วนมากจะประสบปัญหาในการใช้สินค้า ดังนั้น งานวิจัยครั้งนี้มีวัตถุประสงค์เพื่อตรวจสอบวิธีการเลือกซื้อสินค้าของผู้สูงอายุ และปัญหาในการใช้บรรจุภัณฑ์หรือภาชนะบรรจุหลากหลายชนิด เพื่อที่จะนำไปพัฒนาภาชนะบรรจุให้เหมาะสมกับผู้บริโภคทุกเพศทุกวัย โดยเฉพาะผู้สูงอายุ.

งานวิจัยนี้แบ่งเป็น 2 ส่วน ส่วนแรก เป็นการสำรวจข้อมูลการเลือกซื้อสินค้าของผู้บริโภค โดยใช้แบบสำรวจ ส่วนที่สอง เป็นการเก็บข้อมูลโดยเชิญผู้บริโภคเข้าร่วมสนทนา และแสดงความคิดเห็น กับคณะนักวิจัยในเรื่องการพัฒนาภาชนะบรรจุอาหาร รวมไปถึงอาหารสำเร็จรูป หรือ อาหารกึ่งสำเร็จรูป และ ปัญหาในการใช้ภาชนะบรรจุเหล่านั้น ทั้งนี้ โดยในส่วนที่สองนี้ นักวิจัยจะทำการคัดเลือกผู้เข้าร่วมสนทนาจากข้อมูลตามแบบสำรวจตอนที่หนึ่ง อย่างไรก็ตามท่านสามารถปฏิเสธการเข้าร่วมในส่วนที่สองได้ในกรณีที่ท่านไม่ต้องการเข้าร่วม ทีมนักวิจัยขอเรียนให้ท่านทราบเบื้องต้นว่าการดำเนินการวิจัยในส่วนที่สองจะมีการบันทึกเสียงในระหว่างการประชุม แต่อย่างไรก็ตามท่านสามารถขอให้หยุดการบันทึกเสียงได้ทุกเมื่อที่ท่านต้องการ

ระยะเวลาของงานวิจัยครั้งนี้คาดว่า จะใช้เวลาประมาณ 15 นาทีในส่วนที่หนึ่ง และประมาณ 1-1.5 ชั่วโมงในส่วนที่สอง แต่อย่างไรก็ตาม ท่านสามารถถอนสิทธิในการเข้าร่วมในงานวิจัยโดยแจ้งนักวิจัยหรือที่ปรึกษางานวิจัยนี้ได้ทุกเวลา

การจัดเก็บข้อมูลและการรักษาข้อมูล

ข้อมูลทั้งหมดของงานวิจัยในครั้งนี้จะถูกใช้เพื่อทำวิทยานิพนธ์ของ นางสาวพิศดิภรณ์ อ้นสุวรรณ และบทความทางวิชาการซึ่งอาจเผยแพร่ทางสิ่งตีพิมพ์ รวมทั้งนำเสนอทางวิชาการที่เกี่ยวข้อง **ส่วนข้อมูลที่กำลังถึงตัวท่านจะถูกเก็บเป็นความลับ และจะไม่ถูกนำเสนอทั้งในวิทยานิพนธ์และรายงานในรูปแบบต่างๆ** ในส่วนของเทปบันทึกเสียงการสัมภาษณ์ นักวิจัยจะเป็นผู้ถอดเทปบันทึกเสียงการสัมภาษณ์ทั้งหมด และ **บันทึกการสัมภาษณ์จะถูกเก็บรักษาไว้ในที่ปลอดภัย และเก็บแยกข้อมูลที่กล่าวถึงตัวท่าน** นักวิจัยจะดำเนินการทำลายพร้อมเอกสารอื่นๆที่กำลังถึงตัวท่าน ภายใน 2 ปี หลังจากการวิจัยเสร็จสมบูรณ์

ถ้าท่านสนใจและยินดีที่จะเข้าร่วมเป็นส่วนหนึ่งในงานวิจัยครั้งนี้ กรุณาหลงข้อหรือ ติดต่อ นักวิจัย นางสาวพิศติกรณ ใต้ที่เบอร์โทรศัพท์นี้ 0818278157 และ ถ้าท่านมีข้อสงสัยเกี่ยวกับงานวิจัยนี้ ท่านสามารถติดต่อบุคคลที่ได้กล่าวมาข้างต้นได้ทุกเมื่อ

ติดต่อสอบถาม

งานวิจัยนี้ ได้ผ่านการพิจารณาตรวจสอบและอนุมัติเกี่ยวกับจริยธรรมการทำวิจัยในมนุษย์เป็นที่เรียบร้อยแล้ว โดยคณะกรรมการจริยธรรมการวิจัยในมนุษย์ มหาวิทยาลัยแมสซีย์ ประเทศนิวซีแลนด์ (The Massey University Human Ethics Committee) หากท่านมีข้อสงสัยหรือต้องการข้อมูลเพิ่มเติมเกี่ยวกับการศึกษาวิจัยครั้งนี้ กรุณาติดต่อ ศาสตราจารย์ ซิลเวีย รัมบอลล์ (Sylvia V Rumball) ประธานคณะกรรมการจริยธรรมของมหาวิทยาลัยแมสซีย์ พาร์มเมอร์สตันนอร์ท โทรศัพท์ 64 6 3505249, อีเมลล์ S.V.Rumball@massey.ac.nz [Professor Sylvia V Rumball, Chair Massey University Campus Human Ethics Committee, PN Protocol HEC: PN Protocol 03/34: Palmerston North, Tel. 64 (6) 350 5249, อีเมลล์ S.V. Rumball@massey.ac.nz]. นอกจากนี้ท่านยังสามารถติดต่อนักวิจัยหรือที่ปรึกษาโครงการวิจัยตามทีระบุข้างต้น

APPENDIX III

QUESTIONNAIRE SURVEY



Packaging Survey Questionnaire

Date :

Subject Number :

Dear consumers,

Do you mainly considered in the types of packaging when you buy food products?

Do you have any difficulty when you open and close certain types of food packages?

Do you have ever get injury when using or opening the certain types of food packages?

If you encounter with these issues, please help me to complete the following questions in this questionnaire.

We are interested in finding out more about packaging problems that you have encountered and how they can be improved. Your answer will be certainly helpful for this research.

Thank you for your help!

Grocery Shopping Habits

Food plays a very important role in our life. In this section, we would like to find out your/your families grocery shopping habits.

1. On average, how often do you go to buy groceries? For official only

- More than once a day
- Once a day
- 2-3 times per week
- Once a week
- Every two weeks
- Once a month
- I don't shop for groceries

2. When you go grocery shopping, do you choose the products because of the packaging it is in?

- Very often
- Sometimes
- Seldom
- Never

3. If you go grocery shopping with other people, do they influence the choices you make?

- Every time
- Very often
- Sometimes
- Seldom
- Never, I shopping alone

4. When you go grocery shopping, does the person you shop with choose the products because of the packaging it is in?

For official only

- Every time
- Very often
- Sometimes
- Seldom
- Not applicable

5. Do you cook yourself?

- Yes
- No (if answer no, do not need to answer next question)
- Sometimes

6. How many times per week do you cook?

- 1-2 times
- 3-4 times
- 5-6 times
- Everyday

Packaging Attributes

We are interested in finding out more about which food packaging you like or dislike and the reasons why you like or dislike it.

7. Please tick “✓” in the table scale to indicate how important of each factor is to you when you choose a food product.

	Very important	Important	Doesn't matter	Unimportant	Very unimportant	For official only
Price						
Brand						
Materials of packaging						
Colour of packaging						
Shape of packaging						
Size of packaging (i.e. individual packages vs family size)						
Label on packaging						
Type of opening						
Ease of storage						
Versatility of packaging (i.e. can reuse the package)						
Safety of packaging						
Recycling						

8. Please tick “✓” in the table scale, please indicate how much you like the packaging materials of food products you purchase?

	Like very much	Like	Neither like nor dislike	Dislike	Dislike very much	For official only
Plastic packaging (e.g. ingredients)						
Cardboard boxes (e.g. tea bag)						
Tin can (e.g. Tuna)						
Aluminium cans (e.g. Coke cans)						
Glass bottles and jars (e.g. Fish sauce, Jams)						
Plastic bottles (e.g. mineral water, oil)						
Zip lock bags (e.g. cookies)						
Foil packaging (e.g. potato chip bags or other snacks)						
Tetra Packs (the container of juice or milk)						
Cellophane (e.g. cookie or cracker wrappers)						
Cartons (e.g. tissue box)						
Aseptic packages (e.g. dairy products)						
Sachet (e.g. compact instant coffee)						
Others:						

9. Please tick “✓” in the table scale, please indicate how often you have ever encountered problems with the opening and reclose or reseal the following types of the food packaging?

	Very often	Frequently	Sometimes	Seldom	Never	For official only
Ring pull (like on a fizzy drink or beer can)						
The opening slide (like on a zip lock bag)						
Screw on and off lid (like on a milk bottles)						
Twist on and off cap (like on jam glass jars)						
Pulling open foil bag (like potato chip bags)						
Pealable seal (like the paper or aluminium found under cap lids in drink bottles)						
Cut open with a can opener (like aluminium meat/fish cans)						
Tear off the paper box (like on detergent container)						
Tear off the plastic bag (like on pouch, refill bag)						
Ring pull under cap lids or foil cap (like in oil bottles)						
Aluminium foil caps (like on milk bottle or jelly cup)						
Child-resistant closure (CRC) (like on medicine)						
Flip-top or sports closure (like on fish sauce or dish cleanser)						
Lever lid closure (like on the coffee container)						
Slip lid food tin (like on spice or tea leaf)						
Other:						

10. Please tick “✓” in the table scale, please indicate how often you have ever encountered any of the following problems with the packaging of food products?

	Very often	Frequently	Sometimes	Seldom	Never	For official only
Spillage when opening the package						
Leakage during storage						
Lid is too tight to take off						
Label printing is too small to read properly						
Too heavy to carry						
Awkward to handle						
Other						

11. Have you ever had an injury when opening or using a package?

Yes

No

For official only

If yes, please describe and tick “✓” in the table scale to indicate the situations in terms of the packaging and how the injury was obtained.

	Packaging description	Injury
Situation 1:		
Situation 2:		
Situation 3:		

12. What is the predominant hand you would use to open containers (tick only one)?

For official only

- Left-handed
- Right-handed
- Ambidextrous (both left-handed and right-handed)

13. Have you ever had to ask people to help you open food packages?

- Yes
- No

If yes, please describe the packaging and please tick “✓” in the table scale indicate how often they have occurred by using the following scale.

	Very often	Frequently	Sometime	Seldom	For official only

14. Have you ever stopped buying a product because of the difficulties with the packaging?

For official only

- Yes
- No

If yes, please describe and tick “✓” in the table scale to indicate the difficulties and how often they have occurred by using the following scale.

	Very often	Frequently	Sometimes	Seldom	For official only

15. How would you currently classify your health?

- Very good
- Good
- Poor
- Very poor
- I don't know

16. Do you feel that any of the following affects your ability to open packages easily and please tick “✓” in the table scale to indicate what is the most affects your ability?

	Very often	Frequently	Sometimes	Seldom	Never	For official only
Arthritis (both osteoarthritis and rheumatoid arthritis)						
Not enough strength in hands, arms, and wrists						
Eyesight problems						
Broken bones in arms, hand and wrists						
Others						

Demographics

The information of your gender, age group and living status would definitely contribute to our packaging research. We would appreciate if you could help us by answering the following questions. Again, all answers are strictly confidential.

17. Please tick your Gender

- Male
- Female

For official only

18. Please tick your age group

- 60-69 years
- 70-79 years
- 80-89 years
- 90 years or above

19. Please tick your living situation (tick only one)

- I live alone
- I live with family members but do own housework and grocery shopping
- I live with family members but they do help me with my housework and grocery shopping
- I live alone but I have someone comes to help me with my housework and grocery shopping

If any of the above option does not describe your living situation, please describe it

here.....
.....
.....
.....

20. Please tick your income you earn per month

For official only

- less than 5,000 Baht
- 5,001 – 10,000 Baht
- 10,001 – 20,000 Baht
- 20,001 – 30,000 Baht
- 30,001 – 40,000 Baht
- higher than 40,000 Baht

21. Please tick your education levels

- Primary school
- Intermediate
- High school
- Bachelor degree
- Higher than Bachelor

22. Would you like to be contacted for the further discussion about packaging and how it could be improved?

- Yes
- No

If yes, please give us your contact details,

Name:

Contact Tel: (Home)

(Mobile)

Address:

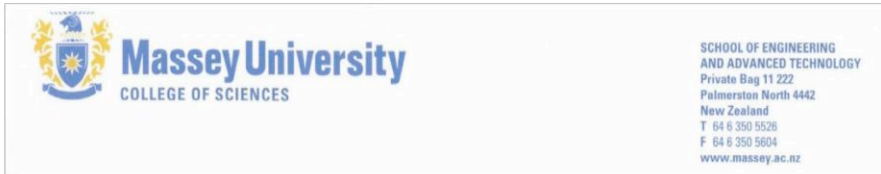
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Thank you for your help!

QUESTIONNAIRE SURVEY [THAI VERSION]



แบบสอบถามการศึกษาพฤติกรรมผู้บริโภคชาวไทยในการเลือกซื้อผลิตภัณฑ์อาหาร และการใช้ภาชนะบรรจุ
ของผู้สูงอายุตั้งแต่ 60 ปีขึ้นไป

วันที่ :

งานวิจัยเลขที่ :

เรียน ผู้บริโภค

- ❖ ท่านมีวิธีการเลือกซื้อสินค้าโดยการพิจารณาจากบรรจุภัณฑ์ หรือภาชนะบรรจุหรือไม่?
- ❖ ท่านเคยประสบปัญหาในการใช้บรรจุภัณฑ์ รวมถึงการเปิดและปิดภาชนะบรรจุหรือไม่?
- ❖ ท่านเคยบาดเจ็บเนื่องจากคุณภาพของบรรจุภัณฑ์และชนิดหรือขนาดของที่ปิดขณะเปิดและปิดบรรจุภัณฑ์หรือไม่?
- ❖ ถ้าท่านเคยประสบกับเหตุการณ์เหล่านี้ กรุณาตอบแบบสอบถามชุดนี้
- ❖ คำตอบของท่านเป็นประโยชน์กับการหาข้อมูลเพิ่มเติมเกี่ยวกับพฤติกรรมที่ใช้ในการพิจารณาเลือกสินค้า และปัญหาในการใช้บรรจุภัณฑ์ที่ท่านประสบ รวมถึงข้อเสนอแนะและวิธีที่สามารถช่วยในการแก้ปัญหาเหล่านั้น

ขอขอบพระคุณ ในความร่วมมือ!



