

Looking beyond health halos: Exploring the impact of salience and goal activation on the perception of sugary beverages and related behavioural outcomes.

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PhD in Management  
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## **DECLARATION**

I confirm that this is my own work and the use of all material from other sources has been properly acknowledged.

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## **ABSTRACT**

The present study responds to calls in the literature to explore the role of salience and goal activation in food choices by investigating the impact of these concepts on perceptions of fruit juices and related behavioural outcomes. Fruit juice is chosen as the context of the research as it is considered healthy, despite high sugar content. The presence of fruit in the beverage makes the beverage appear healthy, thus attributing a health halo to the product. This health halo effect often leads consumers to make misinformed choices. As such, a key contribution to the literature includes a novel approach to understanding the effects of interactions between salient sugar information and activated goals on health perception and appeal of the beverages. The finding suggests that consumers perceive sugar information on labels differently based on the activated goals at the given moment.

Adapting aspects of salience and goal activation, the study employs an online experiment to prime consumers into specific groups (high/low salience and enjoyment/responsibility/self/other goals) and measures the effects of these manipulations on the perception of beverages. A number of behavioural outcomes are also measured.

The findings demonstrate first, that salient sugar labels are effective in making consumers look beyond health halos of sugary beverages. Second, particularly strong links between salience and responsibility motivation show that salient sugar information is perceived more strongly (sugary product is considered unhealthier) when consumers are primed for responsibility, both in the context of significant others and themselves. Third, the link between salience and enjoyment is a counterintuitive finding, suggesting that sugar information is perceived differently (sugary product is considered healthier) when consumers are primed to think of enjoyment in the context of significant others rather than enjoyment in the context of oneself.

To the best of the author's knowledge, this study is the first of its kind to test a novel approach that makes consumers look beyond health halos of beverages, in order to encourage healthy behaviour. The combined presentation of salience as well as enjoyment/responsibility/self/other goal activation in the context of sugary beverages, along with the development of a new ERSO (Enjoyment Responsibility Self Other) scale provides an original contribution to both theory and practice.

*To mum and dad*  
**मेरे चंद्रप्रकाश**

*Your constant encouragement, endless love and support keep me going.*



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## ABBREVIATIONS

<b>Tsp</b>	Teaspoon
<b>ERN</b>	Enjoyment Responsibility Neutral
<b>SON</b>	Self Other Neutral
<b>ERSO</b>	Enjoyment Responsibility Self Other
<b>ES</b>	Enjoyment Self
<b>EO</b>	Enjoyment Other
<b>RS</b>	Responsibility Self
<b>RO</b>	Responsibility Other
<b>N</b>	Neutral (Control group)
<b>BIT</b>	Behavioural Insights Team
<b>EU</b>	European Union
<b>UK</b>	United Kingdom
<b>BSDA</b>	British Soft Drinks Association
<b>DOH</b>	Department of Health
<b>FMCG</b>	Fast Moving Consumer Goods
<b>CDC</b>	Centre for Disease Control
<b>EFJA</b>	European Fruit Juice Association

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# **CHAPTER 1. INTRODUCTION AND OVERVIEW OF THE THESIS**

This chapter presents a brief overview of the research. Additionally, it summarises the research questions, tasks and findings. Section 1.1 outlines the research problem and mentions the role of salience and goal activation on consumer decision making. The chosen research topic of health halos of sugary beverages is explained in Section 1.2. The research background is presented in Section 1.3. The research questions and tasks are explained in Sections 1.4. Section 1.5 provides the research activities, followed by a structure of the thesis in Section 1.6. Next, the chapter presents the conclusion in Section 1.7.

## **1.1 Introduction**

This research aims to explore the factors that affect perceptions of sugary beverages as healthy and/or appealing. Specifically, the research focuses on two sets of impact factors: first, the salience of sugar information on beverage labelling; and second, goal activation when considering sugary beverages. As such, the research sits at the interface of three areas of academic inquiry: (1) salience of information, (2) goal activation and (3) food labelling. The first area of inquiry, the salience of information, draws on theory from the study of judgement and decision-making. The second area of inquiry, goal activation, draws on automaticity theory, and goal activation is specifically reviewed in relation to responsibility or enjoyment motivation, as well as in relation to self-versus other motivations. The third area of inquiry, food-labelling draws on studies on health halos of beverages and provides the context to which the previous two areas are applied in an empirical study.

This research is positioned at the intersection of three areas: salience, goal activation and food marketing. Figure 1-1 displays graphically the academic fields that inform the development and execution of the present study.



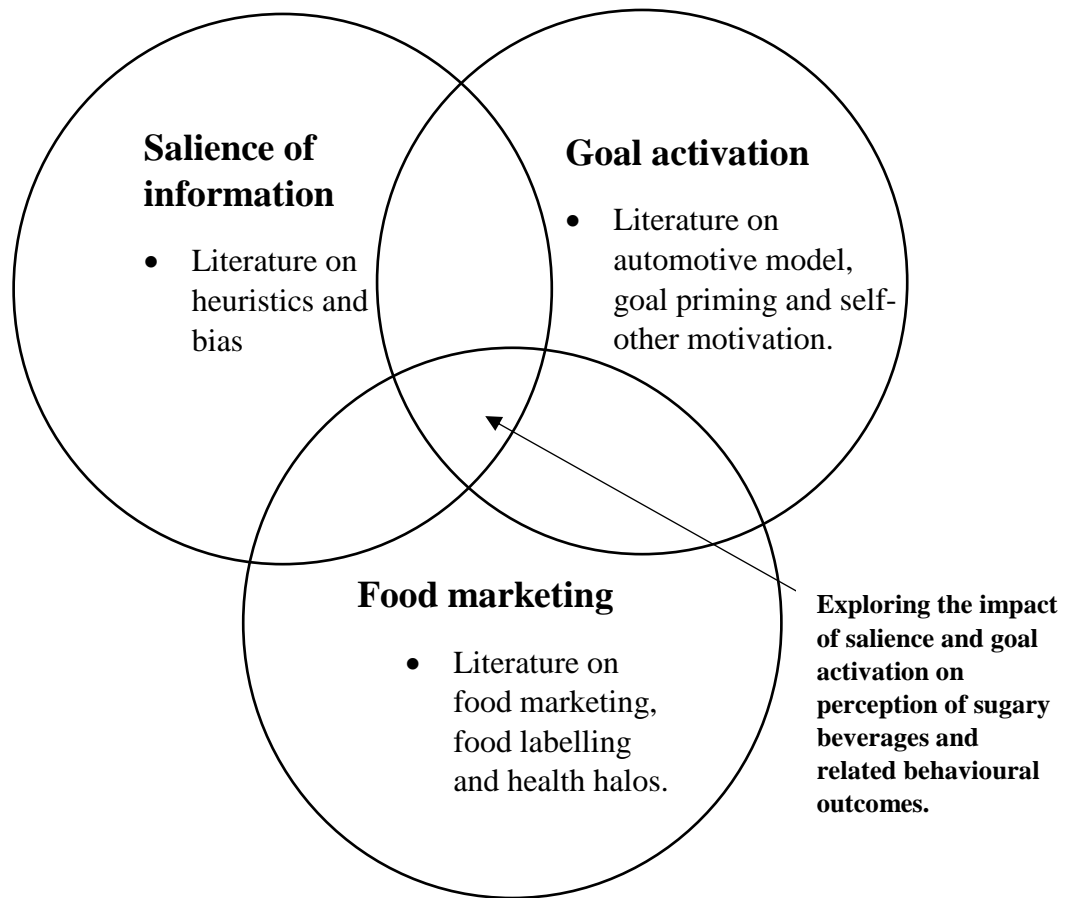


Figure 1-1: Areas of exploration in this thesis

Consuming high sugar food and drink is harmful to health (Welsh *et al.*, 2005). The intention of many consumers may be to avoid sugary food and beverages but sometimes, the food labelling information along with judgement errors and errors in perception may lead consumers to make misinformed choices. This research specifically focusses on fruit juices. Despite their high sugar content, fruit juices are often considered healthy (Kumar, Park and Onufrak, 2015). This could be attributed to health halos of beverages. The concept of the ‘health halo’ is derived from the halo effect, which is generally defined as the influence of a global evaluation on evaluations of individual attributes of a person or object (Nisbett and Wilson, 1977; Thorndike, 1920). For example, when students were asked to make judgements about two lecturers based on their presentation styles, they rated the friendly lecturer as more attractive, pleasing and likeable (Nisbett and Wilson, 1977). The effect implies that on recognizing a trait, people are inclined to believe that

the person possesses other similar traits (Chandon, 2014). Such ‘association-based errors’ often lead to misleading halo effect (Chandon and Wansink, 2007).

Besides being prevalent in attributes of persons, the halo effect can also be extended to companies, products and brands. Research conducted in the domain of health-related halo effects has shown that food products are considered healthy based on one salient attribute (Schuldt, Muller, & Schwarz, 2012). For example, in the domain of food and beverage consumption, the perceiver tends to generalise information from one highlighted attribute by inferring that the same food is healthier and offers other unclaimed attributes. (Andrews, Netemeyer & Burton 1998; Chandon and Wansink, 2007; Schuldt & Schwarz, 2010; Wansink and Chandon, 2006). For example, an organic label on food skews the calorie content of the product and the product is considered lower in calories (Schuldt and Schwarz, 2010). In the context of sugary beverages, the halo effect may cause the beverages to be perceived as healthy. Health halos may be based on highlighting of healthy ingredients like fruits, vitamins, minerals etc. Consequently, this may lead to the sugar content information being overlooked and undermined.

This thesis will explore the effect of salience and goal activation on the perception of fruit juices. The following sections will briefly introduce the two concepts.

## **1. Salience**

Salience is the property of being noticeable or standing out in an environment. Research on judgement and decision-making states that ‘people rely on a limited number of heuristic principles, which reduce the complex task of assessing probabilities and predicting values to simpler judgemental operations’ (Tversky and Kahnemnan, 1974, p. 1124).

Salience is one such cognitive bias or mental shortcut. This research aims to make the information salient and accessible to the consumer. More specifically, it is suggested that presentation of nutrition information in salient and easy to understand labels may influence the health perception and appeal of the beverage.

Various definitions of salience have been mentioned in the literature. These include:

- ‘Salience is the phenomenon that when one’s attention is differentially directed to one portion on the environment rather than to others, the information contained in that

portion receives disproportionate weighing in subsequent judgments' (Taylor and Thompson, 1982, p. 175).

- Salient information is 'novel and seems relevant' (Dolan *et al.*, 2010). This information is likely to draw one's attention and is 'more likely to affect our thinking and actions' (Dolan *et al.*, 2010).

- Salience is the 'ease with which instances can be brought to mind' (Guido, 2001, p. 46).

For the purpose of this thesis, a working definition of salience is presented based on the extant literature. **Salient information refers to information that is quick to notice, easy to comprehend and accessible to the consumer.** Additionally, the perception of beverages may differ based on goal activation and motivations of individuals. The following section introduces goal activation.

## **2. Goal activation**

The second concept explored in this research is goal activation. A **goal** is defined '**as a cognitive representation of a desired end-point that impacts evaluations, emotions and behaviours**' (Fishbach and Ferguson, 2007, p. 3). Research has shown that stimuli in the surroundings can activate goals in people's minds (Bargh, 1990; Bargh & Chartrand, 1999; Bargh & Gollwitzer, 1994). For the purpose of this thesis, a working definition of goal activation is presented here. **The activation of goals in people's minds by incidental exposure to stimuli in the surroundings is known as goal activation.** This implies that the person is unaware of the effect of environmental cues on goal pursuit. Thus, goals can be activated outside conscious awareness and thereby motivate and guide the subsequent behaviour of individuals (Aarts and Dijksterhuis, 2000; Bargh, 1990; Bargh *et al.*, 2001; Chartrand and Bargh, 1996; Custers *et al.*, 2008; Fishbach, Friedman and Kruglanski, 2003; Papiés and Aarts, 2016; Sheeran *et al.*, 2005). This process, in which the person is unaware of the effect of situational cues on goal pursuit, is known as automaticity or nonconscious goal pursuit. The underlying assumption of automatic goal pursuit is that goals are mental representations and are capable of being automatically activated (Bargh, 1997).

Goals can be implicitly activated by priming, a method widely used in social research (Bargh and Chartrand, 2000). **Priming is a process by which ‘thoughts are activated in participants’ minds by causing the participants to think about a concept in some way that is unrelated to the focal task’** (Gollwitzer and Bargh, 2005). For example, early work on priming research shows exposure to trait adjectives leads the participants to apply the same traits when they judge the behaviour of others (Bargh & Pietromonaco, 1982; Higgins, Rholes, & Jones, 1977; Srull & Wyer, 1979). Experiments have provided evidence that priming leads to activation of motivations that guide the participants’ performance. For example, priming participants with achievement-related words lead them to perform better in subsequent tasks (Bargh *et al.*, 2001).

Drawing from research that cues in the environment can activate cognitive structures and implicitly affect behaviour of individuals (Bargh, 1990; Custers and Aarts, 2005; Papies and Aarts, 2016; Papies & Barsalou, 2015), this research explores whether goal activation can alter the health perception and appeal of beverages with salient sugar information.

**In this study, the research attempts to activate goals by priming thoughts of self or significant others (pilot study 2) and enjoyment or responsibility (pilot study 3) goals. In particular, it is argued that the interaction between salience and goal activation will influence the perception of the sugary beverage and related behavioural outcomes (main experiment).**

An online experiment is developed based on extant literature in the fields of salience, goal activation and food marketing. Quantitative data is collected from consumers in the UK. The present interdisciplinary research aims to apply these concepts from psychology to marketing. The research outcome explains:

- How presentation of salient information (via different easy to understand formats) affects health perception and appeal of beverage.
- The interaction between salience and goal activation on health perception, appeal of beverage and related behavioural outcomes.

The study offers a comprehensive experimental research design and empirical analysis. The research contributes to knowledge at theoretical, methodological and empirical levels (Summers, 2001). The contributions are briefly discussed below.

1. **Theoretical contributions.** The theory building aspects of the research include conceptual definitions of salience and goal activation, the development and testing of instruments for priming and measuring the combined effects of enjoyment, responsibility, self and other motivations and the development of theory along with accompanying rationale. The study contributes to literature through the integration of theory on salience and theory on goal activation. To the best of the author's knowledge, no study currently exists that explores both salience as well as goal activation in the context of sugary beverages. The theory testing aspects of the research include testing the links that exist between, first, salience and perception, and second, salience and goal activation along with related behavioural outcomes.
2. **Empirical contributions.** An important empirical contribution is the testing of linkages between constructs that have not previously been tested. This research provides important insights for the empirical context in which the study is conducted. The research also looks at additional variables like health consciousness and skepticism within the context of perception of sugary beverages and integrates consumers in the research at the stage of concept-development, definition and impact measurement. Such research has been not empirically conducted in the field of food marketing.
3. **Methodological contributions.** From a methodological perspective, the present study uses a combination of methods to prime the participants. The study contributes by developing and validating new scales to test the effect of priming. The research uses measurement approaches that do not rely solely on self-reports thus enhancing the construct validity of the research. The use of different methods of measurement reduces potential common method variance. This study can add value to methodological knowledge by outlining how a range of priming techniques may be applied by other researchers to understand how consumer perception may vary based on goal activation. As a result, this study offers

insights into the usability and applicability of varied priming methodologies to the wider business context. Additionally, this research is performed within a natural environment rather than under laboratory conditions. This provides greater ecological validity to the research and thus a contribution to the methodology. The method can be applied by researchers to study the effects of goal activation within more natural environments.

## **1.2 Context of the study**

The context of the study is discussed below from two perspectives:

- Applied perspective
- Public policy perspective

### The context of the study from an applied perspective

Fruit juice is chosen as a context to test the impact of salience and goal activation on individuals' perception of health and appeal of the product. More specifically, the interaction of enjoyment/responsibility/self/other motivations with salient sugar information label on the fruit juice is researched.

Fruit juice is chosen for a number of reasons. Firstly, although much research has been conducted on the health effects of sugary beverages from a medical perspective (Malik *et al.*, 2006; Pereira, 2000; Schulze *et al.*, 2004; Welsh *et al.*, 2005) and on the marketing of these beverages, research is still lacking in the category of fruit juices. A probable reason could be that 100% fruit juices do not have added sugars (BSDA, 2015) and hence they are not considered in the category of sugar-sweetened beverages. Consequently, while sugary beverages like carbonated drinks, sports drinks and energy drinks have received much attention recently (HMRC, 2018), fruit juices have largely remained untouched by policy.

Secondly, fruit juice is typically seen as a healthy drink (Coelho, 2017) and not seen as a sugary beverage. This misconception may be attributed to a halo effect. Foods carrying health claims are considered healthier by consumers and these claims may discourage the consumers from seeking further information about the product (Williams, 2005). The concept of the 'health halo' is derived from halo effect which denotes the predisposition

of perceivers to believe that a person object or brand possesses additional positive traits based on the recognition of one desirable attribute (Chandon, 2014).

In the context of certain food products, a halo effect can cause them to be perceived as healthy. For example, cookies labelled organic are considered lower in calories (Schuldt & Schwarz, 2010) or high sugar sports and energy drinks are considered healthy as they prominently display one healthy ingredient (Kumar, Park & Onufrak, 2015; Pirotin, Becker and Crawford, 2014). Consequently, health halos lead consumers to choose sugary beverages unknowingly (Chandon and Wansink, 2007). Advertising of fruit juices is cleverly designed to increase emphasis on vitamins, minerals and fruit content, thereby overshadowing the harmful sugar content. In order to make consumers notice the actual sugar content in these beverages, it may be useful to make sugar content information visible and quick to comprehend so that consumers make informed choices.

#### The context of the study from a public policy perspective

From a public policy perspective, the context of fruit juice consumption has a vast impact on people in the UK and worldwide. Studies have suggested consumption of fruit juice is harmful because of its high sugar content and low levels of fibre (Wojcicky and Heyman, 2012) and linked the consumption of fruit juice to obesity and related diseases (Bray *et al.*, 2004; Schulze *et al.*, 2004). However, fruit juices are promoted as UK governments '5 a day' nutrition plan which encourages the public to eat at least one serving of five to seven fruit or vegetables in a day. Most notably, although the 2018 sugar tax in UK targets sugar sweetened beverages with high sugar content, fruit juice and milk are completely left out in this tax scheme. The sugar tax on beverages aims to tax sugar sweetened beverages thus hoping that increased cost will deter the consumers from drinking these beverages and the tax collected will be directed towards health promotion activities. Although this initiative will bring in some revenue from the sales, the policy leaves much to be desired. Since fruit juices have become an essential part of modern diets, it is essential that fruit juices are portrayed as high sugar beverages rather than being discounted from such policies. Perhaps there is a need for a clear and concise message from the government regarding high sugar content of fruit juices. This may enable the consumers to make informed choices. More specifically, the rising obesity trends due to excessive liquid sugar consumption are leading to myriad debates, discussions and actions in the public and private sector to reduce sugar consumption.