ส่วนที่ 1: การสำรวจข้อมูลเกี่ยวกับพฤติกรรมกรจับจ่ายซื้อสินค้าตามร้านค้าขายของชำ, ร้านสะดวกซื้อ, ตลาดสด หรือ ซูเปอร์มาร์เก็ต ของท่าน

1. ท่านซื้อสินค้าที่อยู่ตามร้านค้าขายของชำ/ร้านสะดวกซื้อ/ตลาดสด หรือ ซูเปอร์มาร์เก็ต บ่อยแค่ไหน?

เฉพาะเจ้าหน้าที่

- มากกว่า 1 ครั้งต่อวัน
- 1 ครั้งต่อวัน
- 1 ครั้งต่อสัปดาห์
- 2-3 ครั้งต่อสัปดาห์
- 1 ครั้งทุกๆ 2 สัปดาห์
- 1 ครั้งต่อเดือน
- ท่านไม่ซื้อสินค้าตามร้านค้าขายเหล่านี้

2. เมื่อท่านซื้อสินค้าบ่อยแค่ไหนที่ท่านพิจารณาจากภาวะบรรจุ?

- ทุกครั้ง
- บางครั้งบางครั้ง
- นานๆครั้ง
- ไม่เคย

3. ปกติท่านไปซื้อสินค้าตามร้านค้าขายของชำ/ร้านสะดวกซื้อ/ตลาดสด หรือ ซูเปอร์มาร์เก็ตกับผู้อื่น (เช่น เพื่อน,ญาติพี่น้อง หรือ คนรู้จัก) บุคคลเหล่านั้นมีอิทธิพลในการชักจูงในการเลือกซื้อสินค้าของท่านหรือไม่?

- มีทุกครั้ง
- มีบางครั้งบางครั้ง
- มีบ้างนานๆครั้ง
- ไม่มีเลย
- ปกติไปซื้อสินค้าตามลำพัง

เฉพาะเจ้าหน้าที่

4. บ่อยแค่ไหนที่ท่านเลือกซื้อสินค้าโดยไม่ได้ตั้งใจ เช่น สินค้าที่มีโปรโมชัน(โดยเฉพาะสินค้าประเภทอาหาร) โดยพิจารณาจากลักษณะบรรจุไม่ว่าจะไปซื้อสินค้าตามห้าง หรือ มีเพื่อนไปด้วยก็ตาม?

- ทุกครั้ง
- บางครั้งบางครั้ง
- นานๆครั้ง
- ไม่เคย
- ไม่เกี่ยวข้อง

5. ปกติท่านทำอาหารเองหรือไม่

- ทำเองตลอด
- ไม่เคยทำเองเลย (ถ้าท่านเลือกคำตอบนี้ ไม่ต้องตอบข้อที่ 6)
- ทำเองบ้างบางครั้ง

6. ท่านทำอาหารเองบ่อยแค่ไหนในหนึ่งอาทิตย์?

- 1-2 ครั้งต่อสัปดาห์
- 3-4 ครั้งต่อสัปดาห์
- 5-6 ครั้งต่อสัปดาห์
- ทุกวัน

ส่วนที่ 2: แบบสำรวจข้อมูลเกี่ยวกับลักษณะการเลือกซื้อสินค้าและปัจจัยต่างๆที่สำคัญและมีผลต่อการตัดสินใจซื้อสินค้าของท่าน รวมถึงความชอบในการใช้งาน

7. กรุณาขีดเครื่องหมาย “✓” ในช่องที่ท่านคิดว่าปัจจัยต่างๆที่อยู่ในตารางข้างล่างนี้ มีความสำคัญกับท่านในการเลือกซื้อสินค้ามากน้อยเพียงใด

	สำคัญที่สุด	สำคัญ	ไม่มีใจว่าสำคัญหรือไม่	ค่อนข้างไม่สำคัญ	ไม่สำคัญที่สุด	สำหรับเจ้าหน้าที่
• ราคา						
• ยี่ห้อ						
• วัสดุของภาชนะบรรจุ						
• สีของภาชนะบรรจุ						
• รูปทรงของภาชนะบรรจุ						
• ขนาดของภาชนะบรรจุ(เช่น ขนาดพกพา, ขนาดใหญ่สำหรับครอบครัว)						
• กลากของภาชนะบรรจุ						
• ชนิดของฝาปิดภาชนะบรรจุ						
• ความสะดวกในการเก็บรักษา						
• ประโยชน์ของภาชนะบรรจุ (เช่น สามารถนำกลับมาใช้ใหม่หรือใช้ทำอย่างอื่นได้อีก)						
• ความปลอดภัยของภาชนะบรรจุ						
• ภาชนะบรรจุที่สามารถย่อยสลายได้เพื่อช่วยรักษาสิ่งแวดล้อม						

8. กรุณาขีดเครื่องหมาย “✓” ในช่อง เพื่อแสดงถึงความชอบของท่านที่มีต่อภาชนะบรรจุหลายชนิด

	ชอบมากที่สุด	ชอบ	บอกไม่ได้ว่าชอบหรือไม่ชอบ	ไม่ชอบ	ไม่ชอบมากที่สุด	สำหรับ เจ้าหน้าที่
• ภาชนะบรรจุที่ทำมาจากพลาสติก (เช่น กล่องเครื่องปรุงอาหาร)						
• กล่องกระดาษ (เช่น กล่องใส่ถุงชา)						
• กระป๋องดีบุก (เช่น ปลากระป๋อง)						
• กระป๋องอลูมิเนียม (เช่น กระป๋องโค้ก)						
• ขวดแก้ว (เช่น ขวดน้ำปลา, แยม)						
• ขวดพลาสติก (เช่น ขวดน้ำดื่ม, ขวดน้ำมัน)						
• ถุงซีป (เช่น ถุงคุกกี้)						
• ถุงอลูมิเนียม (เช่น ถุงขนมมันฝรั่ง หรือขนมขบเคี้ยว)						
• กล่องกระดาษเคลือบ (Tetra Pak) (เช่น น้ำผลไม้กล่องหรือนมกล่อง)						
• ถุงพลาสติกใส ห่อผลิตภัณฑ์ ภายในกล่อง (Cellophane) (เช่น ห่อคุกกี้หรือขนมปังกรอบ)						
• กล่องกระดาษแข็ง (เช่น กล่องกระดาษชำระ)						
• ภาชนะบรรจุปลอดเชื้อโรค (เช่น นมสด)						
• ซองขนาดเล็ก (Sachet) (เช่น กาแฟสำเร็จรูป)						
• อื่นๆ โปรดระบุ						

9. ท่านประสบกับปัญหาในการเปิด หรือปิดภาชนะบรรจุ โดยเฉพาะกับวัสดุหรือชนิดของฝาที่ใช้เปิดหรือปิดภาชนะบรรจุที่อยู่ในตารางข้างล่างนี้ กรุณาขีดเครื่องหมาย “✓” ในช่องเพื่อแสดงว่าบ่อยครั้งแค่ไหนที่ท่านประสบปัญหากับฝาแต่ละชนิดนี้

	ทุกครั้ง	บ่อยครั้ง	บางครั้ง	บางครั้งนานๆครั้ง	ไม่เคยเลย	สำหรับเจ้าหน้าที่
• ที่ตั้งวงแหวน (เช่น ครอบป้องกันหรือครอบเบียร์)						
• ที่เปิดแบบชิป (เช่น ถุงรูปปิด)						
• ฝาปิดพลาสติก (เช่น ขวดนม)						
• ฝาแบบบิดเกลียว (เช่น ขวดนมชนิดแก้ว)						
• ถุงอลูมิเนียมฟอยล์ (เช่น ถุงนมมันฝรั่ง)						
• ฝากระดาษ หรือ อลูมิเนียมปิดครอบ หรือปากขวด (เช่น ขวดน้ำดื่ม)						
• ครอบที่ต้องใช้อุปกรณ์ในการเปิด (เช่น ฝาครอบ)						
• ก่องกระดาษที่มีรอยประสำหรับฉีก (เช่น ก่องชา)						
• ถุงพลาสติกที่มีรอยประสำหรับฉีก (เช่น ถุงใส่ของหรือถุงชนิดเติม)						
• ที่ตั้งวงแหวนพลาสติกใต้ฝาขวดหรือฝาตะกั่ว (เช่น ขวดน้ำมัน)						
• ฝาอลูมิเนียม (เช่น ถ้วยโยเกิร์ต)						
• ฝาปิดแบบป้องกันเด็กเปิด Child-resistant closure (CRC) (เช่น ยา)						
• ฝาปิดแบบดันขึ้น (เช่น ขวดน้ำปลาหรือน้ำยาทำความสะอาด)						
• ที่ปิดครอบแบบต้องจัดออก (เช่น ครอบกาแฟขนาดครอบครัว)						
• ฝาที่เลื่อนในการเปิด และปิด (เช่น เครื่องเทศ)						
• อื่นๆ						

10. กรุณาขีดเครื่องหมาย “✓” ในช่องเพื่อแสดงว่าบ่อยครั้งแค่ไหนที่ท่านประสบปัญหาเวลาใช้งาน และการเก็บรักษาของภาชนะบรรจุอื่นๆ

	ทุกครั้ง	บ่อยครั้ง	บางครั้ง	บางครั้ง นานๆครั้ง	ไม่เคย	สำหรับเจ้าหน้าที่
• อาหารล้นออกมาเวลาเปิดภาชนะบรรจุ						
• รั่วซึมระหว่างการใช้งาน						
• ฝาปิดแน่นสนิทมากทำให้เปิดยาก						
• ตัวพิมพ์ที่ฉลากเล็กลงไปทำให้ยากแก่การอ่าน						
• หมักเกินไปที่จะถือ และ เปิด						
• ภาชนะบรรจุไม่เหมาะสมกับการเคลื่อนย้าย						
• อื่นๆ						

11. ท่านเคยได้รับบาดเจ็บจากการเปิดหรือใช้บรรจุภัณฑ์หรือไม่?

เฉพาะเจ้าหน้าที่

- เคย
- ไม่เคย

** ถ้าคำตอบของท่านคือเคย กรุณาอธิบายเหตุการณ์ที่ท่านเคยประสบจากการเปิดภาชนะบรรจุและได้รับบาดเจ็บอย่างไรบ้าง

	รายละเอียดของบรรจุภัณฑ์	อาการบาดเจ็บ	สำหรับเจ้าหน้าที่
เหตุการณ์ 1:			
เหตุการณ์ 2:			
เหตุการณ์ 3:			

12. ปกติท่านใช้มือข้างไหนเปิดและปิดภาชนะบรรจุ (เลือกเพียงคำตอบเดียว)? เฉพาะเจ้าหน้าที่

- มือข้างซ้าย
- มือข้างขวา
- ถนัดใช้มือทั้ง 2 ข้าง

13. ท่านเคยขอความช่วยเหลือจากผู้อื่นให้ช่วยเปิดฝาภาชนะบรรจุหรือไม่?

- เคย
- ไม่เคย

****ถ้าคำตอบของท่านคือเคย กรุณาอธิบายลักษณะของฝาและภาชนะบรรจุ และกรณาคิดเครื่องหมาย “✓” ในช่องเพื่อแสดงว่าบ่อยครั้งแค่ไหนที่ท่านประสบปัญหาเกี่ยวกับภาชนะบรรจุดังกล่าว**

ลักษณะของบรรจุภัณฑ์	ทุกครั้ง	บ่อยครั้ง	บางครั้ง	นานๆครั้ง	สำหรับเจ้าหน้าที่

14. ท่านเคยหรือไม่ที่จะไม่ซื้อสินค้าเพราะว่าภาชนะบรรจุนั้นมีความยากลำบากในการใช้งาน เช่น ยากที่จะเปิด?

- เคย สำหรับเจ้าหน้าที่
- ไม่เคย

ถ้าคำตอบของท่านคือเคย [1] กรุณาอธิบายความยากลำบาก และ กรณาคิดเครื่องหมาย “✓” ในช่องเพื่อแสดงว่าบ่อยครั้งแค่ไหนที่ท่านประสบกับปัญหาดังกล่าว

ความยากลำบากที่ประสบ	ทุกครั้ง	บ่อยครั้ง	บางครั้ง	นานๆครั้ง	สำหรับเจ้าหน้าที่

15. ท่านคิดว่าสุขภาพของท่านโดยรวมในขณะนี้เป็นอย่างไร?

สำหรับเจ้าหน้าที่

- ดีมาก
- ดี
- ไม่ดี
- ไม่ดีมาก
- ไม่ทราบ

16. ท่านคิดว่าปัญหาสุขภาพที่ระบุในตารางข้างล่างนี้ จะมีผลกระทบกับความสามารถในการใช้ภาชนะบรรจุ (เช่น การเปิด และปิด) หรือไม่? มากหรือน้อยเพียงใด กรุณาขีดเครื่องหมาย “✓” ในช่อง

ปัญหาสุขภาพ	มีผลกระทบมาก	ค่อนข้างมีผลกระทบ	มีบ้างเป็นครั้งคราว	ไม่ค่อยมีผลกระทบ	ไม่มีผลกระทบเลย	สำหรับเจ้าหน้าที่
โรคข้ออักเสบ (ทั้งโรคกระดูกและโรครูมาตอย)						
มือ แขน และ ข้อมือไม่มีแรงพอ						
สายตา						
เคยแขนหัก หรือ ข้อมือหัก						
อื่นๆ						

ข้อมูลปัจจัยส่วนบุคคลของผู้ตอบแบบสอบถาม

กรุณาตอบคำถามข้างล่างนี้เกี่ยวกับ ข้อมูลส่วนตัวของท่านประกอบไปด้วย เพศ กลุ่มอายุ ระดับการศึกษา รายได้ และ การพักอาศัยของท่าน ข้อมูลส่วนตัวของท่านจะเป็นประโยชน์กับงานวิจัยในครั้งนี้เป็นอย่างมาก นักวิจัยและทีมวิจัยขอขอบพระคุณ และ มีความยินดีในความร่วมมือของท่านในการตอบคำถามดังต่อไปนี้ ข้อมูลของท่านจะถูกเก็บรักษาไว้อย่างดีและสงวนสิทธิ์ในการเปิดเผยสิ่งที่ได้กล่าวไว้แล้วข้างต้น

17. เพศ สำหรับเจ้าหน้าที่

- เพศชาย
- เพศหญิง

18. อายุ

- 60-65 ปี
- 66-70 ปี
- 71-75 ปี
- 76 ปี หรือมากกว่า

19. กรุณาเลือกว่าท่านอยู่อาศัยแบบใด (เลือกเพียงข้อเดียว)

- ท่านอาศัยอยู่เพียงลำพัง
- ท่านอาศัยอยู่กับครอบครัวแต่ท่านเป็นทำงานบ้านและซื้อสินค้าเอง
- ท่านอาศัยอยู่กับครอบครัวแต่สมาชิกในครอบครัวของท่านช่วยเหลือในการทำงานบ้านและซื้อสินค้า
- ท่านอาศัยอยู่เพียงลำพังแต่ท่านมีผู้อื่นช่วยเหลือในการทำงานบ้านและซื้อสินค้า

ถ้าข้อมูลที่กล่าวมาข้างต้นไม่ตรงกับความเป็นอยู่ของท่าน กรุณาอธิบาย

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20. กรุณาเลือกรายได้ที่ท่านได้รับแต่ละเดือน

สำหรับเจ้าหน้าที่

- ไม่เกิน 5,000 บาท
- 5,001 – 10,000 บาท
- 10,001 – 20,000 บาท
- 20,001 – 30,000 บาท
- 30,001-40,000 บาท
- มากกว่า 40,000 บาท

21. กรุณาเลือกระดับการศึกษาของท่าน

- ประถมศึกษา
- มัธยมศึกษาตอนต้น
- มัธยมศึกษาตอนปลาย
- ปริญญาตรี
- สูงกว่าปริญญาตรี

22. ท่านสามารถที่จะเข้าร่วมสนทนา และแสดงความคิดเห็นเพิ่มเติมเกี่ยวกับงานวิจัยในครั้งนี้ได้หรือไม่?

- สามารถเข้าร่วม
- ไม่สามารถเข้าร่วม

ถ้าท่านสามารถเข้าร่วม กรุณาให้ข้อมูลของท่านที่สามารถติดต่อกลับได้ทางด้านล่างนี้,

ชื่อ:

เบอร์ติดต่อ: (บ้าน)

(มือถือ)

ที่อยู่:

.....

.....

ขอขอบพระคุณเป็นอย่างสูงที่ท่านให้ความร่วมมือ!

APPENDIX IV

DATA OF QUESTIONNAIRE SUMMARISED

No.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
1	2	2	2	1	1	5	3	2	1	3	1	3	2	4
2	2	3	2	1	1	7	3	4	4	3	1	5	3	1
3	2	1	2	1	1	7	4	2	3	3	4	5	1	4
4	2	3	1	1	1	2	3	4	4	3	1	5	1	1
5	1	2	2	1	2	4	3	2	2	3	1	3	3	4
6	1	1	3	1	2	4	4	2	2	1	4	5	2	4
7	1	3	3	4	3	2	2	3	3	1	4	4	2	4
8	1	1	3	3	4	3	2	2	4	1	4	5	4	4
9	1	3	2	3	2	2	2	2	3	1	4	5	5	4
10	1	1	2	4	4	3	1	1	3	1	4	5	4	1
11	1	1	3	2	4	4	2	2	3	1	4	4	5	5
12	1	3	1	3	4	3	1	1	3	3	1	5	2	4
13	2	2	3	3	3	2	2	3	3	3	3	5	1	2
14	2	1	2	3	3	3	2	3	3	3	1	4	3	4
15	2	3	2	3	4	2	2	4	4	3	1	5	4	4
16	2	1	2	4	5	2	2	1	3	1	4	4	5	5
17	2	1	1	5	5	4	3	3	4	3	2	5	3	4
18	2	1	3	1	2	4	3	3	4	1	3	5	5	3
19	2	1	2	6	3	4	3	4	4	3	2	4	4	4
20	2	2	2	2	1	5	4	5	4	3	3	4	3	3
21	2	4	3	3	3	1	2	2	4	1	4	3	3	3
22	2	1	2	3	4	2	2	3	4	3	1	5	4	4
23	1	3	2	2	2	4	3	2	3	1	4	5	2	4
24	2	1	3	1	1	2	1	4	3	3	2	5	1	4
25	2	2	3	1	1	2	1	4	3	1	4	5	2	4
26	2	1	2	3	4	5	3	4	4	1	4	4	4	4
27	1	4	2	3	4	4	3	1	3	3	1	2	2	4
28	1	4	2	3	3	3	2	3	2	3	1	5	4	5
29	2	1	2	3	5	5	2	4	4	1	3	3	4	5
30	2	1	1	5	5	2	3	1	4	2	0	3	4	5
31	1	3	3	3	4	6	4	3	4	1	4	4	4	4
32	2	3	3	2	1	3	3	4	3	3	1	4	2	4
33	2	1	2	1	1	5	3	2	3	1	4	5	4	5
34	2	1	3	1	2	2	4	3	4	3	4	5	4	4

No.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
35	2	2	3	4	1	5	2	3	3	3	3	5	4	4
36	2	3	3	3	1	5	3	2	4	3	1	3	5	4
37	2	2	3	3	2	5	4	4	3	1	4	5	5	5
38	2	1	2	4	4	5	3	2	3	3	1	2	1	4
39	1	1	2	6	5	4	4	2	3	1	4	4	4	4
40	1	1	3	6	3	5	1	5	2	2	0	4	5	4
41	2	1	2	3	3	5	4	2	3	3	1	2	1	4
42	2	1	2	2	4	7	3	3	4	1	4	3	4	1
43	2	1	3	3	3	4	3	4	3	1	3	5	2	2
44	2	2	4	1	1	1	2	3	3	3	1	5	4	3
45	2	2	2	4	4	5	4	4	3	1	4	5	4	4
46	2	2	2	3	3	3	2	4	3	3	3	5	5	5
47	2	1	3	2	1	3	4	2	4	3	3	4	2	5
48	2	3	3	5	4	6	4	5	3	1	3	4	5	4
49	2	1	4	3	4	4	3	3	4	1	3	1	4	4
50	1	1	3	2	5	4	4	3	5	1	3	2	2	2
51	2	2	2	2	1	1	3	2	3	3	1	2	4	2
52	2	1	3	2	4	5	4	2	2	1	4	4	4	4
53	1	1	3	3	3	3	3	4	3	1	4	5	4	4
54	2	4	3	6	5	5	4	5	5	1	4	4	3	2
55	2	1	1	2	1	2	4	1	2	1	4	5	4	5
56	2	2	2	1	1	4	1	4	3	3	1	5	3	3
57	1	2	3	5	3	2	4	4	3	3	1	5	4	4
58	2	1	2	1	3	5	4	3	5	3	1	5	4	5
59	2	2	2	1	1	4	1	3	2	3	2	5	3	3
60	1	3	3	2	4	3	1	3	2	2	0	5	3	3
61	1	1	3	2	2	4	3	3	3	3	1	5	3	3
62	2	2	2	4	4	3	2	3	2	3	1	4	3	1
63	1	1	2	2	4	5	4	4	3	1	3	5	5	5
64	2	2	2	1	1	4	3	4	3	3	1	4	4	4
65	2	1	3	3	3	1	3	1	2	3	1	4	4	1
66	2	2	3	1	1	2	1	4	2	3	1	5	1	5
67	1	1	3	3	2	1	2	2	2	2	0	5	3	4
68	2	1	3	3	2	7	4	5	4	3	1	5	1	4
69	1	2	2	4	4	4	4	4	4	1	4	4	4	4
70	2	1	3	1	4	2	4	4	4	3	1	4	1	5
71	2	1	2	2	3	4	2	3	2	3	1	5	2	2
72	2	1	4	2	2	4	3	4	4	1	4	5	4	2
73	2	1	2	6	1	4	3	4	4	3	4	5	4	3

Appendices

No.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
74	1	3	3	3	3	4	3	3	3	1	3	4	5	3
75	2	1	3	6	4	5	4	4	4	2	0	5	5	5
76	1	2	2	4	3	2	3	3	4	1	4	5	5	4
77	2	1	2	3	3	4	3	4	4	1	2	4	4	4
78	2	1	2	3	4	6	4	3	3	1	3	4	3	4
79	1	1	3	3	3	5	3	4	3	2	4	5	5	3
80	2	2	2	3	4	6	1	2	3	2	3	4	3	3
81	2	2	4	3	4	3	3	3	3	1	3	5	4	3
82	2	1	2	1	1	7	4	1	5	2	0	5	5	5
83	1	3	3	1	1	3	2	5	4	3	1	5	4	3
84	2	1	3	3	3	2	2	4	3	1	4	5	5	4
85	1	1	2	3	3	6	4	4	4	1	4	5	5	5
86	2	1	2	2	1	7	4	3	3	3	1	5	3	4
87	1	1	3	4	1	2	3	4	3	1	3	5	1	1
88	2	1	3	3	1	2	3	4	4	3	1	5	4	1
89	1	1	3	3	1	5	1	3	3	3	1	5	4	4
90	1	1	2	2	1	5	1	2	2	3	1	4	3	2
91	2	1	2	1	1	5	4	4	3	3	3	5	3	2
92	2	1	3	2	1	2	4	1	3	3	1	5	5	4
93	2	1	1	1	1	2	4	2	5	3	1	5	1	4
94	2	3	3	1	1	2	4	1	2	3	1	5	2	1
95	2	4	3	3	1	1	2	5	5	3	1	4	5	4
96	2	1	3	3	1	1	3	5	5	3	1	4	5	4
97	1	2	4	4	4	4	4	3	4	1	4	5	4	3
98	2	1	2	4	4	3	3	1	3	2	0	5	4	2
99	2	1	2	3	4	7	3	4	5	3	1	5	4	3
100	2	1	3	4	1	3	4	4	4	1	2	5	4	3

No.	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
1	3	2	3	3	4	4	4	4	1	3	2	4	3	2
2	5	1	4	3	4	5	5	5	1	5	3	1	5	1
3	2	1	4	5	3	3	4	3	4	5	1	4	2	1
4	1	1	1	1	1	1	4	4	1	5	1	1	1	1
5	2	1	4	4	4	4	5	5	1	3	3	4	2	1
6	2	2	2	2	3	4	5	4	4	5	2	4	2	2
7	3	3	4	4	3	4	4	5	4	4	2	4	3	3
8	3	1	4	3	1	4	2	4	4	5	4	4	3	1
9	3	3	4	3	2	4	3	4	4	5	5	4	3	3

No.	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
10	1	1	1	3	2	4	4	5	4	5	4	1	1	1
11	3	3	2	4	3	5	5	5	4	4	5	5	3	3
12	3	3	4	4	1	5	3	1	1	5	2	4	3	3
13	2	2	4	3	3	5	5	5	3	5	1	2	2	2
14	2	2	1	3	2	4	4	4	1	4	3	4	2	2
15	3	3	3	3	3	4	5	5	1	5	4	4	3	3
16	2	1	4	3	3	4	2	5	4	4	5	5	2	1
17	2	1	3	4	3	4	4	5	2	5	3	4	2	1
18	2	3	3	4	4	4	4	5	3	5	5	3	2	3
19	2	1	2	4	2	4	3	4	2	4	4	4	2	1
20	4	3	3	4	4	4	4	3	3	4	3	3	4	3
21	3	3	3	3	3	4	4	4	4	3	3	3	3	3
22	3	1	4	3	2	4	4	5	1	5	4	4	3	1
23	2	2	4	3	3	4	3	4	4	5	2	4	2	2
24	1	1	4	2	3	4	4	4	2	5	1	4	1	1
25	1	1	2	1	3	3	4	5	4	5	2	4	1	1
26	3	4	4	5	4	4	3	5	4	4	4	4	3	4
27	2	4	5	3	2	4	2	5	1	2	2	4	2	4
28	3	1	3	3	3	3	3	5	1	5	4	5	3	1
29	2	2	4	3	4	5	3	5	3	3	4	5	2	2
30	3	3	4	2	3	5	4	5	0	3	4	5	3	3
31	3	3	4	5	4	4	4	5	4	4	4	4	3	3
32	4	2	2	4	3	4	3	5	1	4	2	4	4	2
33	4	1	4	5	5	4	4	5	4	5	4	5	4	1
34	4	4	4	4	4	4	4	4	4	5	4	4	4	4
35	4	2	2	5	4	4	4	5	3	5	4	4	4	2
36	4	3	3	4	2	2	2	3	1	3	5	4	4	3
37	4	4	4	5	4	4	4	5	4	5	5	5	4	4
38	4	4	2	4	4	4	2	4	1	2	1	4	4	4
39	4	2	4	2	4	4	4	5	4	4	4	4	4	2
40	2	3	4	4	4	4	4	5	0	4	5	4	2	3
41	1	2	3	1	2	4	1	5	1	2	1	4	1	2
42	5	3	5	4	1	5	5	4	4	3	4	1	5	3
43	2	1	2	5	4	4	2	5	3	5	2	2	2	1
44	1	1	4	1	1	4	4	4	1	5	4	3	1	1
45	5	4	4	5	5	5	2	5	4	5	4	4	5	4
46	5	4	4	5	5	5	4	4	3	5	5	5	5	4
47	2	2	2	5	4	4	2	5	3	4	2	5	2	2
48	4	5	4	4	4	4	1	4	3	4	5	4	4	5

Appendices

49	4	4	5	1	1	5	4	5	3	1	4	4	4	4
No.	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
50	2	2	2	2	2	4	4	4	3	2	2	2	2	2
51	5	2	4	4	4	2	2	4	1	2	4	2	5	2
52	2	4	4	4	5	5	5	5	4	4	4	4	2	4
53	2	4	4	5	4	4	2	4	4	5	4	4	2	4
54	2	3	3	4	3	4	5	5	4	4	3	2	2	3
55	2	2	5	5	5	5	5	5	4	5	4	5	2	2
56	3	3	3	3	3	3	5	5	1	5	3	3	3	3
57	4	4	4	5	5	5	4	5	1	5	4	4	4	4
58	4	4	5	5	5	5	4	5	1	5	4	5	4	4
59	3	3	3	3	3	3	4	4	2	5	3	3	3	3
60	3	3	3	3	3	3	3	4	0	5	3	3	3	3
61	3	3	3	3	3	3	4	4	1	5	3	3	3	3
62	1	1	2	1	3	3	4	4	1	4	3	1	1	1
63	4	3	5	5	5	5	5	5	3	5	5	5	4	3
64	4	4	5	4	3	4	4	5	1	4	4	4	4	4
65	1	1	1	4	4	5	4	5	1	4	4	1	1	1
66	5	1	4	5	5	4	1	5	1	5	1	5	5	1
67	3	4	4	3	5	5	3	5	0	5	3	4	3	4
68	4	1	2	3	5	4	5	5	1	5	1	4	4	1
69	4	4	5	5	4	5	4	5	4	4	4	4	4	4
70	3	2	2	3	5	3	2	2	1	4	1	5	3	2
71	2	2	4	4	2	4	2	4	1	5	2	2	2	2
72	1	1	4	5	2	4	4	5	4	5	4	2	1	1
73	1	1	4	3	4	4	4	4	4	5	4	3	1	1
74	2	4	2	4	4	4	2	5	3	4	5	3	2	4
75	3	4	4	4	4	4	2	5	0	5	5	5	3	4
76	4	4	2	5	4	4	2	4	4	5	5	4	4	4
77	2	3	3	3	3	3	1	2	2	4	4	4	2	3
78	2	3	4	4	4	4	4	5	3	4	3	4	2	3
79	2	2	2	2	2	2	5	4	4	5	5	3	2	2
80	3	3	3	3	3	3	3	3	3	4	3	3	3	3
81	3	3	2	2	2	3	3	3	3	5	4	3	3	3
82	5	4	4	5	4	4	3	4	0	5	5	5	5	4
83	3	3	3	3	3	3	3	3	1	5	4	3	3	3
84	3	3	3	3	2	2	2	2	4	5	5	4	3	3
85	5	5	5	5	5	5	5	5	4	5	5	5	5	5
86	4	4	3	2	2	3	3	3	1	5	3	4	4	4
87	1	1	1	1	1	1	1	1	3	5	1	1	1	1