As well as an increased academic interest in heuristics and goal priming for social change, a great deal of public and media interest has been generated in the field of health behaviour change. For example, in the domain of alcohol and tobacco marketing and advertising, marketing communications are not permitted to suggest any therapeutic qualities. Among other initiatives, government has taken measures like increasing taxes, regulating place of sale, age restrictions, exhibiting warning labels and instilling a culture of behaviour change by means of phone apps and Change4Life campaign. As a result, academicians, businesses and governments are proactively employing resources to develop practical strategies aimed at changing behaviours for the betterment of the society (Dolan *et al.*, 2010; Davis *et al.*, 2015; Hunter *et al.*, 2017). For example, the UK Government's EAST model developed by the Behavioural Insights Unit (BI, 2018) focusses on applying key concepts of heuristics and bias to bring about social change. The model emphasizes that making information easy, attractive, social and timely leads to desired behaviours in individuals.

In the context of food products, government and the private sector have come up with strategies to display accurate nutrition information so that consumers can make informed choices. However, not all strategies may reach the desired outcome. For example, research has shown that although consumers seem to be familiar with the notion of calories on nutritional labels, they do not seem to understand how to apply those (Kleef *et al.*, 2008). Moreover, the situation is complex in instances when food products carry health halos, which make the food appear healthier than it actually is (Chandon, 2012). For example, fruit juices contain high amounts of sugar, yet are considered healthy (Gill and Sattar, 2014). In such cases, it becomes imperative to consider the effects of cues in the environment that may alter the perception of the product.

The enhanced understanding of salience and goal activation in the context of sweet beverages may be helpful to allow the public and private sectors to plan, implement, and manage various strategies to allow the consumers to make better and informed decisions.

### **1.3 Background to the research problem from an academic perspective.**

Early research on behaviour was based on the theory that making changes to changing a person's conscious thoughts will lead to changes in behaviour (e.g. Ajzen, 1991; Bandura,



1998; Prochaska and DiClemente, 1983; Rosenstock, 1966). However, recent research suggests that intentional control of behaviour can be limited (Webb and Sheeran, 2006) and that behaviour change efforts must consider nonintentional routes to action such as automatic goal pursuit (Bargh *et al.*, 2001; Gollwitzer and Bargh, 2005). Furthermore, recent research increasingly attributes goal priming to cues in the environment (Bargh and Chartrand, 2000; Custers and Aarts, 2010; Custers and Aarts, 2005, Custers *et al.*, 2008; Sheeran *et al.*, 2005). This implies that goal-directed behaviour can originate from cues in the environment (Papies, 2016).

Researchers have stressed the necessity to address problems related to food choices by interdisciplinary approaches (Koster, 2009). More specifically, social researchers have mentioned the importance of goal activation in facilitating favourable behaviours, including health behaviours such as better food and beverage choices (Kidwell, Hasford and Hardesty, 2015; Maimaran and Fishbach, 2014; Papies, 2016; Wilcox *et al.*, 2009).

The rationale for investigating the impact of salience and goal activation on the perception of beverages is to provide empirical evidence for the value or lack thereof of these concepts to health halos of beverages and consumers. The impact of different motivations on the health perception and appeal of beverages will be investigated. The study will also focus on behavioural outcomes. Thereby, it is outlined how salience can affect health halos and how consumers perceive sugar information differently based on the activated goals.

The focus of this thesis is to explore the impact of salience and goal activation on the perception of sugary beverages. **The first aspect of this research is to explore how salience can be utilized to overcome misleading health halos of sugary beverages.** When it comes to consumer decision making on food and beverages, people often unintentionally make less healthy choices (Chandon and Wansink, 2007). One of the reasons for these unfavourable choices has been attributed to health bias or popularly termed as health halos.

Research has shown that consumers categorize foods as ‘healthy’ or ‘tasty,’ (Raghunathan, Naylor and Hoyer, 2006; Rozin, Ashmore, and Markwith 1996) and often make inferences about the product by overgeneralizing the labelling information (Andrews, Netemeyer, and Burton 1998; Kardes, Posavac, and Cronley 2004). In

comprehending text, consumers are likely to draw inferences and meanings beyond what is directly stated in the text (Harris 1981). This means that consumers typically draw their own inferences while assuming that the advertised information is lawfully true (Johar 1995). Both categorization and inference-making lead to the creation of a health halo. This halo effect may lead the consumers to believe that the food is much healthier than it actually is (Chandon, and Wansink 2012). ‘Consumers view a food as healthier if it carries a health claim and this ‘halo’ effect may discourage them from seeking further nutrition information’ (Williams, 2005). These health halos may lead consumers to choose unhealthy food unwittingly (Chandon and Wansink, 2007). **Hence, the first aim of this research is to understand if salience can be a tool to overcome health halos in beverage decision making. More specifically, to explore the impact of salient sugar information on the health perception and appeal of fruit juices.**

**The second aspect of this research is to explore how goal activation can affect perception.** A goal is defined ‘*as a cognitive representation of a desired end-point that impacts evaluations, emotions and behaviours*’ (Fishbach and Ferguson, 2007, p. 3). Goals exist as cognitive representations or knowledge structures in memory (Bargh, 1990; Hull 1931; Kruglanski, 1996). Goals are constituted by a web of interconnected memories (Fishbach and Ferguson, 2007) and activation of these memories can lead to the activation of the associated goals (Bargh, Chen, & Burrows, 1996; Devine, 1989). Furthermore, the likelihood of a goal being activated depends on the accessibility of memories at a given moment (Higgins, 1996; Anderson, 1983).

Research has demonstrated that goal-directed behaviour can result from situations and cues in the environment, without conscious awareness. (Bargh and Chartrand, 1999; Papies, 2016). For example, experiments in which participants were presented with cues related to long-term health goals triggered goal-directed behaviour (Fishbach *et al.*, 2003).

Goals can also include the representation of individuals (e.g., a parent, a child) which implies that relationship partners can activate goal representations. For example, research has shown that being reminded of a significant other can influence the person’s performance at a task (Shah, 2003a; 2003b). In line with this research, studies have also suggested that people make different decisions if they choose for themselves or if they choose for others (Polman, 2010).

**The research aims to explore how perception and choices differ when consumers make choices in states of enjoyment/ responsibility and when they are thinking of themselves or significant others.** The literature reveals a need for the conceptualisation of goal activation from the consumer perspective so that consumers are directed towards healthier choices (Aarts, 2007, Papies, 2016, Papies and Hamstra, 2010, Papies *et al.*, 2014; Van der Laan *et al.*, 2017).

A fictitious brand of fruit juice is developed in this study. This product is utilized in an experiment to investigate the impact of goal activation on the perception of fruit juice and related behavioural outcomes. This is achieved by 1) testing how salience can be integrated with concepts from goal activation while also 2) incorporating existing real-life products in the market to provide a practical context to the research.

#### **1.4 Research questions and research tasks**

This section presents the research questions and tasks designed to explore the role of salience and goal activation on the perception of beverages and related behavioural outcomes.

The key research questions are:

- 1. How does salience of sugar information affect health perception and appeal of beverages?*
- 2. What is the interplay between salience (salient/non-salient) and goal activation (enjoyment/responsibility/self/other goal activation) in affecting perceptions of beverages and associated behavioural outcomes?*

The tasks employed to answer these research questions are mentioned below:

**Task 1:** To design a brand of fruit juice and find the best-understood format to convey sugar content information.

**Task 2:** To design and conduct an exercise to prime goals of enjoyment/responsibility.

**Task 3:** To design and conduct an exercise to prime the concept of self/other goals.

**Task 4:** To explore and explain the interplay between nonconscious goal priming and self-other choices in affecting perceptions of beverages and associated behavioural outcomes.

**Task 5:** To outline the research findings, conceptual and practical implications for scholars, practitioners and the government.

## **1.5 Research activities**

The following research activities are carried out to answer the research questions and fulfil the tasks outlined above.

**(1) Literature review.** The literature review is a compilation of the extant research in a particular domain. It begins with an exploration of the areas of salience bias and goal activation, focussing on the topic related to the unintended consumption of excessive liquid sugar in fruit juices.

**(2) Research Objectives.** During the literature review process, the research objectives are likely to be refined and focused by the researcher. Well defined research objectives may lead the researcher to conduct specific analysis, including studying defined areas - salience and goal activation- and specific methodologies.

**(3) Primary research and hypotheses.** Based on extant literature, hypotheses are presented. Next, measurement instruments are identified, selected and adapted to meet the research objectives of the present study.

**(4) Quantitative pilot studies.** Three quantitative pilot studies are conducted followed by a main study. The first pilot study helps to provide the building block (prototype) for successive studies. The second and third pilot studies allow for refinement of the measures.

**(5) Refinement and hypotheses building.** Results of these three pilot studies help to improve the design of the main study.

**(6) Measurement instruments selection and experiment design revision.** The chosen measurement instruments are refined and revised based on pilot studies 2 and 3. The experimental design for the main study is reviewed and refined further.

**(7) Experiment development.** The experiment is developed to include priming methods to activate goals and visuals of various beverages to be tested.

**(8) Statistical instrument selection.** Suitable software is identified for data analysis. First, data is cleaned following the standard statistical procedures. Next, tests are run on SPSS statistics 23 software.

**(9) Data collection for the main study.** The self-completed online questionnaires are administered in July 2017 and August 2017. The surveys are administered using an online platform on Qualtrics software and distributed by Prolific Academic. Data is coded and entered into SPSS Statistics 23 for further cleaning and preparation for statistical analysis.

**(10) Analysis, interpretation and reporting of results.** The data is analysed to provide relevant results using statistical software. The theoretical and practical implications are presented followed by a conclusion.

The research activities are presented graphically in figure 1-2 on the next page so that the reader has a clear picture of the activities and the chronological order in which these happened. The chapter number in each box indicates which section of the thesis reports on each of the research activities.

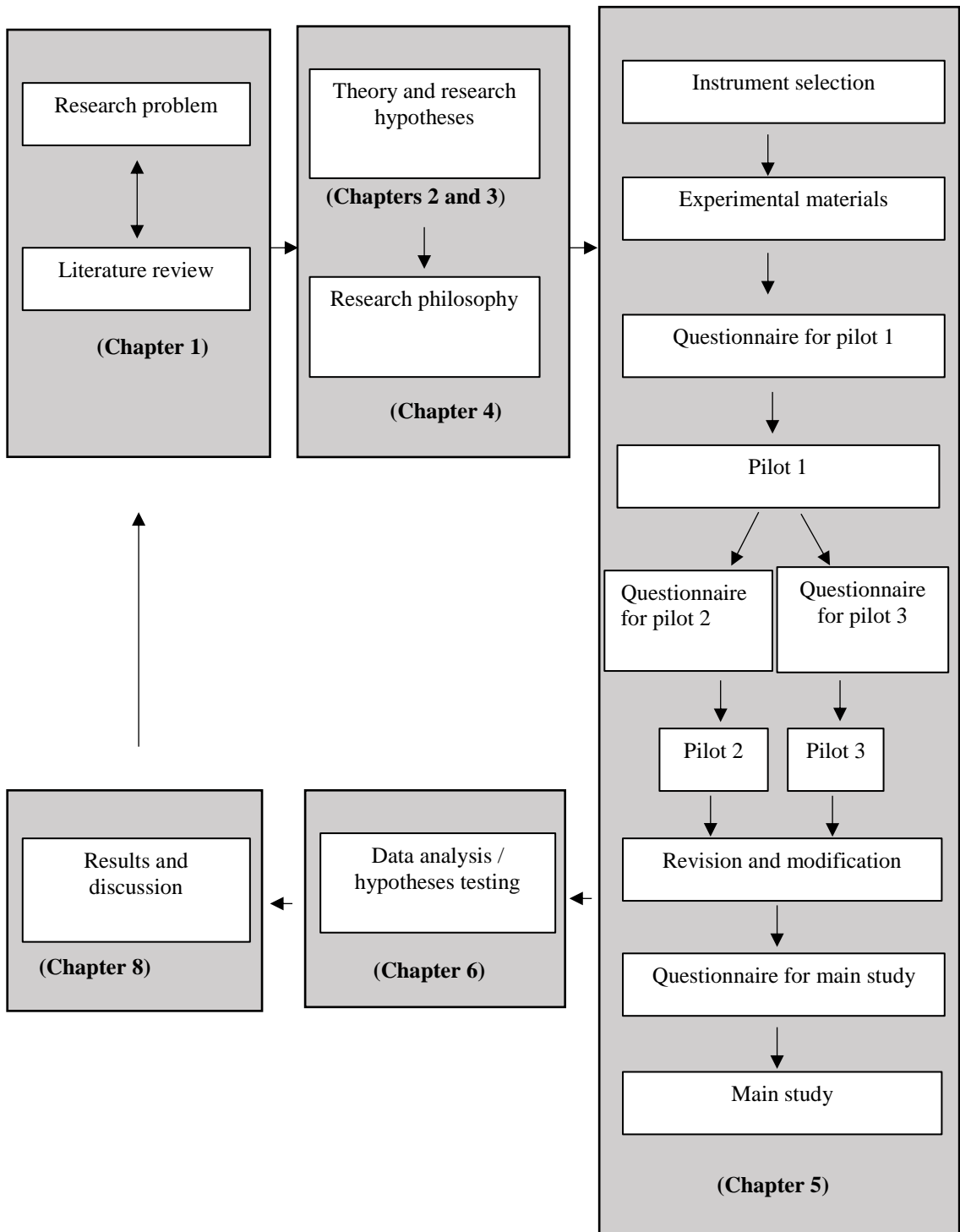


Figure 1-2: Flowchart of the research activities

**Table 1-3. Summary of research stages undertaken in this study**

Study	Time Frame	Sample (N)	Thesis chapter	Main focus	Purpose/Key concepts/Outcomes
Pilot study 1	Feb-15	139	Chapter 6 &7 Section 6.5.1.1 & 7.6.1	Development and testing of juice bottles and juice cartons	<b>Purpose:</b> To design a product and test which sugar information is best understood. <b>Key Concepts:</b> Saliency, judgement under uncertainty. <b>Outcomes:</b> Teaspoon label was most widely understood.
Pilot study 2	May-16	109	Chapter 6 &7 Section 6.5.1.2 & 7.6.1	Priming for self/other and effect on the perception of sugary beverage	<b>Purpose:</b> To test the effect of self/other priming on the perception of beverage. <b>Key Concepts:</b> goal priming, sentence unscrambling task. <b>Outcomes:</b> Beverage was perceived healthy by other condition.
Pilot study 3	Oct-16	103	Chapter 6 &7 Section 6.5.1.3 & 7.6.1	Priming for enjoyment/responsibility and effect on the perception of sugary beverage	<b>Purpose:</b> To test the effect of enjoyment/responsibility priming on the perception of beverage. <b>Key Concepts:</b> goal priming, sentence unscrambling task. <b>Outcomes:</b> Beverage was perceived healthier by enjoyment condition.
Main study	Aug-17	559	Chapter 6 &7 Section 6.5.2 & 7.6.1	Priming for self-enjoyment/self-responsibility/other-enjoyment other-responsibility goals	<b>Purpose:</b> To explore the combined effects of goal priming on the perception of beverages and related behavioural outcomes. <b>Key Concepts:</b> storytelling task for goal priming <b>Outcomes:</b> Strong relationship between enjoyment/responsibility priming and perception of beverage.

## **1.6 Structure of the thesis**

The present chapter presents a brief overview of the research along with the background, context and a brief description of the research questions and tasks. In addition, the chapter presents the structure of the thesis and a summary of the results.

**Chapter 2.** The second chapter defines the concept of salience by reviewing literature within the fields of psychology and marketing, followed by a focused review of studies in the field of food and nutrition. These studies specifically address the role of salience in the perception of food and beverages labelling. Furthermore, the chapter discusses the importance of visual salience in decision-making. Next, the chapter presents the associated research hypotheses and concludes with a brief summary.

**Chapter 3.** The third chapter defines the concept of goal activation and priming by reviewing relevant academic literature within the fields of psychology and marketing, followed by a focused review of studies in the field of food and nutrition. These studies specifically address the role of goal activation in food decisions and health behaviours. Furthermore, this chapter addresses the role of self/other motivations and discusses the importance of self-other priming in decision-making. The chapter presents support for selecting enjoyment/ responsibility and self/other primes in this study. Next, the chapter presents the associated research hypotheses and concludes with a brief summary.

**Chapter 4.** The fourth chapter explains the philosophical underpinnings of the study. The chapter discusses the chosen research philosophy that helps to justify methodological choices. The ontological and epistemological assumptions along with limitations of the chosen method are addressed.

**Chapter 5.** This chapter outlines the research methodology employed in this study. It describes the methodological considerations underlying the selected research design.

**Chapter 6.** This chapter discusses the research design, which includes a description of research population, sampling strategy and data-collection procedures. The chapter proceeds to describe instrument development, testing and analytical techniques to test the hypotheses.

**Chapter 7.** The chapter explains data collection and analysis (data entry, cleaning, initial examination) and provides a summary of the demographics. The chapter outlines the



proposed hypotheses, tests the hypotheses and presents the results of the experimental research.

**Chapter 8.** This chapter presents the research implications and contributions to theory and practice. Next, the chapter acknowledges research limitations and presents recommendations for further research.

A route-map of the structure of the thesis is provided in figure 1-3. This figure briefly summarises the content of each chapter.