Appendices

88	2	3	3	3	3	3	3	3	3	1	5	4	1	2	3
No.	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	
89	2	2	2	2	2	2	2	5	1	5	4	4	2	2	
90	1	1	1	1	1	1	1	1	1	4	3	2	1	1	
91	1	1	1	1	2	3	3	3	3	5	3	2	1	1	
92	3	4	4	4	5	5	4	4	1	5	5	4	3	4	
93	4	1	5	3	5	4	4	4	1	5	1	4	4	1	
94	1	1	2	1	4	5	5	3	1	5	2	1	1	1	
95	3	3	2	2	3	4	1	5	1	4	5	4	3	3	
96	3	3	2	2	3	4	3	5	1	4	5	4	3	3	
97	3	3	3	3	2	4	3	3	4	5	4	3	3	3	
98	3	3	4	3	4	4	2	4	0	5	4	2	3	3	
99	3	3	3	4	4	4	4	4	1	5	4	3	3	3	
100	4	2	3	4	3	4	4	5	2	5	4	3	4	2	

No.	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40	Q41	Q42
1	3	3	4	4	4	4	4	4	5	1	1	1	5	2
2	4	3	4	5	5	5	4	4	1	1	5	5	5	1
3	4	5	3	3	4	3	5	5	1	2	2	3	5	1
4	1	1	1	1	4	4	4	3	2	1	4	5	4	2
5	4	4	4	4	5	5	3	4	5	1	1	4	5	1
6	2	2	3	4	5	4	5	4	1	5	5	4	4	1
7	4	4	3	4	4	5	4	4	3	2	2	5	5	3
8	4	3	1	4	2	4	4	4	3	2	3	5	5	1
9	4	3	2	4	3	4	4	4	3	3	2	5	1	3
10	1	3	2	4	4	5	4	4	3	3	3	5	5	3
11	2	4	3	5	5	5	4	4	3	3	2	4	5	3
12	4	4	1	5	3	1	4	4	3	2	2	5	4	1
13	4	3	3	5	5	5	1	3	2	2	2	5	4	3
14	1	3	2	4	4	4	4	4	3	3	3	5	5	1
15	3	3	3	4	5	5	4	4	3	2	2	5	4	1
16	4	3	3	4	2	5	3	4	3	3	3	5	4	3
17	3	4	3	4	4	5	4	4	3	2	2	5	4	1
18	3	4	4	4	4	5	2	4	3	3	3	5	4	2
19	2	4	2	4	3	4	2	3	3	1	2	5	4	3
20	3	4	4	4	4	3	3	4	2	2	2	5	3	4
21	3	3	3	4	4	4	1	3	2	2	2	4	3	4
22	4	3	2	4	4	5	4	4	3	2	2	5	5	1
23	4	3	3	4	3	4	3	5	3	3	3	5	5	3

Appendices

24	4	2	3	4	4	4	3	5	3	3	3	4	5	3
No.	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40	Q41	Q42
25	2	1	3	3	4	5	3	5	3	3	3	4	5	1
26	4	5	4	4	3	5	4	3	3	3	3	5	4	4
27	5	3	2	4	2	5	3	5	3	3	2	4	5	1
28	3	3	3	3	3	5	4	4	3	2	2	5	4	3
29	4	3	4	5	3	5	4	4	3	3	3	5	4	5
30	4	2	3	5	4	5	4	4	4	3	3	5	5	4
31	4	5	4	4	4	5	4	3	4	2	4	4	3	3
32	2	4	3	4	3	5	3	4	2	3	4	4	4	4
33	4	5	5	4	4	5	5	4	2	2	4	5	4	4
34	4	4	4	4	4	4	5	4	4	4	4	4	4	4
35	2	5	4	4	4	5	4	2	4	2	2	5	2	4
36	3	4	2	2	2	3	3	5	4	2	2	3	4	5
37	4	5	4	4	4	5	4	4	4	3	2	3	3	2
38	2	4	4	4	2	4	4	2	3	2	2	4	2	4
39	4	2	4	4	4	5	4	2	4	2	4	4	2	2
40	4	4	4	4	4	5	3	4	4	4	4	4	4	4
41	3	1	2	4	1	5	1	3	3	3	3	5	3	3
42	5	4	1	5	5	4	3	4	2	5	5	5	2	3
43	2	5	4	4	2	5	4	4	2	4	4	4	4	5
44	4	1	1	4	4	4	3	3	4	4	4	4	4	1
45	4	5	5	5	2	5	4	4	5	4	4	5	4	4
46	4	5	5	5	4	4	4	5	5	5	5	5	5	4
47	2	5	4	4	2	5	5	2	4	1	3	4	4	5
48	4	4	4	4	1	4	4	2	4	4	4	4	4	4
49	5	1	1	5	4	5	4	3	3	3	3	3	4	5
50	2	2	2	4	4	4	4	2	2	4	4	4	2	4
51	4	4	4	2	2	4	4	4	2	4	4	4	4	4
52	4	4	5	5	5	5	5	4	4	4	4	3	4	4
53	4	5	4	4	2	4	2	4	5	2	2	2	4	4
54	3	4	3	4	5	5	5	1	3	3	3	4	1	1
55	5	5	5	5	5	5	5	4	4	4	4	4	4	4
56	3	3	3	3	5	5	5	4	4	4	4	4	3	3
57	4	5	5	5	4	5	5	4	4	4	5	5	4	4
58	5	5	5	5	4	5	5	5	4	4	4	4	4	4
59	3	3	3	3	4	4	3	3	3	3	3	5	3	3
60	3	3	3	3	3	4	3	4	4	4	4	4	4	3
61	3	3	3	3	4	4	4	3	3	4	3	4	3	4
62	2	1	3	3	4	4	2	4	4	2	2	4	2	3

Appendices

63	5	5	5	5	5	5	5	5	5	5	2	2	3	1	1
No.	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40	Q41	Q42	
64	5	4	3	4	4	5	3	4	4	4	4	4	4	4	4
65	1	4	4	5	4	5	5	4	4	4	4	4	4	4	2
66	4	5	5	4	1	5	5	1	5	1	1	5	2	4	
67	4	3	5	5	3	5	3	4	2	3	2	4	5	4	
68	2	3	5	4	5	5	1	2	3	1	3	5	1	4	
69	5	5	4	5	4	5	5	2	3	2	4	4	2	2	
70	2	3	5	3	2	2	2	3	4	4	4	4	4	4	5
71	4	4	2	4	2	4	2	4	4	2	4	4	2	4	
72	4	5	2	4	4	5	3	5	4	2	2	5	4	4	
73	4	3	4	4	4	4	3	5	3	2	2	4	5	4	
74	2	4	4	4	2	5	4	4	4	3	3	4	4	4	
75	4	4	4	4	2	5	5	4	3	3	3	5	4	5	
76	2	5	4	4	2	4	4	4	4	4	4	4	4	4	
77	3	3	3	3	1	2	4	4	4	4	4	4	4	4	3
78	4	4	4	4	4	5	4	3	3	3	3	4	3	4	
79	2	2	2	2	5	4	4	5	4	4	5	3	5	4	
80	3	3	3	3	3	3	3	4	4	4	4	3	4	3	
81	2	2	2	3	3	3	4	4	4	3	2	4	5	5	
82	4	5	4	4	3	4	3	3	2	4	4	4	4	3	
83	3	3	3	3	3	3	5	3	3	3	3	3	3	3	
84	3	3	2	2	2	2	5	3	3	3	3	3	3	3	
85	5	5	5	5	5	5	5	4	3	4	4	4	4	3	
86	3	2	2	3	3	3	4	4	4	4	5	5	5	2	
87	1	1	1	1	1	1	1	3	3	3	3	3	3	3	
88	3	3	3	3	3	3	3	4	5	3	3	3	3	3	
89	2	2	2	2	2	5	5	3	3	3	2	2	2	4	
90	1	1	1	1	1	1	1	3	2	3	5	5	4	1	
91	1	1	2	3	3	3	3	4	3	2	3	4	5	5	
92	4	4	5	5	4	4	3	4	1	4	4	2	5	3	
93	5	3	5	4	4	4	4	2	3	3	3	2	5	4	
94	2	1	4	5	5	3	2	3	4	5	2	5	5	3	
95	2	2	3	4	1	5	4	5	4	4	4	5	2	3	
96	2	2	3	4	3	5	4	5	4	4	4	5	2	3	
97	3	3	2	4	3	3	4	2	4	3	3	4	2	2	
98	4	3	4	4	2	4	4	2	4	2	4	4	4	4	
99	3	4	4	4	4	4	4	3	4	4	4	4	4	4	
100	3	4	3	4	4	5	5	2	3	3	3	4	2	2	

Appendices

No.	Q43	Q44	Q45	Q46	Q47	Q48	Q49	Q50	Q51	Q52	Q53	Q54	Q55
1	1	1	1	1	1	1	3	1	1	1	1	2	1
2	3	1	1	1	1	1	3	1	3	3	2	4	1
3	2	2	2	4	2	1	3	1	4	4	2	2	1
4	3	3	2	1	3	2	1	1	1	1	3	1	5
5	1	3	1	4	4	1	1	1	3	2	1	2	2
6	2	2	1	3	2	1	1	1	3	3	1	1	2
7	3	3	3	2	3	1	2	1	4	3	2	2	1
8	3	3	3	4	3	3	1	1	3	3	2	1	1
9	4	2	3	3	3	2	1	1	2	3	1	2	1
10	2	3	1	3	3	2	1	1	2	2	1	1	1
11	2	3	1	2	3	3	1	1	2	2	2	1	1
12	2	3	3	2	3	3	1	1	2	2	1	1	1
13	3	3	2	2	3	2	1	1	3	1	5	2	1
14	3	4	3	3	3	2	2	1	2	4	2	2	3
15	2	3	3	3	3	3	2	1	3	4	2	1	1
16	1	3	1	3	3	2	2	1	2	2	2	2	2
17	3	3	1	3	3	4	2	1	2	4	1	2	1
18	2	4	3	4	4	2	4	1	3	4	2	3	4
19	3	3	3	4	4	3	3	2	3	5	2	3	4
20	3	3	3	3	3	4	4	2	3	4	3	4	3
21	4	2	2	4	4	5	5	1	1	1	1	1	5
22	3	3	3	2	3	2	2	1	2	3	2	1	1
23	3	3	3	3	3	3	1	1	2	3	1	2	1
24	3	3	3	3	3	3	2	1	3	4	1	2	1
25	3	3	3	3	3	3	2	1	3	4	1	1	1
26	3	3	1	3	3	4	2	1	2	4	2	2	1
27	3	2	2	2	3	3	2	1	2	3	1	1	1
28	2	3	1	3	3	3	1	1	1	2	2	2	1
29	3	4	1	3	3	5	2	2	2	4	2	3	1
30	3	4	2	3	4	4	2	3	2	1	3	3	4
31	2	4	2	4	5	4	3	1	2	2	1	1	3
32	3	3	2	2	4	2	2	1	1	3	1	1	3
33	1	1	2	2	2	1	3	2	2	2	1	1	1
34	4	4	4	4	4	5	5	1	5	5	5	5	5
35	4	4	4	4	5	4	3	2	3	3	2	3	4
36	4	3	4	3	4	4	3	3	1	2	2	4	5
37	2	4	4	4	5	4	5	2	2	2	1	2	5
38	2	4	4	4	4	4	3	2	3	3	3	3	5

39	2	4	2	4	5	2	3	1	2	1	1	2	2
No.	Q43	Q44	Q45	Q46	Q47	Q48	Q49	Q50	Q51	Q52	Q53	Q54	Q55
40	4	4	4	4	4	4	3	3	1	2	2	3	2
41	3	3	3	3	3	3	3	1	1	2	5	3	1
42	1	2	4	4	5	2	2	1	1	3	4	3	1
43	4	3	4	5	5	4	3	2	2	4	3	4	2
44	1	1	1	1	1	1	3	1	2	4	3	5	4
45	4	4	4	4	5	5	1	1	2	2	1	1	2
46	4	5	4	4	5	5	3	3	3	3	1	2	2
47	4	4	4	3	4	3	4	5	3	5	4	5	3
48	4	4	4	4	4	4	4	2	3	3	3	3	3
49	3	3	3	5	5	3	2	4	2	2	2	2	3
50	4	2	2	4	5	4	2	2	2	2	3	2	3
51	2	2	2	2	4	4	3	3	2	3	3	3	2
52	4	4	4	4	4	4	2	2	3	3	2	2	3
53	2	2	2	5	4	2	3	1	1	3	2	3	3
54	3	3	3	4	4	3	4	2	5	4	3	3	3
55	5	4	4	4	5	4	2	2	2	1	2	2	1
56	3	3	3	3	3	3	4	3	1	3	3	3	3
57	5	4	4	4	4	4	3	2	2	2	3	3	2
58	4	4	4	4	5	4	3	4	3	3	3	3	3
59	3	3	3	3	3	3	4	4	3	4	4	1	3
60	3	3	3	3	3	3	4	3	2	1	1	3	4
61	3	3	4	4	4	4	3	3	3	2	2	2	3
62	2	2	2	4	3	2	4	1	1	2	3	3	3
63	1	1	1	5	5	1	3	1	4	4	3	5	3
64	4	4	4	4	4	4	4	3	3	4	2	2	5
65	4	4	4	4	4	4	3	2	3	2	3	3	3
66	2	4	2	4	5	4	3	2	3	4	4	1	5
67	4	3	3	4	3	5	4	3	2	3	4	4	4
68	5	3	4	4	2	4	5	1	4	2	2	2	5
69	2	3	3	3	4	4	3	3	3	3	2	4	4
70	4	4	3	4	4	4	4	1	1	2	3	1	2
71	4	4	4	4	3	3	3	1	1	3	3	3	4
72	3	2	4	4	4	4	4	3	2	2	2	3	3
73	2	2	3	4	4	3	4	3	3	2	2	2	4
74	4	4	4	4	5	5	3	2	3	2	3	2	4
75	3	2	1	3	3	3	4	1	2	4	2	2	2
76	4	4	4	4	4	4	2	2	2	3	3	3	2
77	1	4	2	3	4	2	3	1	2	1	1	2	2

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78	3	3	3	3	4	4	4	3	3	3	2	2	3
No.	Q43	Q44	Q45	Q46	Q47	Q48	Q49	Q50	Q51	Q52	Q53	Q54	Q55
79	1	4	1	2	3	4	3	2	2	2	1	3	3
80	3	4	3	4	4	4	3	2	2	2	2	1	3
81	4	5	3	2	5	4	4	2	2	3	1	3	3
82	3	2	3	3	3	3	3	2	3	1	1	3	1
83	3	3	3	3	3	3	3	2	2	2	2	3	4
84	3	3	3	3	3	3	3	1	3	2	2	3	4
85	3	3	3	3	3	3	4	1	3	3	3	3	3
86	3	3	3	3	3	3	2	3	3	3	3	3	3
87	3	3	3	3	3	3	4	2	3	3	2	3	4
88	3	4	5	3	2	2	4	2	3	2	3	2	3
89	4	3	3	3	3	3	2	1	2	3	3	3	2
90	1	2	2	4	4	4	3	1	2	2	2	2	2
91	4	3	2	3	3	3	4	2	3	3	4	4	5
92	4	4	4	3	5	5	1	1	2	4	4	3	1
93	4	4	3	2	4	4	2	1	1	1	2	1	3
94	2	4	4	4	3	4	3	2	2	4	3	3	2
95	3	3	3	3	4	4	3	2	2	4	3	3	3
96	3	3	3	3	4	4	3	2	2	4	3	3	3
97	3	4	2	4	5	3	2	1	1	1	1	1	1
98	4	4	4	3	4	4	3	2	2	3	2	2	3
99	2	4	4	1	4	4	5	4	4	3	3	3	3
100	2	3	2	4	4	2	4	2	2	2	1	1	3

No.	Q56	Q57	Q58	Q59	Q60	Q61	Q62	Q63	Q64	Q65	Q66	Q67
1	1	2	5	2	1	1	1	2	2	1	1	1
2	3	3	5	2	1	1	1	2	4	1	1	1
3	3	2	5	2	1	1	1	1	4	2	1	1
4	3	2	4	5	1	1	1	1	4	4	4	3
5	2	3	4	1	1	1	1	3	2	1	1	1
6	5	5	5	2	1	1	1	1	2	1	1	4
7	1	1	4	2	1	1	1	1	1	1	1	3
8	1	1	1	1	1	1	1	1	2	1	1	3
9	1	1	2	2	1	1	1	1	1	1	1	3
10	1	1	2	1	1	1	1	1	1	1	1	2
11	1	1	3	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	3
13	1	2	4	2	1	1	1	2	1	1	1	4

14	1	3	4	2	1	1	1	1	4	1	1	3
No.	Q56	Q57	Q58	Q59	Q60	Q61	Q62	Q63	Q64	Q65	Q66	Q67
15	1	1	2	1	1	1	2	1	2	1	1	3
16	1	1	3	2	1	1	2	1	4	2	2	4
17	2	1	2	3	1	1	1	1	3	1	2	1
18	2	2	3	2	1	3	3	1	4	4	4	4
19	1	1	3	3	2	3	3	2	3	3	4	3
20	1	4	5	3	5	3	3	1	3	1	4	4
21	1	1	3	0	0	1	3	1	2	1	3	5
22	1	1	4	1	1	1	1	1	2	1	1	2
23	1	1	2	2	1	1	1	1	2	1	1	2
24	1	1	2	2	1	1	2	1	2	2	3	2
25	1	1	4	1	1	1	1	1	4	1	2	3
26	1	1	3	2	1	1	1	1	3	1	2	1
27	1	2	4	1	1	1	1	1	2	1	2	4
28	1	1	2	1	1	1	1	1	2	1	1	2
29	1	1	4	1	1	1	2	1	3	1	2	2
30	1	1	2	1	1	1	3	1	3	1	2	4
31	1	2	3	1	2	3	3	2	2	3	4	2
32	1	2	2	1	2	2	3	2	2	2	3	4
33	1	1	3	1	1	3	2	1	1	1	2	5
34	5	4	5	5	5	5	5	5	1	2	3	3
35	4	4	3	3	4	3	4	2	3	3	4	5
36	3	3	3	3	4	3	4	3	1	1	4	3
37	4	3	3	3	3	2	3	3	3	3	4	4
38	2	2	2	2	3	1	4	1	3	1	3	3
39	1	1	2	2	1	2	2	1	2	2	2	2
40	1	2	1	1	1	2	3	4	3	2	4	4
41	1	1	5	3	3	4	1	1	4	1	3	4
42	4	4	3	2	2	1	4	1	2	1	4	4
43	2	4	3	2	3	3	2	4	3	1	4	5
44	1	2	5	1	1	1	2	3	4	4	3	2
45	2	1	4	3	2	3	3	3	3	3	2	4
46	1	1	2	1	2	3	4	1	2	2	2	4
47	3	4	5	4	2	3	2	5	5	4	4	4
48	2	2	4	2	1	4	5	1	4	4	4	4
49	1	3	4	4	1	1	3	1	3	1	4	4
50	2	2	4	2	2	4	3	2	3	3	2	4
51	2	2	2	1	1	1	2	2	2	1	2	3
52	3	4	3	3	1	2	3	3	3	1	3	4

Appendices

53	1	2	3	2	2	2	3	2	2	3	3	4
No.	Q56	Q57	Q58	Q59	Q60	Q61	Q62	Q63	Q64	Q65	Q66	Q67
54	2	2	4	2	2	4	5	2	2	2	4	5
55	3	5	4	5	5	5	1	5	5	4	1	5
56	1	3	4	1	1	1	1	1	1	1	1	1
57	3	3	4	4	3	3	3	3	3	2	4	4
58	4	3	4	4	3	3	3	4	3	2	3	3
59	3	4	4	1	1	3	4	1	3	1	1	2
60	1	4	2	1	1	1	3	1	3	1	3	4
61	3	3	4	2	2	2	2	4	4	2	2	3
62	2	1	4	1	1	2	4	2	3	1	2	1
63	3	3	3	3	3	3	3	3	3	1	5	3
64	4	4	3	2	2	1	4	1	3	2	5	5
65	4	4	4	3	2	2	3	3	1	2	3	4
66	1	1	3	3	5	1	5	1	3	2	4	4
67	3	3	5	3	3	4	4	2	3	3	4	2
68	3	4	3	1	1	1	4	2	4	2	3	3
69	2	3	3	2	3	3	2	2	3	3	4	4
70	1	1	1	1	1	3	1	1	1	1	3	3
71	3	3	3	2	2	3	3	3	2	3	4	4
72	3	3	4	3	1	3	3	2	2	2	4	5
73	3	4	5	4	5	3	5	2	2	4	4	5
74	3	2	2	2	2	2	3	2	3	2	2	3
75	2	2	5	2	1	1	1	1	3	1	4	4
76	2	2	2	2	2	2	2	2	3	3	3	3
77	1	1	4	3	1	1	1	1	3	3	3	4
78	3	2	3	3	2	3	4	2	2	2	3	4
79	1	1	4	3	2	2	4	1	1	2	1	3
80	1	1	3	3	1	1	1	2	3	2	2	3
81	1	2	3	3	1	3	3	1	1	1	3	4
82	3	4	4	3	3	3	3	3	3	3	3	3
83	3	3	1	1	2	4	5	3	2	3	4	4
84	3	3	2	4	3	2	4	3	2	3	3	3
85	3	3	3	3	3	3	3	3	3	2	3	4
86	3	2	3	4	4	3	1	3	2	3	4	4
87	4	5	2	3	3	3	2	1	3	2	2	4
88	4	5	3	2	2	1	2	3	3	3	2	2
89	2	1	1	3	3	2	2	3	2	2	1	1
90	2	2	2	2	1	1	1	1	2	1	1	1
91	4	3	2	3	4	3	3	2	2	3	3	3

Appendices

92	2	4	2	3	3	1	1	2	2	1	1	5
No.	Q56	Q57	Q58	Q59	Q60	Q61	Q62	Q63	Q64	Q65	Q66	Q67
93	2	2	1	2	3	2	3	4	1	1	2	4
94	5	5	5	4	2	1	1	1	3	2	4	4
95	2	2	3	1	1	1	3	1	1	1	4	5
96	2	2	3	1	1	1	3	1	1	1	4	5
97	1	1	1	1	1	1	1	1	4	3	2	4
98	2	2	4	2	2	2	4	2	3	3	3	4
99	3	3	3	4	3	3	3	3	3	3	4	3
100	2	1	5	5	5	3	3	2	3	2	2	5

No.	Q68	Q69	Q70	Q71	Q72	Q73	Q74	Q75	Q76	Q77	Q78
1	2	1	1	2	1	1	4	3	4	2	2
2	1	1	1	2	1	1	4	1	1	1	1
3	2	1	1	2	1	1	3	3	3	4	3
4	4	1	1	2	1	1	4	5	5	5	2
5	1	1	2	2	1	2	3	3	4	1	2
6	3	3	1	2	1	1	3	1	4	3	4
7	1	1	2	2	1	2	4	2	3	5	3
8	1	2	2	2	2	2	5	3	4	2	1
9	2	2	2	2	2	2	5	4	5	1	3
10	1	1	2	2	2	2	4	4	5	2	2
11	1	1	2	2	2	2	5	4	5	2	2
12	1	1	2	2	2	2	4	4	5	2	2
13	2	2	2	2	2	2	2	3	5	4	2
14	1	1	2	2	1	2	4	4	5	3	3
15	2	2	2	2	1	2	1	4	5	2	2
16	3	1	1	2	2	2	4	4	5	2	3
17	2	1	1	2	1	1	4	3	5	2	3
18	3	1	1	2	1	2	4	5	5	4	4
19	3	4	1	2	1	1	4	5	5	4	5
20	3	3	1	2	1	2	3	4	4	4	1
21	1	1	1	2	1	2	4	3	3	1	3
22	1	2	2	2	2	2	4	4	4	3	2
23	1	1	1	2	2	2	4	4	5	2	2
24	1	1	2	2	2	2	4	4	5	2	2
25	1	1	2	2	2	2	4	3	5	2	3
26	1	1	1	3	1	1	4	4	5	2	2
27	1	1	1	2	2	2	4	4	5	2	2

Appendices

28	1	1	2	2	2	2	4	3	5	1	3
No.	Q68	Q69	Q70	Q71	Q72	Q73	Q74	Q75	Q76	Q77	Q78
29	2	1	1	3	1	1	5	4	5	1	3
30	3	1	2	3	1	2	5	4	5	2	3
31	1	1	2	1	1	1	4	2	3	1	1
32	3	3	1	2	1	2	4	3	2	2	1
33	1	1	2	2	1	2	4	4	5	5	3
34	2	1	2	2	2	2	5	2	1	3	1
35	3	3	2	2	1	2	4	5	5	5	5
36	2	1	1	2	1	1	4	5	5	5	5
37	3	3	1	3	1	1	3	5	5	5	5
38	1	3	2	2	1	2	4	1	1	2	4
39	3	3	1	2	1	1	4	4	5	5	5
40	3	2	1	2	2	2	5	3	5	3	2
41	2	1	2	2	1	2	5	1	1	1	1
42	3	1	1	3	1	2	5	4	5	3	2
43	3	3	1	2	1	1	4	3	4	5	1
44	2	1	2	2	1	2	5	4	4	5	4
45	3	3	2	2	1	2	4	4	4	4	3
46	3	3	2	2	1	1	4	3	5	5	4
47	5	3	1	2	1	1	4	5	5	3	4
48	5	4	2	2	1	1	4	5	4	4	3
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55	5	5	1	2	2	2	4	2	4	4	3
56	1	1	2	1	2	2	4	1	1	1	1
57	1	1	1	2	1	1	4	5	5	5	5
58	3	2	1	2	1	1	5	5	5	4	4
59	1	1	2	2	2	2	4	4	4	4	3
60	1	1	2	2	1	2	3	5	5	5	5
61	1	1	1	2	2	2	4	3	2	3	1
62	1	1	2	3	2	2	4	2	1	1	1
63	4	4	1	1	1	2	4	3	3	3	3
64	2	2	1	2	1	1	4	5	5	4	4
65	1	1	2	2	2	2	4	4	5	2	5
66	1	1	1	2	1	1	3	3	3	3	1

Appendices

67	3	3	2	2	2	2	3	5	5	5	5
No.	Q68	Q69	Q70	Q71	Q72	Q73	Q74	Q75	Q76	Q77	Q78
68	2	2	2	2	1	2	3	5	5	4	5
69	3	3	1	2	1	1	4	5	5	4	4
70	1	3	1	2	1	1	4	5	5	5	5
71	2	2	1	2	1	1	3	3	3	3	1
72	3	3	1	2	1	2	4	5	5	4	5
73	4	4	1	2	1	1	4	5	5	5	5
74	2	1	2	2	2	2	4	2	1	2	1
75	3	1	1	2	1	1	4	4	5	3	4
76	3	3	1	2	1	1	4	3	3	3	3
77	3	3	1	2	1	2	3	4	4	4	4
78	3	2	2	2	1	2	4	4	5	5	3
79	1	1	2	3	2	2	4	5	5	4	4
80	2	2	2	2	2	2	4	4	4	4	4
81	3	1	1	1	1	2	2	4	5	5	5
82	4	5	2	2	2	2	4	3	3	3	3
83	3	4	2	2	2	2	2	4	4	4	4
84	2	3	2	2	2	2	4	2	2	2	2
85	3	3	2	2	1	2	4	3	3	3	3
86	3	2	2	2	2	2	4	4	3	2	2
87	3	1	2	2	2	2	4	3	2	3	3
88	2	3	2	2	2	2	4	3	3	3	3
89	1	1	1	2	2	2	2	4	2	2	2
90	1	1	2	2	2	2	4	2	2	1	1
91	2	4	2	2	2	1	4	3	2	3	1
92	2	2	2	2	2	2	4	2	2	5	4
93	2	3	1	1	2	2	3	4	5	5	3
94	1	2	1	2	1	1	4	3	4	3	2
95	1	1	2	2	2	1	4	2	1	1	1
96	1	1	2	2	2	1	4	2	1	1	1
97	3	3	2	2	2	2	5	5	5	5	5
98	4	3	1	2	1	1	5	3	5	3	4
99	4	4	1	2	1	1	2	5	5	3	5
100	4	3	1	2	1	1	4	5	5	5	5