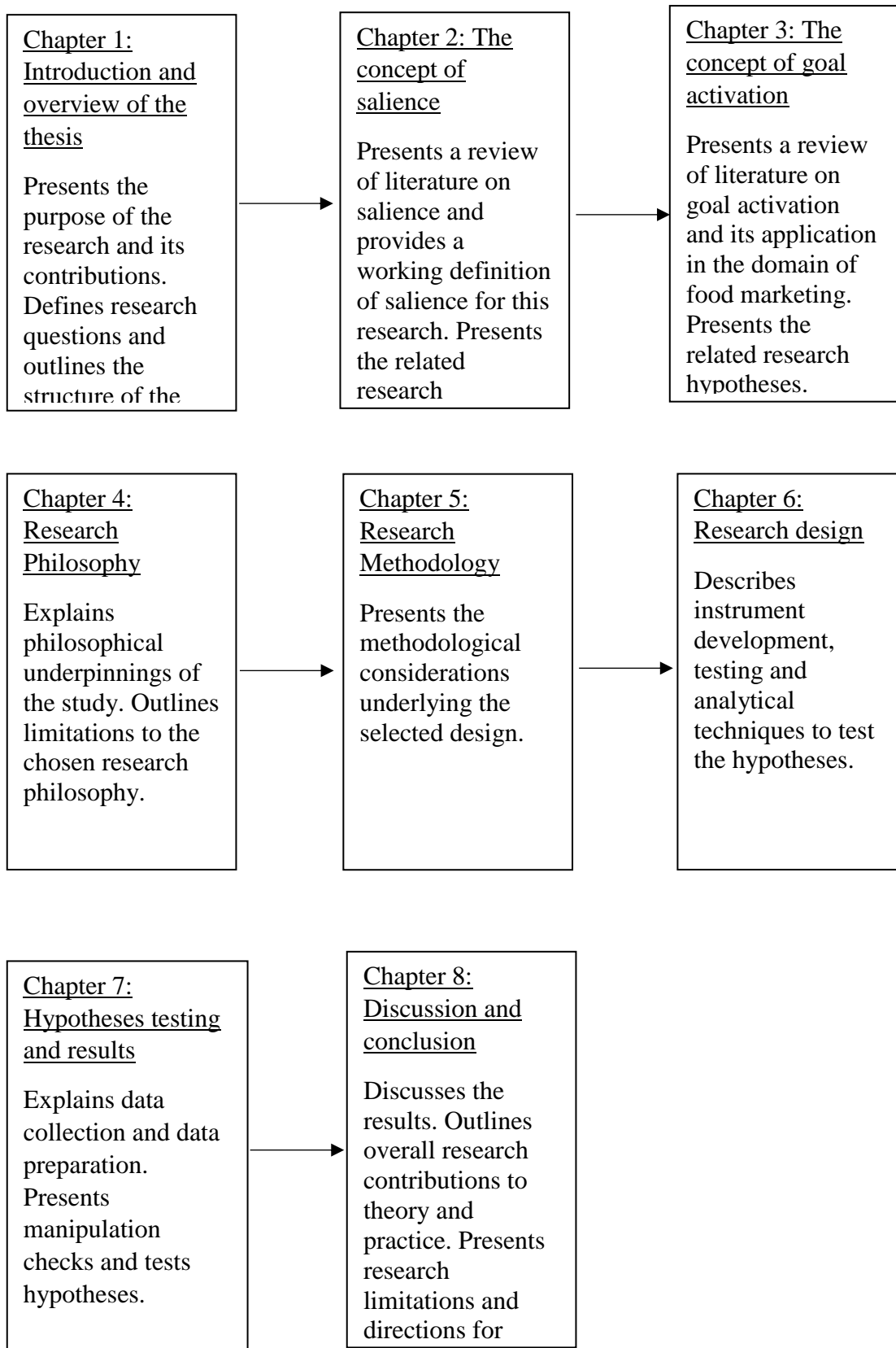


Figure 1-3: Route map of the thesis

## **1.7 Conclusion**

Even though research studies are trying to understand how consumers comprehend nutritional labels on food products and make consumption decisions, empirical evidence in the area of beverage decision-making remains inconclusive and lacking. There is little research about the consumption of beverages with health halos. These beverages have high sugar content but are perceived as healthy and lead to unintended overconsumption. Although there is some research that focusses on goal priming in the domain of food decision-making, research is lacking in the domain of sweet beverages, more specifically beverages with health halos, for example, fruit juices.

A possible explanation for lacking research may be that the issue of excessive sugar content in fruit juices has only recently become known. Consequently, there have been calls by academics to the UK Government's current 'five-a-day' guidelines to fruit juice from this campaign (Gill and Sattar, 2014, Wojcicki, 2012).

Another explanation for this research gap might lie within the food-marketing domain. Although goal activation is commonly applied in the domain of advertising and product promotion by the profitable private sector, the concept has been less researched from a public policy and social marketing perspective in the domain of food and beverage marketing. Therefore, in this research, it is important to explore not only the effect of salient nutritional labels but also how and why individuals perceive the product based on their goals.

Hence, the present thesis aims to explore if the same information on a label is perceived differently, according to the different goals that are activated in the individuals. First, this thesis addresses the outlined issues. Second, this study aims to enhance the current understanding of goal priming and salience bias. Third, this study seeks to address the question of whether salient nutritional label on a product and goal priming together can affect the perception of sugary beverages and consequently the choice of beverages.

This chapter has briefly presented the context, background and the activities to be undertaken in this research. The next chapter will present the literature related to the concept of salience.

## CHAPTER 2. SALIENCE OF INFORMATION

### 2.1 Introduction

This chapter explores the phenomena of salience bias in decision-making and salience in the context of food and beverage choices. Section 2.1 provides an introduction and outlines the structure of the chapter. In Section 2.2, a brief overview of the concept of salience is presented and early theories are discussed. Section 2.3 discusses the broad literature on salience and decision-making. In Section 2.4, the role of salience in the context of food and beverage is explored. Section 2.5 presents the research hypotheses. Finally, Section 2.6 concludes the present chapter.

The research framework is represented in Figure 2-1 below. The framework highlights the relevant areas of the thesis that will be discussed in this chapter.

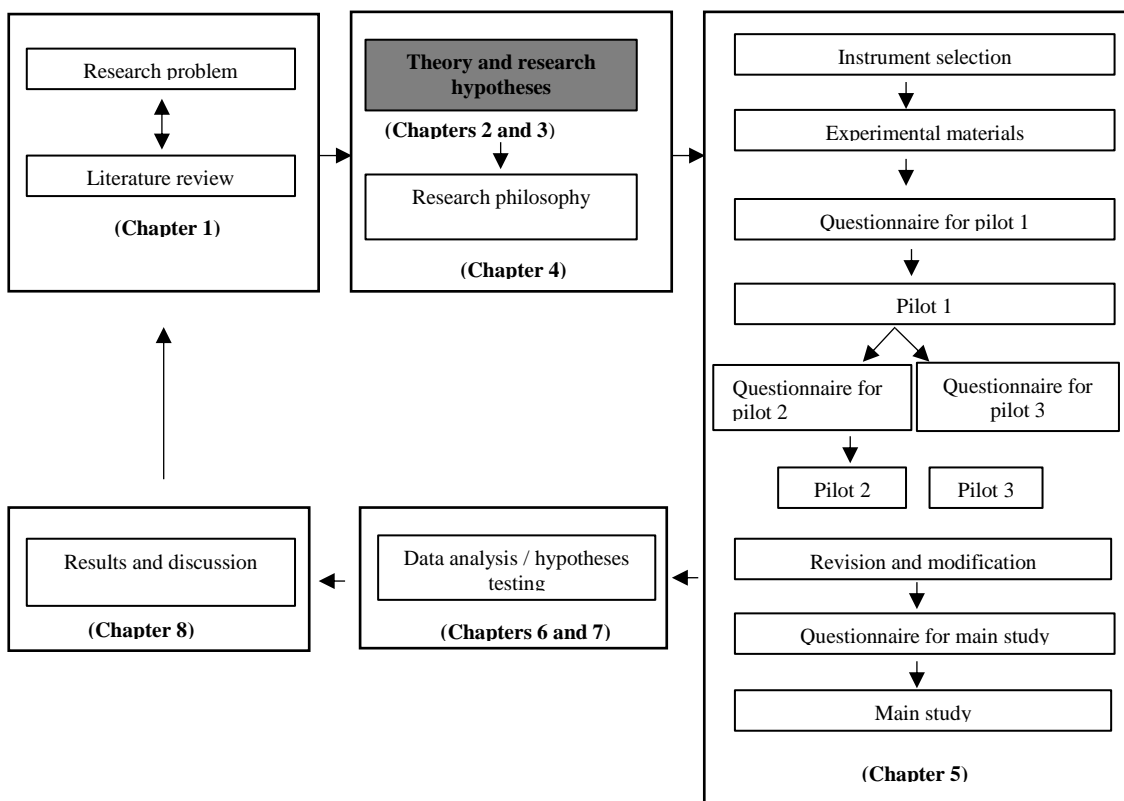


Figure 2-1: Framework for the research design (Highlighted areas are discussed in this chapter).

## **2.2 An overview of salience.**

In order to understand the origin and idea of salience, it may be helpful to step back in time to trace the origin of this concept. This section provides a brief overview of the early theories in social cognition that led to the identification of salience as a method or cognitive shortcut to make judgements under uncertainty.

Contemporary research in psychology is guided by a class of theories known as dual process theories (Chaiken and Trope, 1999). These theories divide mental processes into two categories depending on whether they operate automatically or in a controlled manner (Posner and Snyder, 1975; Shiffrin and Schneider, 1977). Processes are considered automatic if they are elicited unintentionally, are outside awareness and beyond voluntary control. These processes do not require a large number of cognitive resources (Bargh, 1994; Gawronski and Creighton, 2013; Moors and De Houwer, 2006).

Early dual process theories focused primarily on specific domains, such as behaviour and attitude (Fazio, 1990; Wilson, Lindsey, and Schooler, 2000), persuasion (Chaiken and Stangor 1987; Petty and Cacioppo, 1986), impression formation (Fiske and Neuberg, 1990; Brewer, 1988), stereotyping (e.g., Devine, 1989), and person perception (e.g., Gilbert and Malone, 1995; Trope, 1986). More recent dual process models aim at identifying general principles like reflective and impulsive processing, reflective and reflexive processing and System 1 and System 2 processing (e.g., Epstein, 1994; Kahneman, 2003; Lieberman, 2003; Strack and Deutsch, 2004).

This study focusses on one such generalised model famously known as the System 1 and System 2 processing model by Kahneman (2003). The model describes two systems, known as System 1 and System 2, which are driven by intuition or reasoning. System 1 operates automatically and with least effort. It consists of thinking that is intuitive, automatic, experience-based, and relatively unconscious. System 2 is reserved for activities that require mental effort. This system is more reflective, controlled, deliberative, and analytical. System 1 generates intuitions and feelings for system 2, and these intuitions turn into beliefs and actions is supported by system 2 (Kahneman 2011).

On receiving input from System 1, System 2 may endorse, adjust, correct or block the response depending on logic. While system 1 is guided by intuition, system 2 is guided

by my logical rules of reference. (Gawronski and Creighton, 2013). Put simply, the model states that when faced with complex tasks, people use cognitive shortcuts or heuristics to make decisions and choices (Tversky and Kahneman, 1974).

Due to cognitive capacity limitations, when decision makers face choices that require excessive use of cognitive effort, it may be almost impossible to use the full information (Orquin and Loose, 2013). In such a situation, the decision makers may pay attention to specific information by prioritizing the order of the information (Orquin and Loose, 2013; Simon, 1955). The information is prioritised by selecting a mental shortcut or heuristic (Gigerenzer and Gaissmaier, 2011; Orquin and Loose, 2013; Payne, Bettman, and Johnson, 1992). Some examples of heuristics are satisficing heuristic (Simon, 1957) described wherein the perceiver selects the first satisfactory option. Some other heuristics include lexicographic (Fishburn, 1974), elimination by aspect (Tversky, 1972), recognition heuristic (Goldstein and Gigerenzer, 1999; Goldstein and Gigerenzer, 2002) and priority heuristic (Brandstätter, Gigerenzer, and Hertwig, 2006).

<b>Table 2-1. Judgement under uncertainty (summarised from Tversky and Kahneman, 1974*)</b>			
<b>Heuristics</b>	Representatives	Availability	Anchoring
Examples	to find the probability of an event belonging to a particular class	to find the frequency or plausibility of an event particular development;	to predict numbers based on a given value
Biases	<ul style="list-style-type: none"> <li>- Insensitivity to prior probability of outcome.</li> <li>- Insensitivity to sample size.</li> <li>- Misconceptions of chance.</li> <li>- Insensitivity to predictability.</li> <li>- The illusion of validity.</li> <li>- Misconceptions of regression.</li> </ul>	<ul style="list-style-type: none"> <li>- Biases due to the retrievability of instances e.g. familiarity, <b>saliience</b></li> <li>- Biases due to the effectiveness of a search set.</li> <li>- Biases of imagination</li> <li>- Illusory correlation</li> </ul>	<ul style="list-style-type: none"> <li>- Insufficient adjustment</li> <li>- Biases in the evaluation of conjunctive and disjunctive events</li> <li>- Anchoring in the assessment of subjective probability distributions.</li> </ul>

\*This table summarises the findings of Tversky and Kahneman, 1974

Studies on heuristics and biases are based on the premise that in situations of uncertainty, people rely on mental shortcuts rather than on complicated computational processing. However, these heuristics may ‘sometimes lead to severe and systematic errors’ (Tversky and Kahneman, 1974; Kahneman, 2011). Initially, three cognitive biases were recognized by researchers. These biases were: 1) **representativeness** - to find the probability of an event belonging to a particular class 2) **availability** - to find the frequency or plausibility of an event 3) **anchoring** - to predict numbers based on a given value (Tversky and Kahneman, 1974). Table 2-1 outlines the three judgemental heuristics and resulting bias as explained by Tversky and Kahneman (1974).

This thesis will explore salience bias, which is categorised under the availability heuristic. **‘Availability heuristic is employed when people assess the frequency of a class or the probability of an event by the ease with which instances are brought to mind’** (Tversky and Kahneman, 1974, p. 1124). The reliance on availability leads to predictable bias such as **salience**, retrievability of instances and illusory correlation. This study specifically focusses on biases due to retrievability of instances. This implies that if instances of a particular class or event are easily retrieved, it will appear to be more prevalent than an event with less retrievable instances. Put simply, if a subject is familiar, frequent or more probable, it will come to mind easily. Salience affects the retrievability of instances. A salient event or picture is likely to be more available and easy to recall than earlier events or less visible pictures. Thus, this research focusses on **making information salient and accessible to the consumer** so the information is noticeable and is likely to affect the perception of sugary beverages.

**In summary, when faced with complex situations and numerous choices, consumers rely on some heuristic principles, to make simple judgmental operations. Heuristics are essential to decision making but sometimes can lead to errors and bias. This research explores salience bias in product marketing and consumer perception based on the salient information.** The next section explores the literature and concept of salience in the specific context of food and beverage choices.

### **2.3 Salience and decision making**

According to our working definition, **salient information refers to information that is quick to notice, easy to comprehend and accessible to the consumer.** Salience directs one's attention to a specific area in the given scenario. The information contained in that specific portion gains more attention and weight in subsequent judgments by the consumers (Taylor and Thompson, 1982). The information towards which attention is drawn may influence the behaviour of individuals (Kahneman and Thaler, 2006). In other words, the behaviour may be influenced by salient information.

Research has shown that people are 'likely to take account of and remember stimuli that are novel, accessible and simple' (Cheung-Judge and Holbeche, 2015). For example, when consumers are presented with numerous stimuli, they filter out information based on what is easy to understand and accessible. This interplay of attention and choice has garnered much attention in social research (Gabaix, 2014; Gennaioli and Shleifer, 2010; Mullainathan, 2002 and Woodford, 2012). Research has shown that decision-makers do not take into account all the information available to them but overemphasize the salient information (Bordalo, Gennaioli, and Shleifer, 2012). For example, a study on alcohol consumption showed that making the tax on products salient rather than adding it at the till led to fall in sales. In addition, these salient taxes on posted prices reduced alcohol consumption (Chetty, Looney and Kroft, 2009).

Salience has worked well in field experiments too. When faced with a complex situation, where respondents were in a dilemma regarding multiattribute choices, an intervention was designed to reduce the choices to a heuristic decision by making one attribute salient. For example, providing the participants with salient information regarding the risk of possible infection, based on the age of one's partner, led to a considerable decrease in teen pregnancy rates (Dupas, 2011). Recent research has applied the concept of salience to decisions under risk and shown that decision makers overweight salient information. For example, the decision maker's attention is drawn to salient payoffs when buying lottery (Bordalo, Gennaioli, and Shleifer, 2012).

The effect of salience on capturing attention has been demonstrated in several different domains. For instance, marketing research has shown that as compared to less salient alternatives, visually salient (colourful and bright packaging) presentation of products on



supermarket shelves capture attention easily (Milosavljevic *et al.*, 2012). Moreover, salient attributes (such as product labels) attract more attention attributes low in salience (Bialkova and van Trijp, 2010; Graham, Orquin and Visschers, 2012; Orquin, Scholderer, and Jeppesen, 2012). Similar results have been demonstrated for salient website elements and visually salient advertisements (Navalpakkam, Kumar, Li, and Sivakumar, 2012; Lohse 1997). These studies have shown the effect of salient information on capturing the attention of the consumers.

Salience bias rather than any other bias in judgement and decision-making is investigated in this thesis because of two reasons. Firstly, salience incorporates concepts of accessibility, easy comprehension and quick to understand information. Secondly, salience is suitable for this context of fruit juices as the aim of this research is to direct the consumer's attention towards the high sugar content. It is envisaged that looking at the salient sugar information will reduce cognitive effort and help the consumer in looking beyond the halo of fruit juice

**In summary, salient information refers to information that is quick to notice, easy to comprehend and accessible to the consumer. Salience determines how visible or noticeable the information is. Salient information is likely to affect the thinking and actions of consumers.** The next section explores extant research on salience in the domain of food and beverages.

## **2.4 Salience in the context of food and beverage choices.**

Following the outline of the concept of salience, this section presents existing research on the application of salience in the marketing of food and beverages. The section further explains specific research on salience in the domain of nutritional labelling.

In the cluttered and chaotic advertising environment of today, when consumers are faced with myriad choices, attributes such as availability and variety of food may not be adequate to drive decisions. It may be helpful to increase the visibility of food at consumer touchpoints (points of purchase and point of consumption). For example, eye-tracking studies show that increasing the number of products on a shelf with the label turned out towards the customer, or placing familiar foods on top of the shelf (versus the

bottom) increases the chances that these brands are selected (Chandon *et al.*, 2009; Chandon and Wansink 2007). Furthermore, salient product features are more likely to influence the buyer's decision (Orquin *et al.*, 2012). Results from another study show a significant increase in sales of healthy foods in a fast food restaurant when the healthy foods were displayed in a manner in which they were clearly visible and noticeable in the menu (Downs Lowenstein and Wisdom, 2009). Similarly, in cafeterias, displaying healthy food at convenient locations and at eye level shelves also increases their consumption (Engell *et al.*, 1996; Hanks, Just and Wansink, 2013; Thorndike *et al.*, 2012).

Some other examples from extant literature on salience include a study in which consumers were asked if they would like to downsize their side dishes. This salience manipulation was found to be effective as a portion control measure. (Schwartz *et al.*, 2012). Furthermore, research has shown that salience of food also increases energy intake. In a field experiment, candies were consumed quicker when placed in clear jars (hence more salient) rather than in opaque jars (Painter, Wansink and Hieggelke, 2002). Some other studies have shown that larger advertisements (thus salient) attract more attention than smaller advertisements (Lohse, 1997).

Since this research aims to make the sugar information salient by presenting information on the package label, it is essential to look to extant research on food labelling. The next paragraph outlines specific research on salience in the domain of nutrition labelling.

Nutrition labelling has been increasingly discussed in the fields of marketing and policy (Baltas, 2001; Cowburn and Stockley, 2005; Drichoutis, Lazaridis and Nayga, 2006; Grunert and Wills, 2007; Seiders and Petty, 2004) as these labels account for informed consumer decision-making (Capacci *et al.*, 2012).