STATISTIC ANALYSIS OF DEMOGRAPHIC

Statistics

		Gender	Age	Living	Income	Education
N	Valid	100	100	100	100	100
	Missing	0	0	0	0	0
Mean		1.6900	1.6700	2.4800	2.7500	2.6200
Std. Error of Mean		.04648	.09107	.06887	.13734	.13764
Std. Deviation		.46482	.91071	.68873	1.37345	1.37642
Variance		.216	.829	.474	1.886	1.895
Minimum		1.00	1.00	1.00	1.00	1.00
Maximum		2.00	4.00	4.00	6.00	5.00
Percentiles	25	1.0000	1.0000	2.0000	2.0000	1.0000
	50	2.0000	1.0000	2.0000	3.0000	3.0000
	75	2.0000	2.0000	3.0000	3.0000	4.0000

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender * Shopping	100	100.0%	0	.0%	100	100.0%

Gender * Shopping Crosstabulation

Count

		Shopping						Total	
		1.00	2.00	3.00	4.00	5.00	6.00		7.00
Gender	1.00	1	5	7	11	5	2	0	31
	2.00	6	17	8	12	16	3	7	69
Total		7	22	15	23	21	5	7	100

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.225(a)	6	.115
Likelihood Ratio	12.144	6	.059
Linear-by-Linear Association	.095	1	.758
N of Valid Cases	100		

a 7 cells (50.0%) have expected count less than 5. The minimum expected count is 1.55.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Shopping	100	100.0%	0	.0%	100	100.0%

Age * Shopping Crosstabulation

Count

		Shopping							Total
		1.00	2.00	3.00	4.00	5.00	6.00	7.00	
Age	1.00	3	12	7	14	14	2	6	58
	2.00	2	5	3	6	5	1	0	22
	3.00	0	5	4	2	1	2	1	15
	4.00	2	0	1	1	1	0	0	5
Total		7	22	15	23	21	5	7	100

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.123(a)	18	.273
Likelihood Ratio	20.841	18	.288
Linear-by-Linear Association	2.484	1	.115
N of Valid Cases	100		

a 23 cells (82.1%) have expected count less than 5. The minimum expected count is .25.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Living * Shopping	100	100.0%	0	.0%	100	100.0%

Living * Shopping Crosstabulation

Count

		Shopping							Total
		1.00	2.00	3.00	4.00	5.00	6.00	7.00	
Living	1.00	0	4	1	1	0	0	0	6
	2.00	1	5	6	12	12	3	6	45
	3.00	5	13	7	7	9	2	1	44
	4.00	1	0	1	3	0	0	0	5
Total		7	22	15	23	21	5	7	100

Appendices

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.480(a)	18	.070
Likelihood Ratio	30.137	18	.036
Linear-by-Linear Association	2.480	1	.115
N of Valid Cases	100		

a. 20 cells (71.4%) have expected count less than 5. The minimum expected count is .25.

APPENDIX IIV

VERBIUM FORM THE FOCUS GROUP:

Focus Group study 1 (Wednesday 26th August 2009) in Elderly community, Simai, Bangkok.

6 participants take part in this group discussion. The details are as follow:

Facilitator (P): Pittiporn Ounsuvan (Master student in Massey University)

Participants: (The initials name of participants are used)

P: Good morning Ladies and Gentlemen, thank you for joining this group discussion with me today. Firstly, I would like to introduce myself. I am Pittiporn Ounsuvan, I am currently studying Master degree of Technology in Packaging Technology, undertaken in Engineering and Advance technology Institute, Massey University.

P: Well, before we get start discussion today, I would like you to read through the confidential document that I hand out to you and please sign it if you agree and appreciate to participate in this group discussion together with me today. If you have any question please do not hesitate to ask. Thank you very much.

P: Now, I would like to inform you about the objectives for this research and the topic we are going to discuss today. The objectives of this research are

P: I just briefly remind you again before we get start, there is going to have a videotape and audio recorded during our discussion today. However, you could ask me to stop it anytime if you feel uncomfortable with it, or if you do not like it. And, importantly, all the information today will be kept strictly confidential; we **won't release your personal information to the public** without your permission.

P: Now, I would like everybody to introduce you to all participants to get to know each other although, some of you might know each other already.

A: Hi, I am A

B: Hi, I am B

C: Hi, I am C

D: Hi, I am D

E: Hi, I am E

G: Hi, I am G

P: Thank you for your kindness and nice to have you all here today. All right, during discussion I am going to illustrate some food products on the table and then we will discuss the advantages and disadvantages of each types of products, and the problems occurred when used. Also, I will be really appreciated any of your recommendation, suggestions as well as the solution that you think it might possible to be adjusted and improved food packaging we have currently encounter problems with. Moreover, I will respect whatever experiences and feedbacks offered today, as I understand that different people may have different ideas, so please feel free to tell me about your experience with food packages.

P: Are you ready? Shells we start now? Please tell me what are the main influential factors when you go grocery shopping?

A: Price, quality, expiry date of the products

B: Brand.

C: Umm, expiry date of the products

D: Quality, Brand, products expiry

E: Quality, Brand, products expiry, price

G: Brand, Quality, products expiry, price and the package material

P: Price, quality and expiry date are very important, what else beside these?

G: size

P: Great, The size is important, right. What size you prefer? Do you compare the size with price prior to buy the product because normally the smaller size is more expensive than the large size or family size?

G: It depends, if I uses in the kitchen I will get a large one but if I put on the dinner table I will buy a small one. Sometime I compare the price between the small one and the large one but not very often.

C: It depends on the products, sometimes if the large on cheaper I will buy such as cooking oil

A: Umm, for me, it depends on the purpose of uses. Just like the G said. We are going to use it in different situations.

B: It depends on the products, I would prefer the same brand as I have been using for.

D: I normally buy a large size because it cheaper as well as it suits for a big family like mine.

E: Yeah, I think it depends on what products because some products can keep for long time but some have to finish early such as some ingredients.

P: Well, we have talked about the price, quality, and size and so on. Then, what else do you think are important to you when you make decision to buy a food product such as packaging material, and colour of package and label?

A: Packaging material is also important because I have children who are living with me so, I would prefer the unbreakable material.

B: Umm, I think so. And the label too small and difficult to read.

C: It depends on the product such as vinegar; I prefer the glass bottle rather than plastic bottle because of the safety reason. Some other product such as cooking oil, I can buy a refill bag because it's cheaper and higher quantity compare to a new bottle.

D: The label can be problems in some types of product because it is too small and difficult to read especially, for the expiry date some product is difficult to see.

E: Yeah. Some product did not have a expiry date

G: Actually, I buy the product that I normally uses so, sometime I do not realize about the packaging material or label. Just as long as they still in a good condition, not damage is enough.

P: What about

P: So far, all of you concern more about quality of the products especially, with the product that you are normally used. Packaging materials and packaging characteristic is not concern much.

P: Well, let's move on to another topic then. Now, I am going to show you some products with various different types of packaging materials such as glass, plastic, paper and metal packages and then we are going to discuss in each type. Shall we start with glass packages including glass jar like "coffee", glass jar with various different type of packaging closures and then glass bottle with various different type of lids as well.

P: Please tell me what factor do you consider when you decide to buy coffee with the glass jar? Why do you like to buy it? And which one you do not like it? Why?

A: I am buying the same brand as I used.

B: So do I. I think the Moccona package is not good because it is too heavy and difficult to open and it won't be a good seal after the package has been opened.

C: I am buying the same brand as I am normally used because the taste is good and the package is convenient to use.

D: I prefer 3 in 1 coffees in a small sachet but if the glass jar I prefer Nescafe because the size and the lid is easy to open. The jar can be used for something else when I finished

E: Umm, I also buy the same brand as I am normally bought and Nescafe is the one I preferred. "Moccona" I do not like it because of the package, the jar is too heavy as well as the closure heavy and difficult to open.

G: Umm, I also buy the same brand as I normally use, some other brand I do not like it because of the size of the jar and design as well as the closure.

P: So, most of you are mentioned about the lid or package closure. What types of closure or lid do you like and dislike? Why? And, have you ever encounter any problems when used it?

A: I prefer the screw cap like Nescafe rather than the vacuum like Moccona because it easy to open and can keep the quality of content last longer. The vacuum cap is not good for long term used.

B: I think so. I used to buy a Moccona, but the coffee was hard and get together before I finished it so, I cannot each it anymore I have to throw it away.

C: The lid like Moccona is difficult to open and it is too heavy because it made from glass, I used to drop it and broken it.

D: Umm, I agree. It used to happen with me too. Plastic closure is better.

E: Yeah, that's right.

G: Yes, I think so too. The vacuum is difficult to open because it slippery and easy to drop

P: What about the aluminium foil under the closure? Any problems encounter? What solution do you use when you cannot open it?

A: I used a knife to cut it directly without trying to use my hand.

G: Yes, used a knife too

D: It difficult to put out, I normally use a knife.

B: Umm. It is not easy to pull it by hand

C: Yeah. I use a knife for long time

E: Yeah. I think so too

P: Do you try to open it without using any tool before or use the tool without any consideration? Did you get injury when used the knife?

A: I use the knife straight away without trying to open it by hand and no injury because I do it with care.

G: Umm, me too. Never tried to use my hand because it difficult to pull it by hand anyway.

D: Umm. You are right.

B: Me too. I am using a knife.

C: Umm. But sometime I use something hard to break it first and then pull it out by hand.

E: Umm.

P: What about the glass jar with vacuum lid like jam?

G: It is difficult to open but when I cannot open I used a knife to knock around the edge first and then open.

E: Some brand is easy to open; I never got any problem with it.

B: I dip into the hot or warm water and then open it.

P: Really, I **never knew that. It's interesting.**

A: I used something hard like knife or spoon or fork to lift up the lid prior to relief the air before open.

P: Yeah, I used to use this technique too.

C: Sometime if it too hard to open I would ask someone who are nearest to me to open it.

D: I never asked for help but I will find the way to open it by myself.

P: Have you ever get any injury?

A: No, never get any.

C: Yes, I use to hurt my hand because the lid is too tight.

B: Umm, it is easy to hurt because sometime we do not have enough straight.

D: That's right.

E: I agree with B and C.

G: Yeah, it's easy to get injury but I hardly get injured because I have to be very careful.

P: Do you have any suggestion for improving the glass jar and the closure?

B: Well, for my personal idea I think they should decide not too tight and some brand are too slippery, so difficult to open

G: I think it ok, nothing to improve because it already good even it too tight sometimes

C: I understand that too much pressure inside the jar that why it is so tight and hard to open. So, I think it ok.

P: There is a tool available in the market nowadays for opening the glass jar. Do you think it will helpful?

A: It could help but it depends how much it cost

D: I don't think I will need it because I can use my own technique as I normally do

E: Umm. I think it may help but if we are too old cannot open; there will be some helping from other people around

B: If it not too expensive I may try one

E: I can ask my cousin or use my own technique

G: I won't use it very often so, I won't buy it

P: What about glass bottle like soy sauce? Do you like or dislike?

A: I prefer the plastic bottle because it is lighter and not easy to brake

B: I like it but the ring pull under the cap lid is not good, I don't like it.

C: Umm, I agree the ring pull under the cap lid it not good but the glass bottle is good

G: The major problem is the ring pull under the cap. I prefer the plastic bottle because its unbreakable

E: Some brand is not good material quality which, easy to broken

D: I found the same problem. I normally buy the plastic one because it cheaper and lighter.

P: What do you mean by with the ring pull not good?

E: It difficult to pull and sometime it broken before open completely

G: Also, some brand is too small; my finger cannot get in and pull it

D: Most of the time I used, the ring pull just broken before completely open and then I use a knife to cut the hole. I think the quality of the plastic is low quality

A: Umm, so do I. If I can pull the ring pull, I used a knife to make a hole

B: Yeah, the packaging material quality is not good. The industry should work out the suitable material as well as the design to be more easily to use

C: Yes, that's right.

P: What about glass bottle with ring pull like drinking water and some soft drink?

G: This one is easy to open; I never get any problems with it

C: It's easy to open

A: No problem with it

E: Umm, easy to open

B: I like it because it's not difficult to open

D: Not too bad this one

P: What about glass bottle with aluminium screw cap?

A: It is easy to be open I like it.

D: No problem with it

E: Some brands is very hard to open, it free when switch off. Also, some products such as soft drink were keeping in the refrigerator and when take out the bottle has some water condensation.

B: It quiet difficult to open but just for some products

G: I found the same problem, when screw on it free and cannot open

C: I have no problem too

P: All right, last question about glass packages; do you have any suggestion and improvement for that?

A: Umm,

B: I think some type of products

C: I like it because it can reuse many times

D: Sometime the size of the package is not suit with the package closure so it may need to be improved.

E: The package is already effective but the closure should be designed to suit the package

G: Only the package closure that need to be improved.

P: Now, let's talk about plastic packages, what do you think about plastic packages?

A: Well, plastic is normally cheaper but it depends on the products

B: Umm, I like it

C: Yeah, it's cheaper and lighter than glass.

D: It has a light weight and not easy to brake, I like it

E: I prefer the plastic package rather than glass because it not easy to brake

G: It isn't heavy and cheaper than glass.

P: Here, Oil bottle, and drink bottles. What do you think about them? Have you ever got any problems with them?

D: For oil bottle or other kitchen stuff I prefer the plastic package because its light weight and unbreakable

C: I like it because of the unbreakable feather

G: I normally use the plastic because it is cheap and most brand of the product contained in plastic bottle

A: For drink bottle, I think plastic bottle is easy to carry and not too heavy

E: Most brand of oil bottle are containing in the plastic bottle, no many choice

B: Plastic bottle is suitable for some types of products; I won't buy a vinegar package in plastic bottle because I am afraid of chemical contamination.

P: Have you ever got any problem with them?

D: Sometimes, especially with the ring pull under the lid.

C: Yeah, I got the same problem with the ring pull under the lid.

G: Umm, the package is ok but for the closure is difficult to open. The ring pull under the cap lock always broken before the package opened

A: I have the same problem as G.

E: So do I.

B: Me too and sometime my finger struck in the ring pull as well

P: Have you ever used the plastic bottle with Child-resistance closure like this?

D: Oh, this one is good.

C: Umm, I am hardly using this type of package but I think it must be good.

G: Yes, it is easy to use but not yet commonly use in our country.

P: Yeah, it is not yet commonly use in our country.

A: It is good and safe

E: I agree with G.

B: Umm, I agree

P: What about plastic cup? Noodle cup with Aluminium foil cap

D: Umm, It's easy to open but sometime the lid cannot totally open

C: I quite often used this type of package, it is easy to use and carry but only some brand the foil cap is not easy to peel off. It's too tight on the edge and the lift up foil is too short which hardly to hold and pull.