Grocery shopping seems like a mundane activity that is most likely always done in a rush. Research shows that consumers are often seeking to reduce the time spent on shopping for groceries and food items (Silayoyi and Speece, 2004). Studies have shown that consumers may be shopping under time pressure or shortage of time (Herrington and Capella, 1995). This time pressure can decrease consumer attention to the use of nutrition labels and packaging elements (Van Herpen and Trijp, 2011, Warde, 1999). Under time pressure, consumers are likely to skip and filter information on labels (Pieters & Warlop, 1999).

Moreover, research has also suggested that consumers may not be paying adequate attention to Nutrition Facts labels (Graham and Jeffery, 2011). The reasons why consumers do not make an effort to read or understand food labels is attributed to factors such as habit, time pressure, unclear labels, difficult to understand labels and excessive information on the food label (FSAI, 2009). On the other hand, although some consumers may understand some of the terms and make simple calculations and comparisons it is difficult for them to interpret the information correctly and accurately. Moreover, consumers may be unlikely to understand all of the information provided (Cowburn and Stockley, 2005). Recent research has found that information on labels, with multiple health claims and complex information, can be confusing for some consumers (British Heart Foundation, 2013). Moreover, research has also suggested that consumers find nutrition information presented in percentages difficult to interpret (Lobstein *et al.*, 2007; Mohan, Chandon, Riis, 2015).

Research has demonstrated that when making food choices, consumers are motivated by health considerations (Glanz *et al.*, 1998). The consumers motivated by health are likely to gauge the healthfulness of various food products by carefully looking at the nutrition information on labels (Hess *et al.*, 2012). However, consumers are sometimes unable to comprehend the labelling information (Jones and Richardson, 2006). In terms of nutritional labelling of food items, nutrition information labels convey health attributes of products and may help the consumer to make a choice and reach a consumption decision (Sonnenberg *et al.*, 2013; Temple and Fraser, 2014). Nutrition labels are the foundations of public policy interventions in food (Hawkes *et al.*, 2015). Nutrition labels are perceived as highly credible and are used to guide food selections (Campos, Doxey and Hammond, 2011), especially when a food's healthfulness is ambiguous (Graham and Jeffery, 2012).

Although consumers are interested in nutrition information (Grunert and Wills, 2007), there is a wide discrepancy between reported use and actual use of the nutrition information (Cowburn and Stockley, 2005; Gorton *et al.*, 2009; Grunert *et al.*, 2010).

Recent studies have demonstrated that the time it takes to fix the gaze on a nutritional label is inversely proportional to visual salience (Orquin *et al.*, 2014) and attention capture (Orquin, 2014; Orquin and Loose, 2014). This implies that salient information is likely to be noticed quicker and more frequently than less salient information. A way to

alter the visual salience of a product is to change the colour, contrast or orientation of the object (Itti *et al.*, 1998). Visual salience can also be manipulated by changing the anchor lines on the product label (Goldberg, Probart and Zak, 1999). Research studies support the finding that salient labels may lead consumers towards healthier, goal-directed decisions (Enax, Kajbich and Weber, 2015). Table 2.1 on the following page presents some of the studies that apply salience in the context of nutrition labels.

<b>Table 2-2. Salience in the context of nutritional labels</b>	
<b>Research</b>	<b>Findings</b>
Itti <i>et al.</i> , 1998	Changing the colour, contrast or orientation of an object can manipulate visual salience.
Goldberg <i>et al.</i> , 1999	Visual salience can be manipulated by altering anchor lines on the product label.
Goldberg <i>et al.</i> , 1999	Information is quicker to find at the top or bottom of a label than at the centre of the label.
Wedel and Pieters, 2006	An increase in the surface size of the label can make it more salient. Pictures/colours improve noticeability.
Jones and Richardson, 2007	Traffic light system in labelling (red, green, yellow) can draw attention to relevant nutrients
Borgmeier and Westenhoefer, 2009	Consumers understand colour coded labels better than monochromatic labels. Multiple traffic lights are perceived well.
Visschers <i>et al.</i> , 2010	Package design affects nutrition information search. Visual clutter lowers attention to nutrition labels.
Orquin, Scholderer and Jeppesen, 2012; Bialkova and van Trijp, 2011	Salient attributes ( product labels) attract more attention than attributes with low salience.
Graham and Jeffery, 2011	Location of the label determines what the consumer views.
Bialkova and van Trijp, 2011; Orquin and Scholderer, 2011	The easier nutrition labels are to understand and comprehend, the more attention they garner. Consumers motivated by health pay more attention to nutrition information
Orquin <i>et al.</i> , 2012a	Gaze fixation is inversely proportional to visual salience
Orquin <i>et al.</i> , 2012b	Salient nutrition labels are likely to appear frequent and seen quicker than less salient labels

Although the majority of prepacked food has to exhibit mandatory nutritional labelling (DOH, 2013), consumers are often confused between the various claims (nutrient, content, health claims). There have been calls by researchers for better legislation, so that information and messages on products are honest and easy to understand (Nocella & Kennedy, 2012).

The aforementioned studies show that making products and information salient makes the products stand out and consequently chosen. Since consumption can be predicted by how consumers evaluate the product (Trudel *et al.*, 2015), we propose that visually salient labels can serve as inferential cues for decision-making. In the context of the research question 1, this study proposes that making sugar information salient and presenting it in an easy to understand format will lead consumers to see the actual sugar content and subsequently lower the health perception and appeal of the sugary beverage. Thus, salient sugar information may lead the consumers to look beyond health halos of fruit juices.

**In summary, the concept of salience has been used widely in the domain of food advertising and marketing. Research has shown that salient information on food labels can alter consumption decisions. More specifically, visually salient labels and easy to understand labels are effective in nudging consumers towards informed decisions.**

## **2.5 Hypotheses for experiment 1**

Having reviewed the research on salience in the field of nutritional labelling and decision-making, a set of hypotheses are proposed.

To remind the reader, salient and easy to understand information can serve as an inferential cue for product perception and decision-making. This is in line with studies on judgement under uncertainty (Tversky and Kahneman, 1974) and visual salience (See table 2-1). Research emphasises that a general ‘law of least effort’ applies to mental and physical exertion. This law asserts that people are likely to choose the least effortful and least demanding way to achieve a goal (Kahneman, 2011). This research focusses on applying salience to reduce the effort in reading and understanding the sugar content of beverages. This is achieved by making the sugar content easy to comprehend and salient so that consumers can make healthier choices effortlessly.

In line with our definition of salience, a bottle of fruit juice exhibiting salient sugar information is designed for this experiment. Four different formats are designed to convey the sugar content information on the labels of the fruit juice packages. These products include cookies, candies, sugar cube and a teaspoon of sugar. Simple formats are chosen to convey the sugar content information such as everyday products that most

consumers are likely to be familiar with. The labels are designed to be simple, visually salient (large images), easy to comprehend (sugar information in large numbers) and accessible (front of pack placement). A similar bottle but without any sugar information is also designed for this experiment (explained in detail in chapter 5). Overall, five different prototypes of the fruit juice are designed for the online survey.

After designing the fruit juice prototype and four different labels, it is decided to ask the respondent two questions regarding the beverage. These are

1. Healthiness of beverage
2. Appeal of beverage

The reasons for choosing healthiness and appeal as measures of perception of the beverage are outlined below.

### 1. Measure of health perception of beverage

Fruit juice is considered to be a healthy drink and recommended by physicians as ‘a source of vitamin C and an extra source of water’ (Heyman and Abrams, 2017). Healthiness is mentioned as one of the most important reasons behind food choices (Lappalainen, Kearney and Gibney, 1998). Research has shown that when asked to describe perceived healthiness of food products, consumers emphasize the importance of health effects, nutrients and presence of beneficial compounds (Roininen, Lahteenmaki and Tuorila, 2000). Health is one of the most important food choice factors (Rescott *et al.*, 2002). Based on these demands of consumers to obtain healthy food, beverages like fruit juice are marketed as a healthy and natural source of vitamins. Fruit juice manufacturers emphasise natural sourcing along with functional and health benefits, thus leading consumers to perceive fruit juices as healthy (EFJA, 2016). Based on the marketing information, consumers may often assume that juice has health benefits and may be reluctant to associate fruit juice with other sugary beverages (Boling *et al.*, 2009).

To remind the reader, fruit juices have high amounts of natural sugar and excessive consumption is harmful to health (Shefferly, Scharf and DeBouer, 2015, Gill and Sattar, 2014; Lustig, 2012). This research is aimed at making consumers look beyond the health halos of these sugary beverages and alter the healthiness perception of the beverage. Based on the research that fruit juices are perceived as healthy, the researcher formulated

the first question for the online survey ‘**In my opinion this drink is healthy**’ to be administered on a 7-point Likert scale. This scale was presented after the participants were shown a visual of the beverage. The hypothesis related to the health perception beverage is presented below.

**H1a: Salient sugar information on the label will decrease healthiness perception of sugary beverage.**

## 2. Measure of the appeal of beverage

Perception of food products affected by many factors such as taste, odour, sensory appeal, food label, the front of pack images, advertising, personal memories, price, health benefits, brand etc. (Kronl and Lau, 1978). Since this study was based online, and sensory attributes such as taste and odour could not be measured, it was decided to measure the overall visual appeal of the beverage. Sensory attributes of products determine their perception and acceptance by consumers (Imran, 1999). Research has shown that colour and appearance can affect the perception of flavour and acceptability of the food (Hutchings, 1994; Kostyla and Clydesdale, 1978). Moreover, visual images have an impact on eating behaviours (Spence *et al.*, 2016). Research has also demonstrated that appeal of food is considered one of the most important choice factors in evaluating consumer food choices (Lindeman and Vaananen, 2000; Milosevic *et al.*, 2012, Onwezen and Bartels, 2011). Furthermore, healthy diets and healthy food are appealing to consumers (Bugge, 2015).

Based on the research that visual appeal influences the perception of the product and healthy foods are appealing to consumers, the researcher formulated the second question for the online survey ‘**In my opinion this drink is appealing**’, to be administered on a 7 point Likert scale. This scale was presented after the participants were shown a visual of the beverage. The hypothesis related to appeal of beverage is presented below.

**H1b: Salient sugar information on the label will decrease the appeal of sugary beverage.**

## **2.6 Conclusion**

This chapter provided an overview of salience and consumer perception. First, it examined existing studies that apply the concept of salience. Second, the chapter



provided a brief overview of the concept of salience. It was suggested that judgment under uncertainty often rests on simplifying heuristic principles or cognitive shortcuts. Third, the chapter discussed the role of salience in the context of food and beverage perception and consumption. The chapter concluded with a presentation of the research hypotheses.

**Interestingly, the literature review showed that although some research on visual salience is targeted on food, research is lacking in the field of beverages. More specifically there is no research on sweet beverages with health halos, that lead to unintended overconsumption.** This thesis seeks to understand the role of salience and goal activation in affecting consumer perception of sugary beverages and related behavioural outcomes. Having explored the extant literature on salience, the next chapter will proceed to address the topic of goal pursuit and goal activation.

# CHAPTER 3. CHOICES UNDER DIFFERENT MOTIVATIONAL CONDITIONS

## 3.1 Introduction

This chapter outlines the literature related to goal activation. Section 3.1 provides an introduction and outlines a structure of the chapter. Section 3.2 explains the role of environmental cues in activating and pursuing goals. Section 3.3 provides a brief overview of the concept of automatic goal pursuit and goal priming. Next, this section presents recent criticisms of priming research. Section 3.4 discusses the literature on goal activation with a specific focus on food and beverage choices. Section 3.5 presents the hypotheses for pilot study 2. In Section 3.6, the role of enjoyment/ responsibility motivation in the context of food and beverage is explored. Section 3.7 presents the research hypotheses for pilot study 3. Finally, Section 3.6 concludes the present chapter.

To guide the reader, the research framework, first presented in Chapter 1, is represented in Figure 2-1 below, which highlights the relevant areas of the thesis structure related to this chapter.

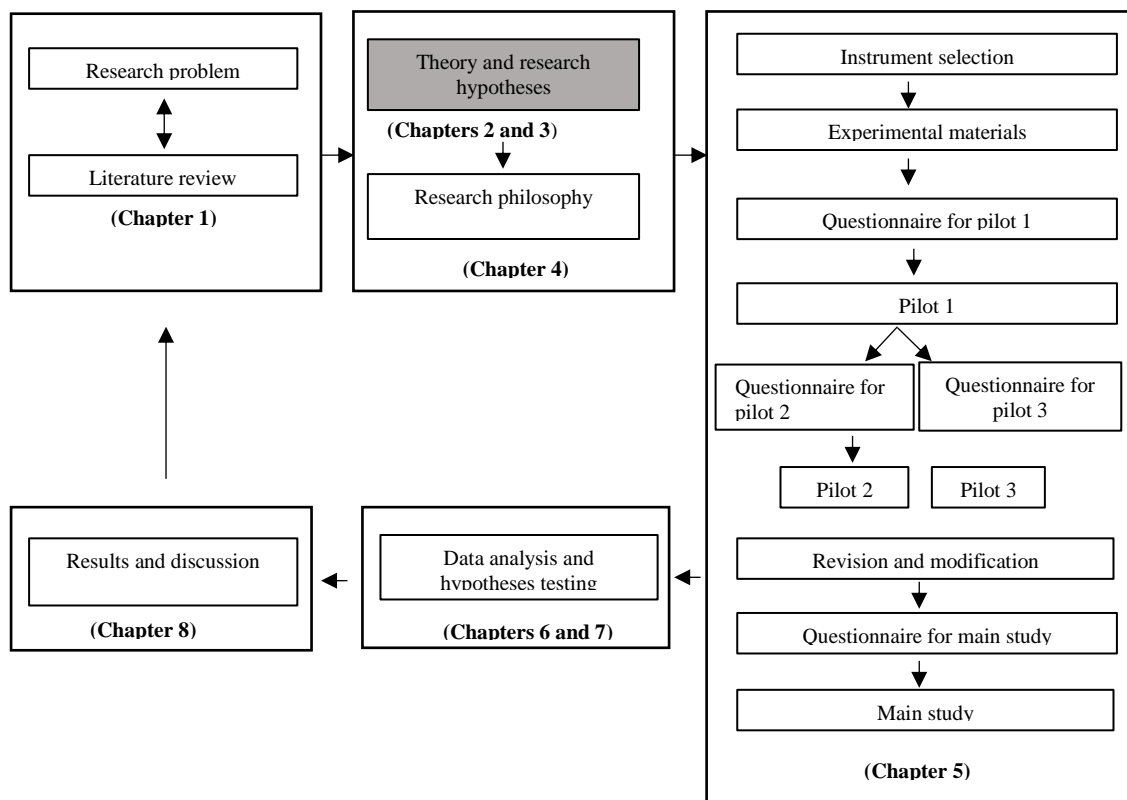


Figure 3-1: Framework for the research design (Highlighted areas are discussed in this chapter).

### **3.2 An overview of goal activation**

**The activation of goals in people's minds by incidental exposure to stimuli in the surroundings is known as goal activation.** Goal activation assumes that 'goals are mentally represented as desired behaviours or outcomes' (Gollwitzer and Moskowitz, 1996). The concept that behaviour is directed by goals is supported by different models and theories of human behaviour (e.g., Bandura, 1986; Ryan and Deci, 1985; Latham, and Locke 1990). In most of these models, the activation and pursuit of goals are assumed to be governed by the conscious mind. However, experimental research in the past two decades has focussed on goal-directed behaviour under unconscious control (Custers and Aarts, 2010). Researchers in this domain support that all behaviours start and unfold in the unconscious (Bargh, 1997; Bargh and Williams, 2006; Libet, 1985). Goals can be pursued by conscious intention or unintentionally in the non-conscious mind.

In order to understand the origin and idea of automaticity in goal pursuit, we need to step back in time to trace the origin of this concept. This section provides a brief overview of the early theories in psychology that led to the identification of the concept of automatic or non-conscious goal pursuit.

#### **A brief timeline that led to the identification of goal pursuit.**

Beginning with the theory of New Look (Bruner and Postman, 1949), perception research supported the idea of motivational and preconscious influences in the perception of environmental stimuli. However, this theory did not find many supporters in mainstream psychology, as 1950s psychology was not ready to identify preconscious influences (Erdelyi, 1974). The theory of attention allocation (Broadbent, 1957) made the idea of early motivational screening of environmental stimuli seemingly probable. This was followed by the era of cognitive revolution when experimental evidence of preconscious perceptual analysis was reviewed (Neisser, 1967). Henceforth, automatic influences on perception gained acceptance in psychology. Table 3-1 outlines the major perspectives of twentieth-century psychology regarding the debate on whether the behaviour is controlled by conscious, nonconscious or the external environment.

**Table 3-1. Major perspectives of 20th-century psychology - ‘Is behaviour controlled by conscious, unconscious or external environment?’**

<b>Theory</b>	<b>Perspective</b>
Early behaviourist theory (e.g., Skinner, 1938; Watson, 1913)	Behaviour is beyond conscious choice but is controlled by the external environment.
Bruner and Postman, 1949	Perceptual defence involves motivational influences on the initial perception and awareness of environmental stimuli.
Self-theory Rogers, 1951; Humanist movement (Kelly, 1955; Rotter, 1954, 1960).	Behaviour is adapted to the external environment consciously. The self is the mediator between environment and the response.
Theory of attention allocation (Broadbent, 1957)	This theory of attention allocation made the idea of early motivational screening of environmental stimuli seemingly probable.
Neisser, 1967	‘Problem of the executive,’ in which the flexible choice and selection processes are described as a homunculus or ‘little person in the head’ (Neisser, 1967). In this era of cognitive revolution, the idea of unconscious influences on perception gained popularity
Chaiken and Trope, 1999	Heuristic System Model of information processing. Dual process models state that behaviour is influenced by conscious and automatic processes simultaneously.

Social cognition studies demonstrated that the outcome of information processing experiments varied according to the particular tasks assigned to the participants (Hamilton, Katz, and Leirer, 1980). Thereafter, the focus shifted to task goals. (Anderson and Pichert, 1978; Srull 1986). By the 1990s it was widely accepted that goals were

represented mentally just like other social stimuli (Bargh, 1990; Kruglanski, 1996). This era marked the recognition of automatic motivation. It was automatic, as it was not driven by conscious choice (Bargh, 1994; Gollwitzer and Bargh, 1996). Although contemporary psychology accepts both conscious and automatic or environmentally triggered processes (Gollwitzer and Bargh, 1996), some criticisms of goal activation and priming have surfaced recently. These criticisms will be discussed in the next section (Section 3.3).

Automatic goal pursuit assumes that goals can be pursued in the absence of conscious awareness. An important foundation for this assumption is the research that humans establish associations between the outcomes and the motor programs that produce the outcome (Hommel, Müssele, Aschersleben, and Prinz, 2001; Jeannerod, 2001; Prinz, 1997). The goal and actions that aid goal pursuit is assumed to be parts of knowledge structures. (Aarts and Dijksterhuis, 2000; Aarts and Dijksterhuis 2003; Bargh and Gollwitzer, 1994; Kruglanski *et al.*, 2002). For example, visiting a particular restaurant may be connected to meeting specific close friends or eating a special meal together. Thus, when activating or priming a goal, a single concept is not activated, rather a rich structure containing cognitive, affective and behavioural information is activated (Bargh, 2006). The automatic responses are developed when internal responses are paired frequently with external events (Schneider and Shiffrin, 1977). Initially, conscious choice generates the behaviour, but when the behaviour is enacted repeatedly, the conscious choice becomes a redundant step in the process. This concept falls in line with William James's book, principles of psychology, which states that '*any sequence of mental action which has been frequently repeated tends to perpetuate itself; so that we find ourselves automatically prompted to think, feel, or do what we have been before accustomed to think, feel, or do, under like circumstances, without any consciously formed purpose, or anticipation of results*' (James, 1890, p. 235).