G: Yeah, sometime the lift up foil is too short which is not easy to hold and pull

A: But for me, the foil was broken before I open the whole cap

E: Normally, it is easy to use and handy

B: Umm, it is easy to use

P: This is a plastic cup with plastic lid and ring tear.

D: Ring tear is normally easy to broken before open. And the plastic cup I normally break it.

C: Umm, Plastic seal cup

G: I don't really like this type of package because it's difficult to open and sometime it can't be reclosed

P: How's come it cannot be reclosed?

G: Because the quality of the material used is not sufficient enough.

A: But this type of package is normally use at once and then throw it away

E: Yeah, throw it away after finish because the this type of package is not good to store the product longer after the package has been opened

B: Umm, I agree.

P: Well, what about plastic bag? There is various type of plastic bag; do you have any problems with it?

D: I normally use a Sesser to cut it

C: Me too.

G: Umm.

A: So do I.

E: So do I.

B: Yes, cutting is easier.

P: Do you use the Sesser every times? And have you ever try to open it by hand before using any tool? How many times?

D: Well, I use to tear it by hand but the content inside was split out

C: Yeah, sometime the hole is too big

G: Umm, I faced the same problem too

A: I think some type of plastic package is difficult to tear by hand. Cutting is easier because sometime tearing can ruin the package and the content inside the package. For example, I used to tear and it was over tear the content inside just spread on the group

E: I used to try twice but didn't work well so, I use the Sesser instead. Both the package with tear step or without are the same.

B: Umm, me too. I used to tried two or three times but didn't work

P: What about Aluminium foil bag with tear? Is the tearing strip make the package easier to open by hand?

D: This one is easy to tear because the packaging material is harder.

C: Yes, I think it easier to open by hand

G: I think so too.

A: Umm. I agree

E: Yes, it is easier to tear by hand but I still use a Sesser to cut it anyway because I don't have to pull it

B: Umm, sometime I pull by hand but if I have any sharp things nearby I would use it.

P: What about Zip lock bag? Have you ever used it? What do you think about it?

D: Zip lock bag is great; I like it because it easy to use and can keep the food well

C: Yeah, it easy to use, I normally use to keep some snack that my nephew cannot finish it

G: It is easy to use but it is more expensive than the normal package.

A: Yeah, that's right the price is quite expensive and sometime it not seal properly after been opened

E: I used to tear the bag over to the zip lock so, the zip lock doesn't work properly

B: I think it good but the price is high.

P: Some of you encounter problem with the zip lock bag such as it cannot reseal properly, Do you think what we need to improve it?

A: I think the size of zip should be increased to make it easier to be open and reseal

E: Umm, I think so because some products have a small zip

P: Bag with tray inside

D: I think it good to keeping the content inside

C: Well, it is a new option

G: Some type of product won't need too. For breakable product is a good idea.

A: Sometimes if packaging to luxury, the price is going to be high too.

E: I never buy this type of package because it more expensive than the product contained in plastic bag of foil bag.

B: Yes, it's more expensive than normal package.

P: What do you think about package and environment?

D: Well, as you know too much waste is a major problem in our country at the moment.

C: Regarding to the environment, I normally buy refill packs instead of the new package

G: I reuse some of the package after I finished for something else

A: Yeah, I reuse some package for something else too.

P: Do you think we have to encourage people more?

E: Yes, it is a critical issue for our country so, if we can help by reducing the waste, reuse some package and separate the rubbish for recycle

B: Well, I think we should start teaching hard to our children and then we can help them prior to reduce the waste and protect the environment. Government should take action for this.

P: Now, we are moving on metal packages including Aluminium cans and Tin cans. Well, how often do you shop the products contain in the metal packages?

Let's talk about Tin can first.

D: Well, I will bought it once a month because I normally go out for a meal so I am not like eat can food much

C: I bought it about 2 to 3 times a month because I feed my pet like sardine

G: Normally, once a month

A: Umm, so do I.

E: Once a month because I am not frequently eating can food

B: About every time that I go grocery shopping.

P: What the factor that influences you to buy Tin can?

D: Product itself

C: Brand

G: Price

A: Product itself

E: Brand because I normally buy that one

B: Brand and product.

P: There are two types of opener (e.g. ring pull and without ring pull), which one do you prefer?

D: I prefer the ring pull one because it easy to open. I don't have to use any tool

C: Depends, sometime I bought a ring pull but sometime not because the ring pull one is normally more expensive

G: Not too expensive, I prefer the ring pull.

A: Ring pull is better because using the can opener is not easy some time the food spoilage out of the can and easy to get injury

E: Umm, that's right.

B: The package with ring pull is better because it easy to open.

P: Have you ever had any problems when use it?

D: Yeah, but not very often. I hurt my finger because of the ring pull was so hard and difficult to lift up

C: Yes, but not a major problem, just the juice split out of the package

G: Hardly get the problem.

A: no problem but if the ring up lift up a bit more it would be easier to open

E: No problem but if they have the picture show instruction would be better

B: Yes, I agree. There is picture instruction show on the package of the imported product.

P: Anything that you think needed to be improved?

D: Should design the package that easy to open especially with the ring pull

C: Umm, ring pull might be needed to improve

G: I don't know but may be ring pull

A: As I mentioned previously.

E: Open instruction and ring pull would need to be improved

B: As I said that if there have the picture that would be great.

F: What about Aluminium cans such as soft drink?

D: Never get problem with it.

C: It's alright.

G: No problem.

E: It's ok, easy to open

B: no problem for me

P: What about the lever lid?

D: Actually, it is a commercial pack or family pack.

C: It is easy to rusty

G: It's normally sale the large size for commercial

A: Not frequently used it

B: To open it need a tool

P: Let's move on to paper package, what do you think about paper packages? Do you like or dislike? Why?

D: It's easy to open and light weight but not good for store longer

G: light weight

A: easy to hold

E: some type of product the package is too big which is not handy to use

B: Umm, I agree. Sometime I took the plastic bag out

P: Paper box with tear

D: Umm, this one is very easy to open but not good for reclose because the package is already damage

C: Yes, have to finish the product at once, can be store the left over

G: This is a good idea which is easy to open but it not good for storage because the box can't be reclosed again after open.

A: I agree with C and G.

E: That's right. The box is easy to open but can't close if we cannot finish the food and we have to transfer the leftover food into the other container

B: But I found that some brand has different tear strip and the instruction was not showing either. Sometime I have to destroy the package before I can find the right way to open it.

P: Paper box with plastic tray inside

D: It's good protection of the content inside the package and it easy to keep the content inside

C: Yeah, it's good to keep the content inside and easy to take the content out

G: I think this type of package is suitable for the product

A: It's easy to open and storage

E: Umm, easy to keep the product

B: Yeah, it's suitable for the product

P: What do you think about the environment?

D: I think some type of packaging material can be recycled, the the government need to encourage the people to participate with this issue.

C: It's crucial issue for everybody around the world. For me I reuse the packaging materials as possible as I can or I will use the packaging for something else till it can be used any more.

G: Me too. I normally buy the product that can be reused the package or I buy the refill pack instead of buying a new one. Actually, the refill package is cheaper anyway.

A: Me too I am frequently buying a refill pack instead of new package prior to protect

E: I also do the same thing everybody because the refill one is normally cheaper.

B: So do I. Environment is important but I think our government should set a policy and encourage people to do the same thing such as separate the different type of rubbish.

P: Yes, food packaging plays a very important role in our daily life. We really have to improve some of the food packaging that currently encounters problems with. Now, I would like to give big thanks for your times to participate in this focus group today. I am really appreciated that. Finally, please feel free to give a feedback to us by ring or writing to us about your packaging experiences anytime. Thank you very much indeed.

SECOND GROUP OF FOCUS GROUP STUDY

Focus group study 2 (Wednesday, 9th September 2009) in Donmueng, Bangkok, Thailand. There are 7 participants takes part in this focus group study. The details are as follows:

Facilitator: (P) Pittiporn Ounsuvan (Master student in Massey University)

Participants: (The initials of participant's name are used)

P: Good afternoon Ladies and Gentlemen, thank you for joining this group discussion with me today. Firstly, I would like to introduce myself. I am Pittiporn Ounsuvan, I am currently studying Master degree of Technology in Packaging Technology, undertaken in Engineering and Advance technology Institute, Massey University.

P: Well, before we get start discussion today, I would like you to read through the confidential document that I hand out to you and please sign it if you agree and appreciate to participate in this group discussion together with me today. If you have any question please do not hesitate to ask. Thank you very much.

P: Now, I would like to inform you about the objectives for this research and the topic we are going to discuss today. The objectives of this research are

P: I just briefly remind you again before we get start, there is going to have a videotape and audio recorded during our discussion today. However, you could ask me to stop it anytime if you feel uncomfortable with it, or if you do not like it. And, importantly, all the information today will be kept strictly confidential; we **won't release your personal information to the public without your permission.**

P: Now, I would like everybody to introduce you to all participants to get to know each other although, some of you might know each other already.

A: Hi, I am A

B: Hi, I am B

C: Hi, I am C

D: Hi, I am D

E: Hi, I am E

F: Hi, I am F

G: Hi, I am G

P: Thank you for your kindness and nice to have you all here today. All right, during discussion I am going to illustrate some food products on the table and then

we will discuss the advantages and disadvantages of each types of products, and the problems occurred when used. Also, I will be really appreciated any of your recommendation, suggestions as well as the solution that you think it might possible to be adjusted and improved food packaging we have currently encounter problems with. Moreover, I will respect whatever experiences and feedbacks offered today, as I understand that different people may have different ideas, so please feel free to tell me about your experience with food packages.

P: Are you ready? Shells we start now? Please tell me what are the main influential factors when you go grocery shopping?

A: Quality, expiry date of the products

B: Brand.

C: Umm, expiry date of the products

D: Quality, Brand, products expiry

E: Quality, Brand, products expiry, price

F: Quality, Brand and products expiry

G: Brand, Quality, products expiry, price and the package material

P: Price, quality and expiry date are very important, what else beside these?

G: size

P: Great, The size is important, right. What size you prefer? Do you compare the size with price prior to buy the product because normally the smaller size is more expensive than the large size or family size?

G: It depends, if I uses in the kitchen I will get a large one but if I put on the dinner table I will buy a small one. Sometime I compare the price between the small one and the large one but not very often.

C: It depends on the products, sometimes if the large on cheaper I will buy such as cooking oil

F: It depends; sometime I buy the small size because the big size is too big for me.

A: Umm, for me, it depends on the purpose of uses. Just like the G said. We are going to use it in different situations.

B: It depends on the products, I would prefer the same brand as I have been using for.

D: I normally buy a large size because it cheaper as well as it suits for a big family like mine.

E: Yeah, I think it depends on what products because some products can keep for long time but some have to finish early such as some ingredients.

P: Well, we have talked about the price, quality, and size and so on. Then, what else do you think are important to you when you make decision to buy a food product such as packaging material, and colour of package and label?

C: It depends on the product such as vinegar; I prefer the glass bottle rather than plastic bottle because of the safety reason. Some other product such as cooking oil, I can buy a refill bag because it's cheaper and higher quantity compare to a new bottle.

F: Packaging material is also important because some material is lead the price of the product higher. Package's colour and label are not a factor that concern I have been concerned much.

A: Packaging material is also important because I have children who are living with me so, I would prefer the unbreakable material.

B: Umm, I think so. And the label is too small and difficult to read.

D: The label can be problems in some types of product because it is too small and difficult to read especially, for the expiry date some product is difficult to see.

E: Yeah. Some product did not have a expiry date

G: Actually, I buy the product that I normally use so, sometime I do not realize about the packaging material or label. Just as long as they still in a good condition, not damage is enough.

P: What about

P: So far, all of you concern more about quality of the products especially, with the product that you are normally used. Packaging materials and packaging characteristic is not concern much.

P: Well, let's move on to another topic then. Now, I am going to show you some products with various different types of packaging materials such as glass, plastic, paper and metal packages and then we are going to discuss in each type. Shell we start with glass packages including glass jar like "coffee", glass jar with various different type of packaging closures and then glass bottle with various different type of lids as well.

P: Please tell me what factor do you consider when you decide to buy coffee with the glass jar? Why do you like to buy it? And which one you do not like it? Why?

A: I am buying the same brand as I normally used.

C: I am buying the same brand as I am normally used because the taste is good and the package is convenient to use.

D: I prefer 3 in 1 coffees in a small sachet but if the glass jars I prefer Nescafe because the size and the lid are easy to open. The jar can be used for something else when I finished

F: I buy it as usual.

B: So do I. I think the Moccona package is not good because it is too heavy and difficult to open and it won't be a good seal after the package has been opened.

E: Umm, I also buy the same brand as I am normally bought and Nescafe is the one I preferred. "Moccona" I do not like it because of the package, the jar is too heavy as well as the closure heavy and difficult to open.

G: Umm, I also buy the same brand as I normally use, some other brand I do not like it because of the size of the jar and design as well as the closure.

P: So, most of you are mentioned about the lid or package closure. What types of closure or lid do you like and dislike? Why? And, have you ever encounter any problems when used it?

A: I prefer the screw cap like Nescafe rather than the vacuum like Moccona because it easy to open and can keep the quality of content last longer. The vacuum cap is not good for long term used.

B: I think so. I used to buy a Moccona, but the coffee was hard and get together before I finished it so, I cannot reach it anymore I have to throw it away.

C: The lid like Moccona is difficult to open and it is too heavy because it made from glass, I used to drop it and broken it.

D: Umm, I agree. It used to happen with me too. Plastic closure is better.

E: Yeah, that's right.

G: Yes, I think so too. The vacuum is difficult to open because it slippery and easy to drop

P: What about the aluminium foil under the closure? Any problems encounter? What solution do you use when you cannot open it?

A: I used a knife to cut it directly without trying to use my hand.

G: Yes, used a knife too

D: It difficult to put out, I normally use a knife.

B: Umm. It is not easy to pull it by hand

C: Yeah. I use a knife for long time

E: Yeah. I think so too

P: Do you try to open it without using any tool before or use the tool without any consideration? Did you get injury when used the knife?

A: I use the knife straight away without trying to open it by hand and no injury because I do it with care.

G: Umm, me too. Never tried to use my hand because it difficult to pull it by hand anyway.

D: Umm. You are right. Some product they designed not to open by hand

B: Me too. I am using a knife. Easy and quick

C: Umm. But sometime I use something hard to break it first and then pull it out by hand.

E: Umm. I use my thumb nail to punch a hole and then I peel it to open

F: Knife is easier, just cut it around and take the aluminium cap off

P: What about the glass jar with vacuum lid like jam?

G: It is difficult to open but when I cannot open I used a knife to knock around the edge first and then open.