**In summary, activating or priming a goal activates the cognitive, affective and behavioural information associated with that goal. To understand this concept better, it is imperative that the reader understands how goals can be pursued by activating related goals. To achieve this, the next chapter introduces goal pursuit and goal priming.**

### **3.3 Goal pursuit and goal priming**

Having introduced the concept of goal activation, this section proceeds to explore the automotive model of goal pursuit and presents literature on priming along with recent criticisms of priming.

#### **Automotive model of goal pursuit**

The automotive model assumes that goals are mental representations that can be automatically activated by features in the environment. The theory further assumes that once activated, the goals operate like consciously and intentionally activated goals (Bargh, 1990; Gollwitzer and Bargh, 1996; Kruglanski, 1996).

Research demonstrates that social representations such as trait concepts, attitudes and stereotypes can be activated automatically. For example, features of observed social behaviours corresponding to a particular trait such as honesty or aggressiveness (Uleman, Newman, and Moskowitz, 1996), easily identifiable physical features for stereotypes and presence of an object in the environment (Fazio, 1986). Similar studies were based on the concept that automatic associations are formed between various representations that makes them consistently active in the memory simultaneously. Put simply, automatic associations are formed between environmental features (e.g., attitude objects, or common situations and settings) and other representations (e.g., evaluations or stereotypes, respectively) and these associations are consistently active in memory simultaneously (Hebb, 1948).

Similarly, if goals are pursued consistently and repetitively in certain contexts, it is likely that goal representations will be activated automatically by exposure to these contexts. (Chartrand and Bargh, cited in Elliot and Dwecke, 2007). For example, if a given individual always eats healthy food at a particular friend's house, then the goal of healthy eating is likely to be activated in the presence of that friend. The automotive model predicts that a goal that is activated automatically or consciously would have similar effects on behaviour and thought. The next section presents research on how goals are primed, a process known as goal priming.

## **Goal Priming**

Priming refers to the activation of knowledge structures by contexts in the present situation (Bargh, Chen and Burrows, 1996). More specifically, goal priming refers to the activation of a goal by the presence of cues in the environment. The cues affect information processing and behaviour and lead the perceiver to pursue the primed goal (Custers and Aarts, 2010). This section presents research on how goals are primed outside conscious awareness. Furthermore, examples of indirect and direct goal priming are presented. This section shows that goal priming may also lead to increased motivation and effort.

To test whether goals could be activated automatically, researchers applied the priming or unrelated studies design (Bargh and Chartrand, 2000). In this design, the concept under study is first primed by causing the participant to think about it in some way that is unrelated to the focal task that comes next in the experiment. For example, to activate the concept of achievement, the subject might be exposed to synonyms of achievement or engage in a sentence construction task (Srull and Wyer, 1979). Research supports that this task may activate the primed concept without the participant realizing it (Higgins, Bargh, and Lombardi, 1985). This activated concept can influence the subsequent experiment without the participant being aware of it. Researchers (Chartrand and Bargh, 1996) used this paradigm to test if goal representations could be primed. Their findings suggested that goals could be primed, and produced the same outcomes as consciously pursued goals. Subsequent studies found similar effects with a variety of other goals. For example, priming achievement caused participants to score higher on verbal tasks (Bargh and Gollwitzer 1994; Bargh, Gollwitzer, Lee-Chai, Barndollar and Trötschel, 2001) and priming the goal of cooperation caused them to make more cooperative responses (Bargh *et al.*, 2001).

Further experimentation demonstrated that goal priming may lead to increased motivation and control. For example, participants persisted longer while solving puzzles and exhibited increased flexibility on the Wisconsin Card Sorting Task (Hassin, 2008), which is used to measure flexibility in cognitive processing (Miyake *et al.*, 2000). In another study, priming the concept of power caused participants to behave in

stereotypical ways (Bargh *et al.*, 1995; Chen, Lee-Chai and Bargh, 2001). In these experiments, the goal was primed directly by presenting synonyms of the primed concept.

Research has also shown that goals can be activated indirectly through their association with the primed situational features. Recent research has explored the role of cues in the social environment that are likely to motivate people to pursue specific goals. Through their associations with particular goals, these aspects indirectly prime or activate goal representations. For instance, research suggests that goals can be triggered when people observe and infer from the behaviour of others. This effect is termed *goal contagion* (Aarts, Gollwitzer, Hassin, 2004; Dijksterhuis and Aarts, 2007; Friedman *et al.*, 2010; Loersch *et al.*, 2008). Research has demonstrated that on observing the behaviour of others, participants in the study were motivated to perform the same behaviour (Aarts *et al.*, 2004). In this research, storytelling task is used in the main experiment. It is probable that participants infer behaviour from the story and automatically set and pursue similar goals (Chapter 6).

### **Recent criticisms of priming studies**

Recent criticisms of priming include studies that suggest that behavioural priming methods need further research before being considered as an established phenomenon (Doyen *et al.*, 2012). Questions have been raised regarding some of the priming effects. The reason for this criticism is that some studies were unable to replicate the results (Doyen, Klein, Pichon, & Cleeremans, 2012; Harris, Coburn, Rohrer, & Pashler, 2013; Shanks *et al.*, 2013). Researchers have expressed doubt about the reliability and existence of ‘social priming’ (Kahneman, 2012). Furthermore, researchers have also questioned the psychological plausibility of the processes by which priming occurs (Harris *et al.*, 2013).

However, despite some results not being replicated in the laboratory, the method is considered robust for being applied practically in real-world situations (Bargh, 2014). Researchers have suggested that priming effects must be expected to vary according to different populations and the experimental approaches employed. To expect invariance in all studies would mean denying the complexity of human behaviour (Cesario, 2014).



To address the criticisms in future research, it is suggested that firstly, researchers must communicate with great precision and provide evidence for all the assumptions and secondly, priming researchers must recognize and assess all the factors that are known to qualify the effects being studied (Molden, 2014). It is also essential that researchers replicate the effects and provide a reasonable effect size (Cesario, 2014).

**The automotive model is based on two tenets: that goal structures can be automatically activated, and these goals, once activated, produce the same effects as conscious goals. Research findings indicate that the mere activation of a goal representation is sufficient to motivate people to work on the primed goal without conscious thought and intent.**

### **3.4 Activation of self and significant-other goals**

Based on the aforementioned literature, that shows that goals or relational linkages can be triggered and pursued by situational features (Bargh, 1990; Kruglanski, 1996) this study aims to explore the effect of self and other motivations on food decision making. This research aims to present the respondents with self or significant-other primes in order to explore the effect of relational priming on the perception and choices of respondents.

#### ***Self***

Before we move on to explore the role of relationship partners in motivation, it is essential to define the terms ‘self’ and ‘significant other’. ‘In common discourse, the term self often refers to a warm sense or a warm feeling that something is about me’ (Oyserman, Elmore, Smith, 2012, p. 71). Self-concepts are formed of attitudes or judgements and are useful in understanding the world around us. Self-concept helps individuals to pay attention to desired goals (Oyserman & Markus, 1998). Researchers have identified numerous representations of the self. The earliest research (James 1890), distinguished between material, social, and spiritual selves. Self-awareness is regarded as the building block for the functioning of human society (Miller, 2007). Later, the self-discrepancy theory (Higgins, 1987) defined three basic domains of the self - the actual self, the ideal self and the ought self. The actual self represents the attributes a person actually possesses, the ideal self is the attributes and aspirations that a person would like to possess and the

ought self represents the attributes one believes one ought to possess such as duties, obligations, or responsibilities.

Research has also distinguished between private and public selves (Baumeister, 1986; Greenwald & Pratkanis, 1986; Tirandis 1999). This difference between the inner self, which is private, and the outer self, which is the self that is portrayed to others, has helped in understanding the different selves and the implications for emotion, behaviour and cognition. Further research has focussed on how culture influences the development of these selves. Studies have emphasized the differences in selves between consumers from eastern and western cultures (Markus and Kitayama 1991).

An individual's self-image and his interpretation of his own experiences are inherently linked to the characteristics of one's society (Halowell, 1955). It is possible for individuals to see themselves from varied perspectives. These perspectives include viewing oneself as an individual or part of a group or viewing oneself at the present moment or at a point in time in the future (Oyserman & Markus, 1998). Different aspects of identity may become salient at any moment in time (Hillenbrand and Money, 2015). Furthermore, at a point in time, whether people consider themselves individualistically or collectively depends on the immediate cue. People may be primed to think of either self-concept depending on the salient cues. For example, storytelling tasks regarding family or an exercise with different pronouns (me/us) showed that people behaved differently when primed with different self-concepts (Trafimow, Triandis, & Goto, 1991; Triandis, 1989; Kuhnén & Oyserman, 2002; Oyserman, Elmore and Smith, 2012).

### **Significant others**

As the name suggests, a significant other is someone who is extremely consequential and important in a person's life and on whom the person is likely to depend for emotional support (Anderson, Glassman and Gold, 1998, Higgins et. al., 1995). Research has shown that similar to self-representations, significant-other representations are organized in the memory (Markus, 1977). Since the reference to a familiar concept is likely to enhance memory (Bower & Gilligan, 1979; Keenan & Bail let. 1980), significant other representations are likely to be employed as efficient memory structures. (Anderson and Cole, 1990). Research also suggests that the self is defined partly in relation to significant others (e.g., Andersen *et al.*, 1997; Aron, Aron, Tudor, & Nelson, 1991; Baldwin, 1992;

Hinkley & Andersen, 1996; Markus & Cross, 1990). Research has shown people's identities or self-concepts motivate them to take action toward their goals (Oyserman, 2009a, 2009b, 2015). This implies that consumers can be primed to think of themselves or significant others depending on the presented situational cue.

The presence of a significant other can serve as a situational trigger for goal pursuit. Research found that participants behave differently when primed with the concept of a family member or friend (Fitzsimons and Bargh, 2003; Kraus and Chen, 2009; Shah, 2003). In a study among undergraduate students (Fitzsimons and Bargh, 2003), priming the participants with their parents' names triggered the motivation for achievement, and priming with names of close friends primed helpful behaviour.

In a series of experiments, these goal-priming effects have been replicated and extended to represent social stereotypes (Aarts *et al.*, 2005; Custers *et al.*, 2008; Moskowitz *et al.*, 1999). For instance, people automatically pursue stereotypical roles when primed by group goals. Furthermore, research has shown that that people are likely to exhibit behaviour that fits their identities (Oyserman, 2008). For example, a participant may behave differently based on participant's parental or professional identity that is primed at the given moment. In the main experiment in this research, the cueing intervention specifically primes the concept of family members and the participants. It is probable that the mention of family members may lead participants to pursue varied goals and to behave differently.

**Research has demonstrated that relationship partners play a powerful and strong role in affecting individual's interpersonal motivations (Fitzsimons and Bargh, 2003). Representations of significant others are stored in memory and are connected with the self in memory via significant-other or relational linkages. Furthermore, these relational linkages can be automatically triggered and pursued by cues and situations in the environment (Bargh, 1990; Kruglanski, 1996). Based on the aforementioned research, this study aims to explore the effect of self and other motivations on food decision making.**

### **Some examples of self-other research and decision-making**

As discussed previously, goals are stored in the memory as mental representations and are capable of being activated (Bargh, 1990; Kruglanski, 1996). In the presence of appropriate stimuli, the links between the stimuli and the mental representation are capable of being activated. In the same way, since goals are mental representations, they can be activated by spreading activation or by a direct link to a relevant stimulus (Bargh, 1990). The links are formed over a period of time and through the experiences of the individual. When a goal is chosen in a given situation consistently, it leads to the formation of an associative link between the situation and the goal. Over a period, the association becomes so strong that the activation of related structures automatically activates the goals in a person's mind.

These mental representations are addressed as relational schemas. The relational schemas are formed of self-schema and other schema. The self-schema contains information about self and other schema contains information about significant others (Baldwin, 1992; Planalp, 1987). Recent research demonstrates that priming the concept of relationship partners is likely to influence behaviour. Research has shown that priming individuals to think of relationship partners, influenced the behaviour of individuals by activating that particular partner's goals and expectations regarding the individual's behaviour (Shah *et al.*, 2003). For example, on being reminded of someone who would want the participant to perform well, participants performed better on that test. Research has further shown that not just the physical presence but only the psychological presence of relationship partners is sufficient to automatically trigger and pursue interpersonal goals (Fitzsimons and Bargh, 2003).

Research shows that ongoing relationships are associated with the goals and desires of individuals. Relationship partners elicit motivations in individuals. These motivations influence people's perception and behaviour (Fitzsimons and Bargh, 2003). Furthermore, research suggests that in the cognitive representation of significant others, interpersonal goals exist as essential features (Miller & Read, 1991; Shah, Kruglanski, & Friedman, 2003). These 'goals—as cognitive constructs—are constituent components of the mental representations of relationship partners and are thus activated whenever the relational representation is activated' (Fitzsimons and Bargh, 2003, p. 148). Researchers have

argued that ‘the mere presence of a partner may activate goal-based structures that are unique to a particular relationship’ (Miller and Read 1991, p. 77). Furthermore, it has been demonstrated that goals can also be activated in the physical absence of significant others. These activated goals influence the perception and behaviour of individuals outside their conscious awareness (Bargh *et al.*, 2001; Chartrand & Bargh, 1996; Fitzsimons and Bargh, 2003). For example, studies have shown that participants performed better when exposed subliminally to a familiar name who would want them to do well on a test.

Some examples of Self- other priming research studies are mentioned in Table 5 on the following page.

**Table 3-2. Some examples of research on self- other priming**

Baldwin, 1994	Self-evaluative reactions are shaped by active relational schemas, which represent how one would be evaluated in a significant relationship.
Oyserman and Lee, 2008	The salience of individualism and collectivism is responsible for dynamic cross-national differences.
Shah, J., 2003	Representation of significant others may prime goals and the strength of priming effect may depend on the subject's closeness to the significant other.
Aarts <i>et al.</i> , 2005	Priming social groups causes individuals to pursue stereotypical goals
Shah J, 2003	Representations of significant others may automatically influence how goals are construed.
Shah and Fitzsimons, 2008	Significant others can be instrumental in one's progress towards active goals.
Kraus and Chen, 2009	Self-verification goals typically pursued with significant others are automatically activated in the presence of that significant other.
Gabriel <i>et al.</i> 2007	The relationship between significant others and self-confidence is moderated by the level of relational construal.
Horberg and Chen, 2010	Activating the mental representation of a significant other leads participants to stake their self-esteem in domains in which the significant other wants them to excel.
Morrison <i>et al.</i> , 2007	The presence of significant others can automatically activate a variety of goals, including goals that significant others have for an individual and the individual's personal goals that are associated with the significant others.
Linardatos and Lyndon, 2009	Participants with a highly relational self-construal exhibit an increase in kind behaviour following a relationship reminder
Chen and Anderson, 1999	Mental representations of significant others are connected with the self in memory via significant-other or relational linkage. Transference can be understood in terms of the activation and application of these stored representations to new others in social perception.
Anderson and Chen, 2002	Knowledge about the self is linked with knowledge about significant others.

### **Relational goal priming in the context of food and beverages**

The area of the effect of relational goal priming on food and beverages is largely unexplored. The studies in the food and beverage sector have mainly focussed on presenting situational cues and health cues for better consumption choices. Other studies have focussed on the eating patterns of individuals in presence and absence of others. Most research in this domain is covered under the social norms theory.

### **3.5 Hypotheses for experiment 2**

Bringing together research on self-other motivation and goal activation in the field of nutritional labelling and decision making, a set of hypotheses are proposed. This research focusses on studying self-other motivation and goal priming effects on understanding the perception of beverages. This is achieved by priming the participants to think of self or significant others and testing whether their perception of the sugar information label differs. Drawing on these studies leads to the hypotheses that self- other motivations can moderate the impact of sugar information label on consumer perception. |

More specifically, this research proposes that priming consumers to think of significant others may prime responsibility and in turn is likely to increase the impact of sugar information on consumer perception of healthiness and appeal. The hypotheses for pilot study 2 are presented below.

**H2a Respondents primed to think of significant others will perceive the beverage with salient sugar information less healthy than respondents primed to think of themselves.**

**H2b Respondents primed to think of significant others will perceive the beverage with salient sugar information less appealing than respondents primed to think of themselves.**

### **3.6 Activation of enjoyment and responsibility goals**

In pilot study 2, goals of self/other were primed. Following on from pilot study 2, the researcher proposed that other primes closely associated with self/ other goals may lead to different perception and choices in participants. Literature suggests that there may be a link between self-other goals and motivations of people (Aaker and Lee, 2001, Cross *et al.*, 2011, Markus and Kitayama, 1991; Oliver, 1989, Singelis, 1994; Triandis, 1989). Research has shown that participants primed to think of significant others may be likely to be motivated to be responsible and participants primed to think of themselves may be likely to be motivated to pursue pleasure-seeking goals (Oliver, 1989; Zhang and Shrum, 2009). Based on these findings, it was decided to test if other primes such as enjoyment/responsibility would lead participants to make different choices. The study went on to explore whether priming consumers to think of enjoyment/responsibility may prime the thought of self/significant others and in turn, would impact consumer perception of the beverages.

#### **Reasons for choosing enjoyment and responsibility as variables in the research**

To explain how the researcher selected enjoyment and responsibility motivations, it is essential to briefly look at the literature on self and motivation.

Research has confirmed that multiple selves are present in the memory of individuals (Baumeister, 2011). These selves (parent self, professional self etc.) are presented according to different situations (Kihlstrom and Cantor 1984). It is notable that, depending on situational salient cues at a given time, one or more of these selves becomes activated in the memory for that moment in time (Aaker 1999; Wyer and Gordon 1982). Research has also shown that the 'self is a malleable construct' (Aaker, 1999). Individuals are likely to be affected by situations, environment and social roles and have a need for self-presentation (Markus and Kunda 1986; Schlenker 1981; Tetlock and Manstead 1985).

These multiple representations of the self include material, social, and spiritual selves (William James, 1890) private and public selves (Baumeister, 1986; Greenwald & Pratkanis, 1984) private, public and collective selves (Triandis 1989). Studies further moved on to determine the role of culture in shaping the development and expression of particular selves (Greenwald & Pratkanis, 1984). Later, the research explored the differences between individualistic and collectivistic selves in various cultures. While



individualists seek independence, collectivists seek to fit into social roles and cultures (Markus and Kitayama. 1991). The word ‘self-construal’ depicts the ways that different cultures define and make meaning of the self (Markus and Kitayama. 1991). Independent (IndSC) and Interdependent self-construals (IntSC) are two of most researched self-construals.

Individuals with independent self-construal look at self as autonomous beings. These individuals place a high emphasis on one’s uniqueness and distinctiveness from others. On the contrary, individuals with interdependent construal look at self as being interconnected with others. These individuals demonstrate the ability to fit into groups and interpersonal relationships are very important to them. It has been argued that individuals possess both independent self-construal and interdependent self-construal (Markus and Kitayama, 1991; Singelis, 1994; Triandis, 1989). Priming techniques can make one or the other construal accessible at a given point in time (Cross *et al.*, 2011).

Researchers have focused on the effect of self-construal on affect, thinking, and motivation (Markus and Kitayama, 1991). The present research focusses on implications on motivation. In line with the theory of self-construal, the individuals with an interdependent construal are likely to be motivated by socially oriented goals. These individuals give emphasis and importance to goals of relational others which can be aligned with the self goals. They are more likely to be motivated fulfil their roles and duties towards significant others (Cross *et al.*, 2011) such as being responsible. Furthermore, studies have also suggested that interdependent self-construal may lead to attributes such as responsibility and benevolence. (Howard, Gardner and Thompson 2007). **Based on this literature, that people with interdependent construal are more likely to be motivated to be responsible, it was decided to prime the respondents for responsibility.**

On the other hand, people with independent self-construal are motivated to be independent and autonomous (Markus and Kitayama, 1991). Studies have shown that independent self-construal is positively related to the importance of individuality and achievement. For these individuals, personal goals and desires are the primary sources of motivation. Furthermore, it has been shown independent SC primed participants take greater financial risk than interdependent participants who minimise risk (Hamilton and

Biehal, 2005. Mandel, 2003). Self-construal research in self-regulation and self-control has shown that participants with high independent construal are outperformed by those with high interdependent self-construal. Furthermore, individuals with an independent self-view are motivated by promotion-focused information rather than prevention focused information (Aaker and Lee, 2001). **Since pleasure is a promotion focused emotion (Oliver, 1989), and people with an independent self-construal are more likely to activate pleasure-seeking goals (Zhang and Shrum, 2009), it was decided to prime the respondents for enjoyment and pleasure.**

### **Goal activation and priming in the context of food and beverage choices.**

Having outlined the concept and origin of goal activation and priming, this section presents existing research on the application of these concepts in food and health domains. The section further provides a brief overview of some studies on automatic motivation research in the context of food choices and health behaviour change.

Goal priming effects have been studied in various spheres including the domain of food and beverage studies. Research has demonstrated that when participants were primed for the concept of drinking, the consumption of soda increased in thirsty participants (Veltkamp *et al.*, 2008). Similarly, when social drinkers were primed with socialising situations, thoughts about drinking alcohol were triggered (Sheeran *et al.*, 2005). In another study, thoughts of eating chips and enjoying with friends as well as the texture and taste of chips were triggered by just reading about chips or seeing chips (Papies, 2013). Research has also shown that the choice of healthy foods can be increased by exposing diet conscious participants to words related to diet, which is likely to activate concern regarding weight control (Fishbach *et al.*, 2003). Additionally, priming participant's desirable goals makes the pursuit of goals stronger by overcoming any interfering thoughts or temptations (Fishbach *et al.*, 2003; Shah *et al.*, 2002). Another study showed that participants who have goals of dieting consume fewer snacks when exposed to weight and diet-related words (Papies and Hamstra, 2010). This research, suggests health goals and consumption behaviours are likely to be activated by health-related cues in the environment (Papies, 2016).

External cues, which are unrelated to taste, texture, look and other sensory attributes include attributes such as size, shape, variety and portion size. These cues are capable of determining the amount of food consumed without the knowledge of the consumer (Wansink, 2006). Another example of an external cue is the behaviour of other people around the consumer. Studies have shown that consumers may automatically imitate the behaviour of others around them when making food choices and consuming food. (Johnston, 2002; Tanner *et al.*, 2008). Table 3-3 provides a brief overview of some studies on goal activation research in the context of food and beverages.

<b><u>Table 3-3. Some studies on goal activation research in food and health decisions</u></b>	
Federoff, Polivy and Herman, 1997; Jansen and van den Hout, 1991; Rogers and Hill, 1989	Consumption is increased when participants are exposed to sensory cues related to food.
Cornell, Rodin and Weingarten, 1989	Effect of external cues on food consumption.
Johnston, 2002; Tanner et al., 2008	Consumers automatically mimic others eating behaviours.
Fishbach <i>et al.</i> , 2003	Increased choice of healthy foods on hearing diet-related words.
Sheeran <i>et al.</i> , 2005	Socializing can trigger drinking alcohol.
Strahan, Spencer and Zanna, 2002; Winkielman, Berridge, and Wilbarger, 2005	Thirst related words and smiley faces increase beverage consumption.
Karremans, Stroebe, and Claus, 2006	More participants chose a beverage when primed with the brand name of a beverage that quenches thirst.
Wansink, 2006	Amount consumed can be automatically altered by exposure to external cues.
Lowe and Butryn, 2007	Hedonic hunger can be activated by exposure to food stimuli.
Veltkamp <i>et al.</i> , 2008	The concept of thirst and increased soda consumption.
Harris, Bargh, and Brownell, 2009	Cues in the environment determine the amount consumers eat.
Albarracin, Leeper, and Wang, 2009	Effect of priming on food consumption.
Papies and Hamstra, 2010	Triggering health oriented behaviour on seeing health related words.
Sheeran, 2011	Encouraging effects of health goal priming on health behaviours.
Papies, 2013	Thoughts of eating chips and enjoying with friends as well as the texture and taste of chips can be triggered by just reading about chips or seeing chips.
Bell, Meiselman, Pierson, and Reeve, 1994; Jacob, Gueguen, and Boulbry, 2010	Cues in the environment alter what consumers eat.
Hollands <i>et al.</i> , 2015	Effect of altering food packages and tableware size.

**In summary, the concept of goal priming and activation has been used widely in the domain of food decisions and health behaviour. Research has shown that priming goals can alter consumption decisions without the consumers' realization. More specifically, goal priming may be effective in nudging consumers towards better food choices and healthy behaviours.**

### **3.7 Hypotheses for pilot study 3.**

Bringing together research on automatic goal pursuit and goal priming in the field of nutritional labelling and decision making, a set of hypotheses are proposed.

To remind the reader, goals are capable of being activated outside conscious awareness. This is in line with the automatic model of nonconscious goal pursuit (Bargh, 1990) which assumes that goals can be pursued automatically on exposure to situations in which those goals have repetitively been pursued in the past. This research focusses on studying goal activation and goal priming effects on understanding appeal and health perception of beverages. This is achieved by priming the participants for enjoyment or responsibility and testing whether their perception of the sugar information label differs.

Drawing on these studies leads to the hypotheses that goal priming can alter the impact of sugar information label on consumer perception. More specifically, this research proposes that priming for enjoyment will reduce the impact of sugar information on consumer perception of healthiness and appeal of beverage while priming for responsibility will increase the impact of sugar information on consumer perception of healthiness and appeal.

**H3a: Respondents primed for responsibility will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment.**

**H3b: Respondents primed for responsibility will perceive the beverage with salient sugar information less appealing than respondents primed for enjoyment.**

### **3.8 Interaction effect – Hypotheses for the main experiment**

Since the context of this research is fruit juice, it was decided to test the effect of combined priming of concepts tested in previous pilots (salience and goal activation), in the context of food consumption (eating). For example, priming the participants for the enjoyment of food with significant others and priming another set of participants for the enjoyment of food oneself. Similarly, priming healthy eating with family members and healthy eating for oneself.

This research proposes that motivation of the respondent can influence the perception of the beverage. This research proposes that priming these concepts is likely to prime enjoyment and responsibility motivations in the minds of the participants and they are likely to perceive the salient information differently based on the goals activated in their minds. For example, a person motivated by enjoyment might perceive the same information differently than a person motivated to be responsible. Furthermore, participants motivated for enjoyment with family members might behave differently than participants motivated to enjoy on their own.

Drawing on this assumption leads to the hypotheses that goal priming can alter the perception of beverage and related behavioural outcomes. More specifically the research aims to explore the perception and behaviour of respondents primed for enjoyment/responsibility/self/other motivations in the context of food-related cues. The hypotheses are presented below.

**H4a: Respondents primed for responsibility (in the context of food) will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment.**

**H4b: Respondents primed for responsibility (in the context of food) will perceive the beverage with salient sugar information less appealing than respondents primed for enjoyment.**

**H4c: Respondents primed to think of significant others (in the context of food) will perceive the beverage with salient sugar information less healthy than respondents primed to think of themselves.**

**H4d: Respondents primed to think of significant others (in the context of food) will perceive the beverage with salient sugar information less appealing than respondents primed to think of themselves.**

**H5: The combined presentation of enjoyment/ responsibility priming and self/other priming is likely to affect the perception and appeal of the beverage (with salient sugar information).**

**H5a: Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of enjoying food with significant others.**

**H5b: Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of enjoying food with significant others.**

**H6a: Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating themselves.**

**H6b: Respondents primed to think of enjoying food themselves will perceive the beverage more appealing than respondents primed to think of responsible eating with significant others.**

**H7a: Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.**

**H7b: Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating with significant others.**

**H8a: Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating themselves.**

**H8b: Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating themselves.**

**H9a: Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.**

**H9b: Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating with significant others.**

**H10a: Respondents primed to think of eating food responsibly themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.**

**H10b: Respondents primed to think of eating food responsibly themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.**

**H11: Respondents primed for responsibility will be less likely to select the tsp label beverage for the lunch box than respondents primed for enjoyment or the control groups.**

**H12: Respondents primed for enjoyment will be more likely to select the tsp label beverage for the child's lunch box than respondents primed for responsibility.**

**H13: Respondents primed for enjoyment will give a higher health score to the beverage with salient sugar information, than respondents primed for responsibility.**

### **3.9 Conclusion**

This chapter presented an overview of literature on goal activation and goal priming. First, it examined existing studies in decision making that apply the concept of goal activation. Second, the chapter provided a brief overview of the beginnings of the concept of



nonconscious processes from a historical perspective. The section outlined that despite non-acceptance for a long time, contemporary psychology now accepts both conscious and nonconscious routes to decision making. Third, the chapter discussed that goals are capable of being activated outside conscious awareness. The next section discussed the research in the domain of food and health behaviours that apply the concept of nonconscious motivation. Next, the chapter presented the research hypotheses 2a and 2b. Fourth, the chapter provided a brief overview of self-other motivation and discussed studies of self-other motivations and their application in research studies. The next section emphasized that research is lacking in the domain of food and health behaviours that apply the concept of self- other motivation Next, the chapter presented the research hypotheses.

**Interestingly, the literature review showed that although some research on nonconscious motivation is targeted on food, research is lacking in the field of beverages. More specifically, there is no research on sugary beverages such as fruit juices. These beverages carry health halos that lead to unintended overconsumption.**

## **CHAPTER 4. RESEARCH PHILOSOPHY**

**Having presented an overview of the literature and having outlined the research problem and related hypotheses, this chapter explains the philosophical assumptions underpinning the present research. The justification for the selected methodology is provided by explaining the chosen philosophy. Section 4.1 presents an introduction to Chapter 4. Following on, Sections 4.2 and 4.3 present the ontology and epistemology. Sections 4.4 and 4.5, discuss the research approach and the methodology respectively. Section 4.6 describes the data collection method. Finally, Section 4.7 acknowledges the limitations of the selected research philosophy and the chapter concludes in section 4.8.**

### **4.1 Introduction**

Research philosophy relates to the development of new knowledge. The new knowledge aims to answer the research question or problem identified by the researcher. The chosen philosophy must justify the researcher's choices of methods and design. To achieve this, it is essential that the relationship between the theoretical and empirical viewpoints employed in the study are consistent (Easterby-Smith, Thorpe and Jackson, 2012). This relationship is based on the ontology and the epistemology selected in the research. The chapter will further proceed to explain the chosen methodology, followed by a discussion of the method of data collection and data analysis.

The research philosophy adopted is derived from the assumptions and views of the researcher. Importantly, the choice of research strategy affects the investigation of the research problem. Therefore, it is essential that the researcher is aware of the philosophical commitments (Johnson and Clark, 2006). The chosen philosophy is likely to be the way the researcher understands the knowledge and the process of development of the knowledge (Saunders, Lewis and Thornhill, 2009).

The chosen research philosophy defines the methodology, which in turn helps to identify the 'procedural frameworks' to be employed in the research (Remenyi *et al.*, 1998). The research questions, methods and findings are based on assumptions of reality that the research makes at the beginning of the research (Crotty, 1998). It is essential that the

researcher can justify the selection of the chosen research philosophy over other potential alternatives (Johnson and Clark, 2006).

The three fundamental guiding principles of social research are epistemology, ontology and methodology (Figure 1-4). These principles are set in a hierarchical order such that ontology constructs the logic of epistemology, which in turn structures the methodology of the research. The methodology then prescribes appropriate research methods and instruments. Since, epistemology, ontology and methodology are important elements that define the research inquiry, these elements must be the discussed adequately in social research (Popkewitz, Tabachnick & Zeichner, 1979).

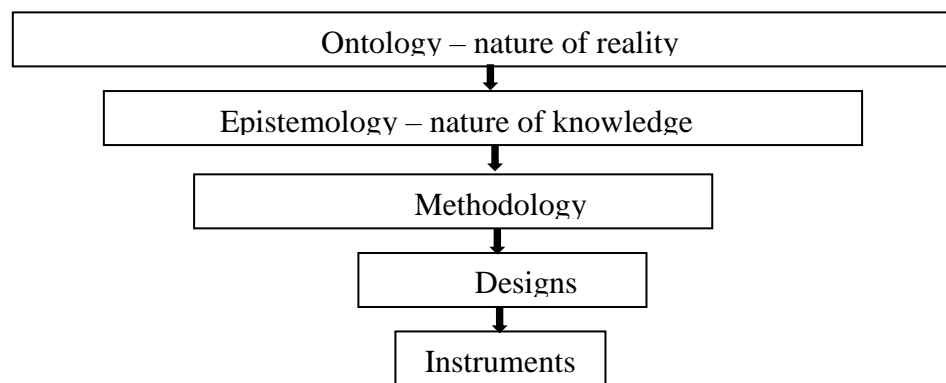


Figure 4-1. Principles of social research  
Source: Sarantakos, 2012

## 4.2 Ontology

Ontology is ‘the science or study of being’ (Blaikie, 1993). Ontology explains how objects in the world interact with each other. Social researchers identify issues and problems in the social world and then consider the ways in which the research question will be explored. The ontological assumptions are typically based on the core research problem being studied. Various ontological classifications have been proposed by researchers. While one approach suggests ten different philosophical paradigms (Blaikie, 1993) the other proposes a simpler approach of dichotomising (contrasting) stances. (Burrell and Morgan 1979). There is an ongoing debate on these classifications to gauge whether a dichotomous classification is sufficient to gauge the complex reality (Blaikie, 1993). In this thesis, the researcher has applied dichotomous classification (Burrell and Morgan 1979).

The ontological stance typically informs about the nature of reality, ‘whether ‘reality’ is a given ‘out there’ in the world, or the product of one’s mind’ (Burrell and Morgan 1979: p. 1). The two broad and contrasting positions in the ontology are objectivism and subjectivism. These two approaches are on opposite spectrums. These approaches are the basis for the ontology and epistemology of the research (Figure 1-5).

Figure 1-5: Representation of two mutually exclusive dimensions of philosophical assumptions.

(Adapted from Burrell and Morgan, 1979).

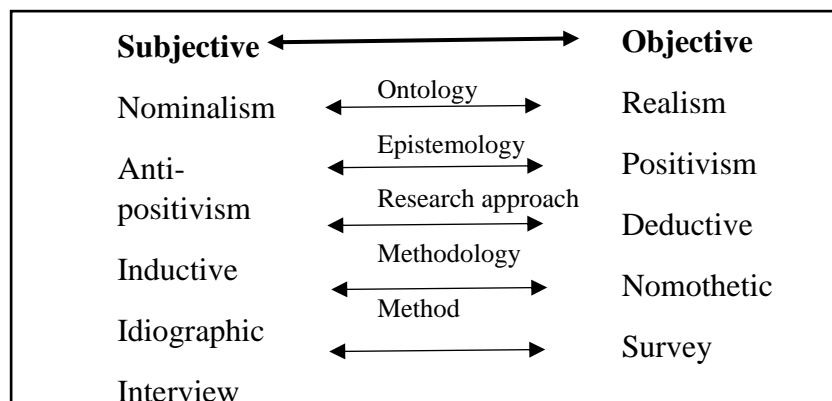


Table 4-1. Summary of ontology and epistemology

<b>Ontology of social science</b>	<b>Representationalism</b>	<b>Relativism</b>	<b>Nominalism</b>
Truth	...requires verification of predictions	...is determined through consensus	...depends on who establishes it
Facts	...are concrete	...depend on viewpoint	...are all human creations
<b>Epistemology of social science</b>	<b>Positivism</b>	<b>Relativism</b>	<b>Social Constructionism</b>

(Easterby-Smith *et al.* 2008)

Nominalism or constructionism is a stance under subjectivism (Saunders *et al.*, 2011; Creswell, 2013). Nominalism states that reality is formed by perceptions, actions and is a product of social processes (Neuman, 2003). Nominalists see themselves in the picture and assume that they are an essential part of the issue at hand or the problem. Usually, social interactions and dynamic social phenomena are explored by nominalists (Saunders *et al.*, 2011). In order to study social realities, nominalists usually employ qualitative research methodologies (Bassey, 1995; Cohen, Manion & Morrison, 2000).

In contrast, realism or objectivism is a stance that is developed from life sciences. Objectivism assumes that there is an independent reality (Neuman, 2003). It asserts that social phenomena cannot be influenced by the researcher, as it is independent of the researcher (Bryman and Bell, 2015). The philosophical basis of objectivism is that reality exists objectively, and can be discovered with the use of quantitative methodologies (Cohen, Manion & Morrison, 2000). Qualitative research methodologies are used by interpretative researchers to study social realities (Bassey, 1995; Cohen, Manion & Morrison, 2000).

In the present research, the researcher adopts the stance of a realist based on the objective of the study. It can be argued that the variables in this research are subjective rather than being objective (Saraeva, 2017) since, for instance, health and appeal are characterised as the consumers' perceptions of the beverage (which are typically 'subjective') rather than being tangible constructs. However, all research variables in this study are measured objectively, thus supporting an objective stance. In particular, despite the qualitative nature of the health (and appeal) of beverages, the existence of these attributes are quantified and measured in this study.