E: Some brand is easy to open; I never got any problem with it.

B: I dip into the hot or warm water and then open it.

P: Really, I never knew that. It's interesting.

A: I used something hard like knife or spoon or fork to lift up the lid prior to relief the air before open.

P: Yeah, I used to use this technique too.

C: Sometime if it too hard to open I would ask someone who are nearest to me to open it.

D: I never asked for help but I will find the way to open it by myself.

F: I use spoon or knife to life up the edge of the lid to relief the air or pressure inside the jar first and then twist it to open

P: Have you ever got any injury?

A: No, never get any. I have to do with care

F: That's right; have to do it with care

C: Yes, I use to hurt my hand but not a major injury

B: Umm, it is easy to hurt because sometime we do not have enough straight.

D: Hardly get injury if do it with care

E: I think so.

G: I get injured when I use a knife to lift up the lid but not serious injured.

P: Do you have any suggestion for improving the glass jar and the closure?

F: Some products the package is too heavy and the closure is too tight that difficult to open and hold the package. Thus, I think the package and the closure should design to be appropriated.

B: Well, for my personal idea I think they should decide not too tight and some brands are too slippery, so difficult to open

A: I think sometime they should have the diagram to show about how to open the package easily.

G: I think it ok, nothing to improve because it already good even it too tight sometimes

C: I understand that too much pressure inside the jar that why it is so tight and hard to open. So, I think it ok.

D: I agree with everyone that the closure of the package is needed to improve.

E: Yes, it should have instruction to show how to open easily.

P: There is a tool available in the market nowadays for opening the glass jar. Do you think it will helpful?

A: It could help but it depends how much it cost

F: It may helpful but just for some people, I would buy if it's reasonable price and work well

B: If it not too expensive I may try one

E: I can ask my cousin or use my own technique

D: I don't think I will need it because I can use my own technique as I normally do

E: Umm. I think it may help but if we are too old cannot open; there will be some helping from other people around

G: I won't use it very often so, I won't buy it

P: What about glass bottle like soy sauce? Do you like or dislike?

A: I prefer the plastic bottle because it is lighter and not easy to brake

F: It's original that have been used for long time. It's good although, a bit heavy than plastic. I am ok with it.

C: Umm, I agree the ring pull under the cap lid it not good but the glass bottle is good

G: The major problem is the ring pull under the cap. I prefer the plastic bottle because its unbreakable

B: I like it but the ring pull under the cap lid is not good, I don't like it.

D: I found the same problem. I normally buy the plastic one because it cheaper and lighter.

E: Some brand is not good material quality which, easy to broken

P: What do you mean by with the ring pull not good?

E: It difficult to pull and sometime it broken before open completely

G: Also, some brand is too small; my finger cannot get in and pull it

D: Most of the time I used, the ring pull just broken before completely open and then I use a knife to cut the hole. I think the quality of the plastic is low quality

F: I think the quality is inadequate.

A: Umm, so do I. If I can pull the ring pull, I used a knife to make a hole

B: Yeah, the packaging material quality is not good. The industry should work out the suitable material as well as the design to be more easily to use

C: Yes, that's right.

P: What about glass bottle with ring pull like drinking water and some soft drink?

G: This one is easy to open; I never get any problems with it

A: No problem with it

F: Glass bottle with ring pull is difficult to open when the bottle is wet because it's slippery. However, overall it is ok.

E: Umm, easy to open and don't have to force too much

C: It's easy to open

B: I like it because it's not difficult to open

D: Not too bad this one but I don't use it often.

P: What about glass bottle with aluminium screw cap?

G: I found the same problem, when screw on it free and cannot open

A: It is easy to be open I like it.

D: No problem with it

E: Some brands is very hard to open, it free when switch off. Also, some products such as soft drink were keeping in the refrigerator and when take out the bottle has some water condensation.

B: It quiet difficult to open but just for some products

C: I have no problem too.

P: All right, last question about glass packages; do you have any suggestion and improvement for that?

F:

A: Umm, some brand the package is too heavy, if a bit lighter would be better.

B: Yeah, I agree. I think some types of product that packaging material is too thick and some types are too light.

C: I like it because it can be reused again many times

D:

E:

G:

P: Now, let's talk about plastic packages, what do you think about plastic packages?

G: It is good and most products are contained in the plastic packaging.

F: It is good and has a light weight. Most of the products nowadays are contained in plastic packaging.

A: Well, plastic is normally cheaper but it depends on the products

B: Umm, I like it because it's unbreakable

D: I think it ok but it not suitable for some products such as vinegar.

E: Yeah, so do I. But it is good that unbreakable.

C: Yeah, it's unbreakable

P: Here, Oil bottle, and drink bottles which, made from plastic. What do you think about them? Have you ever got any problems with them?

D: For oil bottle or other kitchen stuff I prefer the plastic package because it has a light weight and unbreakable. I never encounter with this type of package but only the packaging closure that always get problem.

C: Yes, me too. I only get problem with the packaging closure especially ring pull under the screw cap.

G: So do I. Only the ring pull under the screw cap is always got problem with.

A: Me too, problem is frequently occurring with the package closures particularly ring pull

E: The bottle itself is alright for me but the problem is normally occurred with the ring pull under the screw cap when open it.

B: Umm, me too. The package is not causing any problems for me.

P: What problem do you normally encounter with the packaging closure?

D: The finger struck in the ring pull and it broken before completely open.

C: Yeah, I got the same problem. It is difficult to pull out.

A: Yeah, I got the same problem.

G: Umm, the ring pull broken before completely open.

B: I don't understand why the ring pull is so difficult to pull and the ring pull is too small so, it hard to open. Sometime I think the quality of the material made.

E: Aha, the ring pull is too small and difficult to pull.

P: Next, plastic bottle with Child-resistance closure. Have you ever used this type of package at all?

G: It is good and safe.

E: Umm. It is easy to use and safe for all users

D: Umm, this type of package is good but not available in our country, it's commonly find in other countries.

C: I think it is good.

P: What about plastic cup? Noodle cup with Aluminium foil cap

E: It is easy to peel.

B: Yeah, easy to open.

C: Umm, I agree.

G: Easy to peel.

A: I think so.

D: Easy to peel

P: This is a plastic cup with plastic lid and ring tear.

A: I am not frequently using this type of packaging but sometime is hard to take off.

D: Ring tear is normally easy to broken before open. And the plastic cup I normally break it.

C: Umm, I agree sometime is hard to take off

G: The ring pull is difficult to take off for some brand of product,

E: It is ok but I am not using it often

B: I agree with everyone

P: There are various types of plastic bags; do you have any problems with it?

D: No because I normally use a Sesser to cut it

G: Umm. So do I. Just cut.

A: So do I.

E: So do I

B: No problem with this type of package.

C: Me too. I cut it sometimes

P: Do you use the Sesser every times? And have you ever try to open it by hand before using any tool? How many times?

G: Umm, I faced the same problem too

A: I think some type of plastic package is difficult to tear by hand

D: Well, I use to tear it by hand but the content inside was split out

C: Yeah, sometime the hole is too big

E: I used to try twice but didn't work well so, I use the Sesser instead. Both the package with tear step or without are the same.

B: Umm, me too. I used to tried two or three times but didn't work

P: Aluminium foil bag with tear

C: Yeah, it is easy to open.

A: I think so; some type of packaging is inadequate quality so, I hard to tear.

E: I agree with A.

G: This one is easy to open because of the tear strip.

D: This one is easy to tear.

B: Sometime it still has to open by cutting.

P: What about Zip lock bag? Have you ever used it? What do you think about it?

G: It is easy to use but it is more expensive than the normal package.

D: Zip lock bag is great; I like it because it easy to use and can keep the food well

A: Yeah, that's right the price is quite expensive and sometime it not seal properly after been opened

E: I used to tear the bag over to the zip lock so, the zip lock doesn't work properly

C: Yeah, it easy to use, I normally use to keep some snack that my nephew cannot finish it

B: I think it good but it depends on the product that I will buy with this type of package.

P: Some of you encounter problem with the zip lock bag such as it cannot reseal properly, Do you think what we need to improve it?

C: Well, it is a new option

G: Some type of product won't need too. For breakable product is a good idea.

A: I think the size of zip should be increased to make it easier to be open and reseal

E: Umm, I think so because some products have a small zip

P: Bag with tray inside

B: Handy and easy to carry without ruining the content

D: I think it good to keeping the content inside

A: Sometimes if packaging to luxury, the price is going to be high too.

E: It's interesting and attractive for the buyer buy the price is higher than the normal package without tray

P: What do you think about package and environment?

C: Regarding to the environment, I normally buy refill packs instead of the new package

A: Yeah, I reuse some package for something else too.

G: I reuse some of the package after I finished for something else

D: Well, as you know too much waste is a major problem in our country at the moment.

B: I think the government is needed to encourage industry and consumer to be applied 5's R.

E: I think if we can reuse and recycle some packaging materials that would help to reduce the global warming effects. For me, I reuse the package as much as I can

P: Do you think we have to encourage people more?

E: Yes, it is a critical issue for our country so, if we can help by reducing the waste, reuse some package and separate the rubbish for recycle

B: Well, I think we should start teaching hard to our children and then we can help them prior to reduce the waste and protect the environment. Government should take action for this.

A: I think it government responsibility to encourage consumer to be more concern about global warming that impacted from packaging waste

C: Yeah, I agree with A.

D: Yes, the government should promote by create some campaigns to encourage more about the affect of packaging waste to environment.

P: Now, we are moving on metal packages including Aluminium cans and Tin cans. Well, how often do you shop the products contain in the metal packages?

Let's talk about Tin can first.

C: I bought it about 2 to 3 times a month because I feed my pet like sardine

G: Normally, once a month

E: Once a month but actually it depends.

B: Me too, it depends

D: Well, I will bought it once a month because I normally go out for a meal so I am not like eat can food much

A: Umm, so do I.

P: What the factor that influences you to buy Tin can?

C: Brand

G: Price

A: Product itself

D: Product itself and brand

E: I would say the product itself because this product is normally contain in a Tin can

B: Yes, I agree with D. But I normally buy the same brand as I normally use.

P: There are two types of opener (e.g. ring pull and without ring pull), which one do you prefer?

G: Not too expensive, I prefer the ring pull.

A: Ring pull is better because using the can opener is not easy some time the food spoilage out of the can and easy to get injury

E: Umm, that's right.

D: I prefer the ring pull one because it easy to open. I don't have to use any tool

C: Depends, sometime I bought a ring pull but sometime not because the ring pull one is normally more expensive

B: I would not bother to open it by using a tool, it quite tough to open so, I prefer the one with a ring pull on top even it cost a bit more.

P: Have you ever had any problems when use it?

C: I think the some brand the ring pull is hard to lift up so it harm my finger

G: The splitting juice is only the problem I got when opens the can

A: So do I. I hardly get the problem when open it because I do it with care.

E: I agree with C and G.

D: Yeah, but not very often. I hurt my finger because of the ring pull was so hard and difficult to lift up

B: Very seldom but the problem would be my finger nail broken

P: Anything that you think needed to be improved?

G: It should have a diagram or photo that show how to open easily without splitting of content

A: Yes, I agree with G. Because it could possible to reduce the injury as well

E: There should have a tiny bottom underneath the ring pull prior to be easy to life up

B: I thing the ring pull should design to be more easy to lift up

D: Should design the package that easy to open especially with the ring pull

C: Umm, both picture to direct how to open the can correctly and make the ring pull to be easy to lift up would need to be improved. I agree with everyone

F: What about Aluminium cans such as soft drink?

A: This one is easy, no problem with it

E: Yes, that's right, it is easy to open.

B: It is easy to open, not problem

D: Never get problem with it.

C: No problem

G: No problem

P: What about the lever lid?

E: I am not normally buy the product that contained in this type of package because it normally big sizes

B: Aha, it's normally a big size but I do not have any problem open it. Just use something hard and strong to lift the lid up to open that's all.

D: Actually, it is a commercial pack or family pack.

C: It is easy to be rusty

G: Hardly using this type of packaging.

A: me too. Hardly buy this type of packaging but it can be reusable after finish the content

P: Let's move on to paper package, what do you think about paper packages? Do you like or dislike? Why?

G: Paper packaging is good, easy to store and carry, clear information and colourful graphic. I like it.

D: It has a light weight but not good idea for keeping the food content for long time

C: I agree with G and D. One more thing it can built up too much waste because I cannot be reused for something else

E: I think so, it looks more attractive but it can built to much waste

B: I like it because it easy to carry and can keep the content safe and remain the same shape

A: Easy to find but some time the package is too big for the content inside

P: Paper box with tear

C: This one is easy to open, don't have to apply too much force

G: It is a good idea especially for the paper box, easy to open but not good for keeping the left over content

A: Yeah, some brand design to use once and then throw it away but it easy to open anyway

E: Easy to open but sometime it should have a picture or indicator direct to open in the correct side

B: It is good but sometime I cannot open it completely because the tear strip is not break down

D: It's easy to open

P: Paper box with plastic tray inside

D: It's good and keeps content inside safe and remain the same but it not good idea for keeping the content longer

C: It is good and easy to take the content out

G: I agree with C.

A: That's right. It's easy to take the content out and keep the rest

E: It's good but I prefer the individual package inside

B: Yeah, some brands contain the small individual package of product inside the paper box with plastic tray inside. This one is good, I like it.

P: Last question for today. Nowadays, global warming become a critical issue worldwide, and packaging waste is become part of that issue. What do you think about the environment? And what can we do to reduce the packaging waste?

D: It's a worldwide issue. I think our government need more action that can encourage people to reduce the amount of waste. And everyone should cooperate with this action too.

C: I normally reuse the package as many as possible but I think in our country is still not strict enough for the recycle some materials. Some other countries they strictly do and everyone do the same thing too.

G: Actually, I think the first place should be start is school; teacher should encourage children to be concern more about the global warming issue. Meanwhile, every household should do the same thing too; it should help reducing waste as well as cutting forest.

A: I agree with everyone. Firstly, it should start from the government and other large company, industry and organisation. It should issue a campaign to encourage people about this issue seriously

E: Yeah, encourage people to recycle, reuse and refill their product could help reducing waste a lot.

B: Well, we should start from our family by teaching our children meanwhile; government should encourage people more about this issue as well.

P: Well done everybody and thank you for your passion, opinion and recommendation for food packaging. I am really appreciated for your time and all of your opinion and recommendations and thank you so much once again for your times to participate in this focus group today. As we know that nowadays food packaging plays a very important role in our daily life. We really have to improve some of the food packaging that most people are currently encounter problems with. Finally, if you have any doubt or you feel uncomfortable about the focus group after you leave this room, please feel free to give a feedback to us by ringing or writing to us about your packaging experiences anytime. Hope you get a good health and happy life. Thank you very much indeed.