### **4.3 Epistemology**

It is critical that consistency is maintained in the relationship between data and theory, to ensure the quality of research in management (Easterby-Smith *et al.*, 2008). This relationship is guided by research paradigms, which are a set of beliefs that are formed from the basic ontological and epistemological stance of the researcher. The epistemological stance is required to be justified researchers. Epistemology is the 'theory or science of the method or grounds of knowledge' (Blaikie, 1993: p. 6). Epistemology

answers questions regarding how to understand the social world, the methods employed to gain knowledge and the ways to communicate this knowledge (Burrell and Morgan 1979).

**Table 4-2. Methodological implications for epistemologies**

<b>Social Science epistemologies</b>	<b>Positivism</b>	<b>Relativism</b>	<b>Social constructionism</b>
Aims	Discovery	Exposure	Invention
Starting Points	Hypotheses	Propositions	Meanings
Designs	Experiment	Triangulation	Reflexivity
Techniques	Measurement	Survey	Conversation
Analysis	Verification/falsification	Probability	Sense-making
Outcomes	Causality	Correlation	Understanding

*Easterby-Smith et al., (2008)*

In the field of management, epistemological assumptions are classified into two opposing views. In the dimension of objectivism, the researcher may be focussed on the facts that are responsible for the research problem. In this viewpoint, objects are real and are independent of the researcher. It is for this reason, that data is unlikely to be biased. Such research applies positivist epistemology to the development of knowledge. On the contrary, subjectivism leads to the adoption of antipositivist epistemology. In this viewpoint, researchers study phenomena which lack ‘external reality’ (Saunders *et al.*, 2011).

It is argued that the method applied by positivists is similar to methods used in natural and life sciences (Blaikie, 1993). In working with constructs that are observed and measured, the results can be generalisations, just like laws produced by natural scientists (Remenyi *et al.*, 1998).

These observations are likely to lead to the generation of valid data. Based on existing theories and literature, the researchers build a firm theoretical basis for the research. This

leads to the developing a research strategy followed by collection and analysis of data. Typically, the researcher develops a set of hypotheses to be tested. The positivist researcher is likely to pay attention to observations that can be quantified (Remenyi *et al.*, 1998).

A distinctive feature of positivistic research is that ‘the researcher is Independent of and neither affects nor is affected by the subject of the research’ (Remenyi *et al.*, 1998: p. 33). Positivistic research is implemented in a ‘value-free’ way (Saunders *et al.* 2011: p. 114). This implies that the subjects must be independent of each other, the researcher must be an external agent in data collection and the observations must be repeatable so that relationships between variables can be explained. (Burrell and Morgan, 1979; Saunders *et al.*, 2011).

Interestingly, it can be questioned if it is possible to separate the involvement, feelings and attitudes of the researcher. After all, the decision to pursue a positivistic approach is taken by the researcher. It is by this chosen approach the researcher seeks to investigate the problem, formulate research questions and seek suitable solutions. Hence, it is argued that the ‘decision to adopt a seemingly value-free perspective suggests the existence of a certain value position’ (Saunders *et al.*, 2011: p. 114).

Sitting on the opposite spectrum, the epistemology of interpretivism (anti- positivism) argues that the real world is very complex and social constructs must not be defined by specific laws and structures (Easterby-Smith *et al.*, 2012; Hughes and Sharrock, 1997; Saunders *et al.*, 2011). Humans are considered social actors in the anti positivism stance and considerable research is directed towards understanding the social roles of these actors. Usually, the main aim of researchers in this stance is to ‘enter the social world of research subjects and understand their world from their point of view’ (Saunders *et al.*, 2011: p. 116). Additionally, owing to the high involvement of the researchers, their personal interpretations and observations are an important part of the research process.

This thesis follows a positivistic epistemological stance. Based on a review of the extant literature, the study includes the development of testable hypotheses. The objective of this research is to explore the influence that salience and goal activation have on the perception of sugary beverages.

#### 4.4 Research Approach

Following on from the philosophical assumptions, the researchers can select the desired research approach. Research approaches can be broadly classified into inductive and deductive approaches based on the logic underlying them (Blaikie 1993). While theory is generated by the inductive approach, theory is tested in the deductive approach. The approaches are based on singular or general statements. All events of a specific type in any time are referred to as general statements (Blaikie, 1993). Deductive studies begin with general information and conclude at specific findings. Inductive studies start with singular statements and conclude with general findings. Thus, deduction fits in with the positivism stance and induction goes with the anti-positivistic stance.

The inductive approach is focused on underlying mechanisms and a close understanding of the research context. The very fact that the researcher is an inherent part of the research influences the interpretations of the findings (Saunders *et al.*, 2011).

The deductive or hypothetico-deductive approach is based on the research techniques used in life sciences (Blaikie, 1993). Firstly, the researchers define a problem that they wish to explore. The researchers then provides a robust theoretical justification for emphasising the research problem/question. This justification is accomplished by extensive literature review and studying theories in depth. Once the research question is defined, a set of hypotheses are developed and tested empirically to potentially answer the research question. (Chalmers, 1999).

It is essential that the deductive approach is aligned with certain distinctive features (Saunders *et al.*, 2011). These include 1) establishing causal relationships between variables which are presented in the research hypothesis later 2) collecting quantitative data to test the hypothesis, 3) employing controls to ensure the exclusion of any confounding factors in determining the proposed causal relationship, 4) ensuring validity and reliability by ensuring to provide a well-structured methodology and 5) holding on to the reductionism which implies that ‘problems as a whole are better understood if they are reduced to the simplest possible elements’ (Saunders *et al.*, 2011, p. 125).



The present research adopts a positivist stance and follows the deductive approach. The research is comprised of four phases:

- (1) The literature on salience and goal activation is reviewed. Following this literature review, research hypotheses are presented (Chapters 2, 3 and 4)
- (2) The research methodology is presented (Chapter 5)
- (3) The research design is presented and hypotheses are tested (Chapters 6 and 7)
- (4) Results and implications are presented (Chapters 8).

#### **4.5 Research methodology**

Once the researcher has accepted a particular epistemology and approach, he/she moves on to adopt a methodology. The selection of a research methodology depends on the experiences and views of the researcher as well as on the nature of the problem (Creswell, 2003). The methodology comprises of a set of guidelines principles and procedural guidelines (Marczyk, DeMatteo and Festinger, 2005; Sarantakos, 2005).

Before conducting a study, it is essential that the researchers address some methodological considerations (Easterby-Smith *et al.*, 2012). Distinctive methodologies are available to adopt depending on the philosophical stance of the researcher (Burrell and Morgan, 1979). The selected methodology provides a blueprint or an action plan to justify the choice of data collection method employed by the researcher (Crotty, 1998).

Methodology can be classified into 1) ideographic and 2) nomothetic categories. The idiographic method is adopted by nominalists and includes a collection of qualitative observations about the subject in question. This research explores background, history and other subjective knowledge. On the other hand, nomothetic method is adopted by realists and includes collecting quantifiable observations and gaining knowledge about reality. Derived by scientific methods, this method aims at proposing and testing hypotheses about reality (Remenyi *et al.*, 1998). Questions of method are addressed after answering questions of epistemology and ontology (Guba and Lincoln 1994).

In the literature review conducted in the present thesis, most studies use quantitative (nomothetic) methodologies, which involve statistical analysis. As a result, quantitative methodology is considered for this study.

In the positivist paradigm that consists of objectivism and empirical approach, it is essential that the employed research methodology is objective. This implies that the methodology must be detached from the researcher and must focus on answering general questions.

The research methodology is required to be objective in the positivist paradigm. This means that methodology should be focussed on measuring constructs and testing hypotheses based on general findings (Marczyk, DeMatteo and Festinger, 2005; Sarantakos, 2005). It is for this reason that experimental designs are employed for measurement of variables. In order for the results to be presented quantitatively, numerical data is collected (Neuman, 2003; Sarantakos, 2005). On the contrary, the research methodology is required to be qualitative in interpretivist paradigm. In contrast, qualitative methodology is underpinned by interpretivist epistemology and constructionist ontology. This implies that the results are based on the perception and experiences of the researcher (Merriman, 1998). Data is gathered by qualitative research techniques like case studies, interviews etc.

Experimental method is employed in this thesis. Variables are manipulated to explore causal relationships. Positivists contribute to knowledge by examining a consistent data set and generalising conclusions. (Easterby-Smith *et al.*, 2012).

An experiment is ‘a form of experience of natural facts that occurs following deliberate human intervention to produce change; as such it distinguishes itself from the form of experience involving the observation of facts in their natural settings’ (Corbetta, 2003: p. 94). Experiments are designed to study the causal relationships between constructs and are aimed to find the effect of changing one variable on other variables (Saunders *et al.*, 2011). Subjects are randomly allocated to at least two groups. These groups are known as experimental and control groups. The former is exposed to experimental manipulation while the latter is not. The differences observed between the two groups are attributed to

the independent variable (Bryman, 1988). The independent variable is manipulated and may cause changes in the dependent variable.

‘Social research aims to develop causal propositions supported by data and logic’ (Davis, 1985, p10). ‘One of the chief goals of the scientist, social or other, is to explain why things are the way they are. Typically, we do that by specifying the causes for the way things are: some things are caused by other things (Babbie, 1979, p. 423). To explore this causal effect or causality, manipulation of an independent variable is necessary. Manipulations are creations of ‘different levels of the independent variables’ (Sekaran, 2010, p. 145). Furthermore, to explore the causal relationship, researchers require a group of participants not subject to manipulations. Therefore, manipulation of the independent variable and control of third variables are ... the two features of experimentation’ (Corbetta, 2003, p. 93).

Hence, experimental research can be summarised into a few stages that include randomly assigning the participants into various groups according to the conditions, manipulating the variables, followed by measuring the effects, while controlling all other variables (Robson and McCartan, 2016)

The present research explores the effect of salience and goal activation on consumer perception of beverages. **This research involves manipulation of variables (salience and goal activation) to find the relationship between these variables and to measure their effect of the perception of sugary beverages. This research progresses with an experimental design.**

#### **4.6 Research method**

Questionnaire is the survey instrument that is used in the thesis. Questionnaires allow the researcher to collect data on respondents’ behavioural responses and to assess how respondents perceived the treatment. The questionnaires in this thesis were self-administered.

As the name suggests, a self-administrated questionnaire is a ‘data collection technique in which each respondent reads and answers the same set of questions in a predetermined

order without an interviewer being present' (Saunders *et al.*, 2011, p. 600). The advantage of employing self-administrated questionnaires is that participants answer questions at their convenience without any interference or influence of the researcher.

The present research seeks to understand the perception of sugary beverages under different conditions. When phenomenon cannot be observed easily, questionnaires are employed to collect data (Remenyi *et al.*, 1998). Since perception of health and appeal of beverage exists in people's minds and cannot be observed, self-administered questionnaires are ascertained to be the best method for this research.

When employing a questionnaire, the questions usually measure and test a generalizable opinion (Remenyi *et al.*, 1998). Generalisability or external validity ascertain 'whether causal relationships can be generalized to different measures, persons, settings, and times' (Steckler and McLeroy, 2008, p. 9)

Some advantages of questionnaires are that they are highly efficient in data-collection by economising on time, costs, and energy and energy of the researcher (Sekaran, 2010). Questionnaires allow for a higher representation of populations as it can be widely distributed. Recent research has shown that the response rate for online surveys is greater than postal questionnaires (Bryman and Bell, 2015).

However, there are a few disadvantages to this technique. The response rate is lower compared to other questionnaire types (Sekaran, 2010). Moreover, since the researcher is not present at the time of filling out the questionnaire, the respondents are unable to ask for any clarifications or doubts in answering the questions. Possible solutions to these weaknesses include informing the participants of the importance of the research and clearly mentioning the time required to complete the study along with contact details of the researcher. Emails or letters to encourage the respondent to participate or to send email reminders can help in increasing responses. Another way to increase participation is to provide monetary compensation.

#### **4.7 Limitations to the chosen research philosophy**

It is of utmost importance that the researcher is aware of the limitations of the selected philosophy. Researchers have pointed out that the knowledge generated from quantitative studies tends to be too general for applying to very specific local problems (Johnson & Onwuegbuzie, 2004). These methods are considered artificial, inflexible, and unhelpful in generating theories like those that qualitative research does. These processes are less effective at understanding the cause of actions and the underlying significance that consumers attach to actions (Easterby-Smith *et al.* 2008)

This thesis aims to make theoretical and empirical contributions to extant literature and bring value to disciplines (Remenyi *et al.*, 1998) of marketing and psychology. The researcher acknowledges that selecting a positivist stance may lead the researcher to make generalizable conclusions rather than focusing on intricate details. The present research is designed to present broader findings, which may be subjected to in-depth and specific research in the future. Having acknowledged these limitations, the researcher concludes that the aspects of generalization, prediction, validity and reliability make this paradigm the chosen philosophy in this research.

#### **4.8 Conclusion**

The present study is pursued under objectivism stance and follows realism to understand the effect of goal activation and salience on the perception of beverages. The research strategy follows a deductive approach along with nomothetic methodology. Experimental research is employed to conduct quantifiable observations and statistical analysis.

## CHAPTER 5. RESEARCH METHODOLOGY

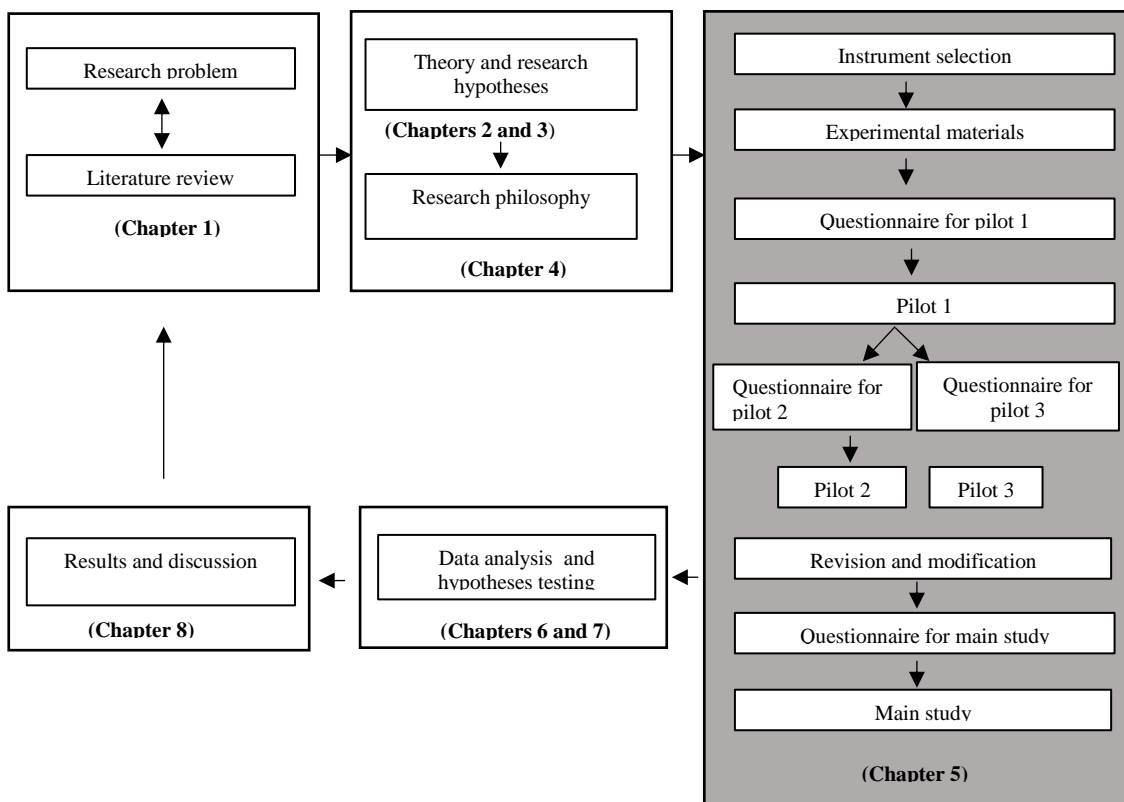
This chapter outlines the research methodology and design employed in this study. Section 5.1 presents an introduction to the chapter. Section 5.2 to 5.6 describe the methodological considerations underlying the selected research design. Next, the research design is discussed. The chapter proceeds to describe instrument development, testing and analytical techniques to test the hypotheses.

### 5.1 Introduction

This chapter outlines the research methodology and design employed in this study. Methodological considerations and research design are discussed in this chapter. The chapter further discusses three pilot studies and the main experiment.

The research framework outlined below highlights the elements that will be explored in this chapter. (Figure 5-1)

Figure 5-1: Structure of the thesis



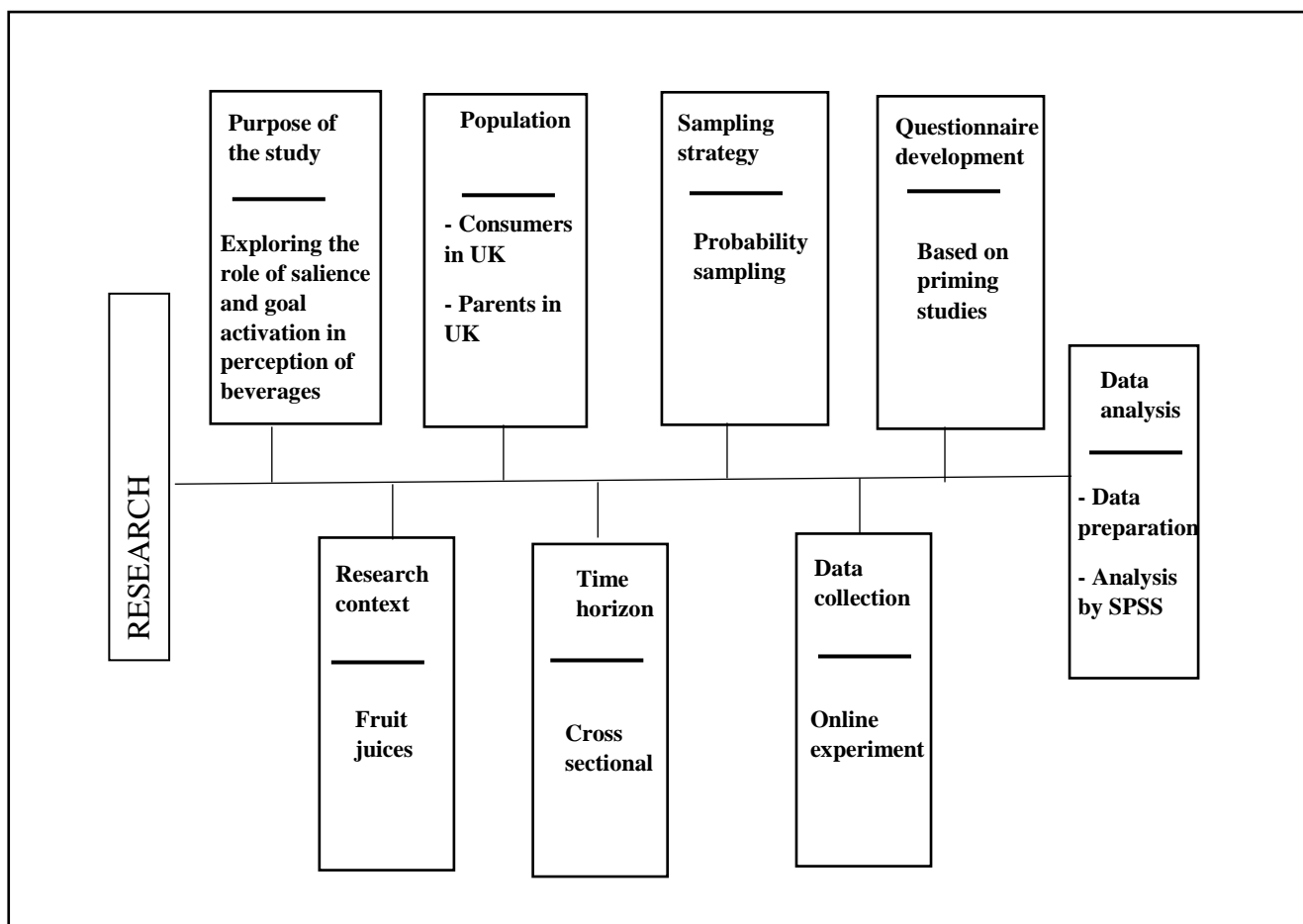
## 5.2 Methodological considerations

Research relevance and research rigour are two methodological considerations that are widely discussed in management research (Darke *et al.*, 1998; Remenyi *et al.*, 1998). Recent literature on relevance has two intertwined themes. One theme is to try to **make sense of the gap** between academic research and management practice – to understand its origins (Starkey and Madan; 2001 Gulati, 2007), theorize about its nature (Shapiro, Kirkman and Courtney, 2007; Van de Ven and Johnson, 2006), and debate how wide it really is (Markides, 2010; Kieser and Leiner, 2009; Hodgkinson and Rousseau, 2009). The other theme is about **finding ways of bridging or reducing the relevance gap**. For example, some authors identify the characteristics of managerially relevant or useful research from which others can learn (McGahan, 2007; Vermeulen, 2007) and identify changes to the research strategies to get closer to the subjects of the research (Mohrman, Gibson and Mohrman, 2001; Van de Ven and Johnson, 2006). Other authors focus on structural changes, such as the systems of promotion and tenure at universities and the ways in which government research money gets distributed (Starkey and Madan, 2001).

Research is also considered relevant if it is regarding topics that are useful and interesting to academicians (Remenyi *et al.*, 1998). This research is aimed at academics, scholars, practitioners and government organisations, who are interested in studying consumer behaviour and marketing from a knowledge perspective, marketing perspective or a public policy perspective.

Research rigour focusses on confirming to rules (Remenyi *et al.*, 1998). Rigorous research follows generally accepted rules of research and scrupulously adheres to the philosophical perspective adopted by the researcher. This research utilizes extant literature and uses tested and validated measurement instruments. Figure 5.2 below presents the research design.

Figure 5-2: Research design\*



\*Research design adapted from Sekaran, 2003

### 5.3 Purpose of the study

The purpose of this research is to explore the impact of salience and goal activation on the consumers' perception of beverages with health halos. The research also focusses on the impact on associated behavioural outcomes.

The questions seek to contribute to the fields of marketing and psychology. Academic research has emphasized that interdisciplinary research is essential to identify the interactions between the different determinants of food choice behaviour (Koster, 2009). The study employs empirical approach and addresses calls by academics and practitioners to explore the possible ways for consumers to look beyond health halos of beverages and make informed and accurate decisions (Chandon and Wansink, 2007; Schuldt, Muller



and Schwarz, 2012). This research aims to enhance the knowledge of scholars and practitioners to understand the interplay between salience and motivation and to explain how consumers with different motivations perceive the product (beverage) differently and why well-intended nutritional labels might not achieve intended results. Additionally, the study offers insights for the public sector and practitioners to anticipate consumer behaviour and responses.

In this thesis, the researcher presents a series of online experiments to show the interaction effects of goal activation and salience on consumer perception of beverages. The experiments presented here are based on existing literature and theories and the hypothesised relationships are tested by statistical methods including ANOVA.

For developing experimental materials (prototype and priming questions), a thorough research of the existing instruments in the fields of psychology and marketing was conducted. The present study includes four experiments. All four experiments are briefly outlined in Table 1-3.

## **5.4 The context of the study**

Fruit juice is used as a context to test what impact salience and goal activation might have on individuals' perception of health and appeal of the product. Briefly, the context of fruit juices is chosen for a number of reasons. Firstly, although much research has been conducted on the health effects of sugar-sweetened beverages from a medical perspective (Welsh *et al.*, 2005; Schulze *et al.*, 2010) and consequently on the marketing of these beverages, research is still lacking in the field of fruit juice consumption. Although research has been conducted on biased inferences in the field of nutrition (e.g., Andrews, Netemeyer, and Burton 1998; Moorman *et al.* 2004), the studies are mostly focussed on purchase behaviour and evaluation of nutrition information rather than on decisions related to consumption (Chandon and Wansink, 2007). Studies have suggested consumption of fruit juice is harmful because of its high sugar content and low levels of fibre (Wojcicky and Heyman, 2012) and linked the consumption of fruit juice to obesity and related diseases (Bray and Popkin, 2004, Schulze *et al.*, 2004).

Secondly, most consumers consider a food product to be healthy if it carries a health claim. The presence of a health claim may discourage the consumer from looking for any further information about the nutritional value of the product (Williams 2005). Health halos of fruits juices may be attributed to ‘health halos’. The concept of the ‘health halo’ is derived from halo effect which denotes the predisposition of people to believe that a person possesses additional positive traits based on the recognition of one single desirable attribute (Chandon, 2014). In the context of certain food products, a halo effect causing them to be perceived as healthy. For example, cookies labelled organic are considered lower in calories (Schuldt, 2010) or high sugar sports and energy drinks are considered healthy as they prominently display one healthy ingredient (Pirotin, Becker and Crawford, 2014). Consequently, health halos lead consumers to choose sugary beverages unknowingly (Chandon and Wansink, 2007). Advertising of fruit juices is cleverly designed to increase emphasis on vitamins, minerals and fruit content, thereby overshadowing the harmful sugar content.

Finally, from a public policy perspective, the context of fruit juice consumption has a vast impact on people in the UK and worldwide. Fruit juice remains one of the most popular drinks and UK is the third largest consumer of fruit juice in Europe with 1140 million litres by volume consumption in 2015(AIJN, 2015). Fruit juices are promoted as UK governments ‘5 a day’ nutrition plan which encourages the public to eat at least one serving of five to seven fruit or vegetables in a day. However, the inclusion of fruit juice in ‘5 a day’ health scheme may not be ideal. More specifically, the rising obesity trends due to excessive liquid sugar consumption are enabling discussions in public and private sector towards reducing sugar consumption esp. among children.

It is for this reason that people of UK are selected as the population to be studied. The sample includes parents from different backgrounds and age groups who may have varied perceptions of the healthfulness of fruit juices. This interdisciplinary research aims to make the sugar information salient so that consumers are able to make healthy choices.

## **5.5 Unit of analysis**

An important step in formulating the research process is deciding on a unit of analysis. The unit of analysis is defined as ‘the social object to which the properties investigated

appertain' (Corbetta, 2003, p. 66). These units can include individuals, groups, organisations, geographic areas and cultures (Corbetta, 2003). 'The research question or hypothesis determines the unit of analysis' (White and Marsh 2006, p. 30). The subject of the research is the unit of analysis. The unit of analysis is the subject of the research. Based on the research results, generalisations are made about this unit of analysis.

In social science research, an individual is the most common unit of analysis (Glisson, 1987). In the field of marketing and psychology, consumers and the public have been studied by scholars, academics and practitioners (Chandon and Wansink 2011; Bargh, 2001; Papies 2010).

Research suggests the unit of analysis should be similar to the unit that has been studied by other researchers to ensure that 'previous literature can become a guide for defining the unit of analysis' (Yin, 2009, p 25) Social research also suggests that researchers must collect data on 'lowest possible unit of analysis' (Bernard, 2012, p. 44). Moreover, since this research is regarding consumer perception of beverages, it is imperative that studying individual behaviour rather than group behaviour will be most beneficial. Therefore, in line with the research objectives of this thesis, the individual consumer is the unit of analysis in this research.

## **5.6 Time horizon: a cross-sectional approach**

Research can be conducted by longitudinal or cross-sectional approach. The longitudinal approach helps the researcher to understand and explore the phenomenon at different periods. This approach is useful in studying a sequence of effects and medium or long-term trends (Hair *et al.*, 2014a; Remenyi *et al.*, 1998; Sekaran, 2010). Longitudinal approach is considered the most important approach to study organizational change and trends in business studies. This approach provides data over a period of time (Pettigrew, 1990). It is essential that the data is collected over equal periods of time from the same population (Hair *et al.*, 2014a). A drawback of this approach is that the research process is usually expensive (Remenyi *et al.*, 1998).

Cross-sectional design ‘entails the collection of data in more than one case ... and at a single point of time in order to collect a body of quantitative or quantifiable data in connection with two or more variables, which are then examined to detect patterns of association’ (Bryman and Bell, 2015, p. 55). The cross-sectional approach is designed to explore how a process occurs at a particular point in time and to study the relationship between different variables (Remenyi *et al.*, 1998). This approach helps the researcher to explore the variation that can be established among the unit of analysis (e.g. individuals) (Bryman and Bell, 2015). Data is collected at one point of simultaneously which is one reason why often, cross-sectional studies employ questionnaires for data collection (Bryman and Bell, 2015; Easterby-Smith *et al.*, 2012; Saunders Lewis and Thornhill, 2011).

Based on time and cost considerations, this research follows the cross-sectional approach. This approach is best suited to this study as the research questions include finding the relationship between variables at a given point in time.

## **5.7 Populations to be studied and sampling strategy**

Sampling strategy comprises of four main elements. These are 1) population and sampling, 2) Sampling design, 3) sample size, and 4) implementation of the sampling plan (Hair *et al.*, 2014a).

### **5.7.1 Population and sampling.**

Population refers to ‘the entire group of people, events, or things of interest that the researcher wishes to investigate’ (Sekaran, 2010, p. 265). A sample is drawn from this population. UK Population was studied in this research. From this population, parents were chosen as the target sample.

The conceptual and practical reasons for selecting this sample population are explained next. From a theoretical perspective, the general population is usually selected to study phenomena in the field of consumer behaviour and marketing research (For example

Chandon, 2011; Wansink 2010, Papies, 2011, Bargh, 2009). This group may include consumers and potential consumers of similar beverages like the one in question here.

From a practical viewpoint, beginning the research from the public of UK provides the further scope to the research to include other stakeholder groups including industry and government. The views of these respondents are likely to offer the views of the country on the beverage and labels administered in the experiment. In addition, the fruit juice industry comprises 26% of the soft drinks market share in the UK (Statistica 2016a) which implies that consumers may have experienced the product and might reflect varied perceptions and behavioural outcomes.

After identifying a target population, the next step in research is to finalise a sample. A sample is a section or of a larger population (Saunders, 2009). A sample can also be defined as a group of representatives of a larger population (Bordens and Abbott 2002). Sampling is defined as ‘the process of selecting a sufficient number of elements from the population, so that a study of the sample and an understanding of its properties or characteristics would make it possible for us to generalise such properties or characteristics to the population elements’ (Sekaran, 2010, pp. 266–267). Put simply, sampling is the process by which a sample is selected (Moser & Kalton, 2001). Sampling is applied to select a set of all possibilities and options from a larger population (Remenyi *et al.*, 1998). Data collected from samples is time-saving and involves low costs.

Moreover, sometimes it is not practical to collect data from the entire population (Saunders *et al.*, 2012). In this study, the population is entire UK population. In such a case, when the population is very large, sampling is a practical and acceptable method for data collection. Finally, given the time constraints and budgetary limits the researcher finds it suitable to employ sampling procedure in this thesis. The sample in this thesis is the population of the UK and includes parents of all age groups and genders.

### **5.7.2 Sampling design.**

To represent a population accurately, it is essential to choose a sampling frame and method of sampling. Sampling techniques can be divided into two categories - probability sampling and nonprobability sampling (Saunders, 2012). In probability sampling, there

is an equal chance of each unit being chosen. Usually, surveys and experiments employ probability sampling. On the other hand, in non-probability sampling, the chance of each element being selected is not equal or predefined (Saunders 2009).

Based on the characteristics of the sample population, the researcher can estimate the characteristics of the larger population in probability sampling. The findings from this representative sample are generalizable. Since this research is based on experimental design, probability sampling will be used here.

The sampling techniques under the banner of probability sampling are simple random, systematic, stratified random, cluster and multi-stage techniques of sampling (Saunders *et al.*, 2012). This research employs simple random sampling and stratified sampling. In stratified sampling technique, the population is stratified into subgroups and a sample is selected from the subgroup based on the objectives of the research. For this study, simple random sampling was employed for the first three pilot studies while stratified sampling was used for the main experiment. In experiment 4, the questionnaire was administered to respondents with children. Stratified sampling provides ‘homogeneity within each’ stratum and ‘heterogeneity across all subgroups’ (Sekaran, 2010, pp. 266–267).

### **5.7.3 Desired sample size.**

The research design and the method of analysis determine the sample size (Remenyi *et al.*, 1998). This study employs Analysis of Variance technique to find the differences between the groups. Power analysis for a two-way ANOVA with five groups was conducted in G\*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.80, and a medium effect size ( $F= 0.25$ ) (Faul *et al.*, 2013). Based on the aforementioned assumptions, the desired sample size of 400 was obtained. Based on the above calculations, each subgroup must contain a minimum of 80 respondents.

### **5.7.4 Sample plan implementation.**

Data was collected on Qualtrics™ platform ([www.qualtrics.com](http://www.qualtrics.com)). The panel was directed to Qualtrics by a data collection site called Prolific Academic

(<https://prolific.ac/>). The researcher specified the screening questions to the Prolific Academic and the suitable respondents were directed to the questionnaire on Qualtrics by an online link. As the respondents filled in the questionnaires, Qualtrics software provided the data in the desired format (SPSS or Excel). It must be noted that Qualtrics and Prolific platforms are only limited to data collection and cannot interfere with the designed experiment. The questionnaire is designed and managed by the researcher.

## **5.8 Conclusion**

This chapter outlined the research methodology employed in this study. It described the methodological considerations underlying the selected research design. Next, the research design is discussed which includes a description of the pilot studies and the main experiment.

## **CHAPTER 6. RESEARCH DESIGN**

**This chapter outlines the research design employed in this study. Section 6.1 presents an introduction to the chapter. Sections 6.2 describes the development of experimental materials. The research premise is discussed in section 6.3. The questionnaire is discussed in section 6.4, followed by a description of pilot studies and the main experiment in section 6.5. The ethical considerations for this research are mentioned in section 6.6. Finally, section 6.7 concludes the present chapter.**

### **6.1 Introduction**

The aim of the research is to explore the effects of salient information and motivation on perceptions of beverages with health halos and assessing related behavioural outcomes. The research explores the role of salient information on perception of beverages. Furthermore, it is argued that consumers perceive the information differently under different motivational states. The proposed hypotheses are tested by means of an experiment, conducted online.

Online experiments allowing the researcher to reach larger populations. The experiments are time-saving and cost-effective (Reips, 2002). The ability to research large samples translates to higher statistical power (Kraner *et al.*, 2014; Salganik, 2006). The experiments can be conducted across various geographic locations and cultures in real time (Bond, 2012). All these advantages impart greater generalizability and external validity to the research. It has also been argued that ‘the experiment comes to the participant, not vice versa’ (Reips, 2001, 2002). While participating in the experiment, since participants remain in familiar settings, any observed effects cannot be attributed to unfamiliar location or setting of the respondents (Reips, 2002). Not surprisingly, due to the advantages of ‘speed, low cost, external validity, experimenting around the clock’ are just a few of the reasons why online experimenting is the method of choice by researchers (Reips, 2002).



Randomized experiments rule out bias and can account for the causes of effects in an unbiased manner (Neyman, Dabrowska and Speed, 1990). However, it has been argued that experiments are unable to account for causal mechanisms (Cook, 2002; Deaton 2009; Heckman and Smith, 1995).

Based on the advantages and disadvantages presented above, the online experiment is the optimal method for this research. This research is focused on understanding how salient sugar information is perceived by people under different motivational conditions. The purpose of this study is to manipulate motivational conditions to see how goal activation affects the perception of beverages and related behavioural outcomes.

## **6.2 Development of experimental materials**

The experimental materials in this research comprise of 1) development of a fictitious brand/product, 2) creation of salient labels 2) development of a priming technique suitable for this experiment and 3) development of a scale to measure the priming effect.

### **6.2.1 Creation of a brand**

A fictitious brand of orange juice was developed in this experiment. A fictitious brand ensures that respondents do not have prior attitudes towards the product.

The reason for choosing soft drink sector is that ‘the soft-drink category presents an opportunity for the creation of a brand that is neither high-involvement nor cognitively demanding for the consumer’ (Champniss, 2013). To remind the reader, this research aims to explore the effect of salient sugar information on the perception of fruit juices. These fruit juices carry health halos and seemingly appear healthy because of their association with fruits. This research specifically chose orange juice because orange juice holds 64% of the market share in the UK juice market and orange is the most popular flavour in the fruit juice segment (Statistica 2016b; BSDA, 2015). Continuing with the market trend of naming brands after a virtue like innocent, honest etc. The brand name ‘trusty’ was selected for this fictitious brand. The brand was designed to be similar to juice brands available in the UK market.

## 6.2.2 Creation of salient labels

The pictures below show the fictitious brand and label developed for this research (Figure 6-1).



**Trusty kids**  
 Orange Juice 250ml  
 Enriched with vitamins A B C D E  
 Calcium

- 1 of your five a day
- Pure
- Natural
- Healthy and tasty
- Ideal for lunchboxes



Sugar content =

**21** 

mini cookies

**Trusty kids**  
 Orange Juice 250ml  
 Enriched with vitamins A B C D E  
 Calcium

- 1 of your five a day
- Pure
- Natural
- Healthy and tasty
- Ideal for lunchboxes



Sugar content =

**60** 

candies

**Trusty kids**  
 Orange Juice 250ml  
 Enriched with vitamins A B C D E  
 Calcium

- 1 of your five a day
- Pure
- Natural
- Healthy and tasty
- Ideal for lunchboxes



This drink contains

**7** 

sugar cubes

**Trusty kids**  
 Orange Juice 250ml  
 Enriched with vitamins A B C D E  
 Calcium

- 1 of your five a day
- Pure
- Natural
- Healthy and tasty
- Ideal for lunchboxes



This drink contains

**7** tsp sugar 



Figure 6-1 Images of the brand (cartons and bottles) used in the research

As seen in the brand images above, the aim was to make the sugar information salient or more visible. It was essential that sugar information is converted to easily understood formats so that respondents could understand and decide whether the drink was healthy and/or appealing. The labels were chosen in line with our current working definition of salience. As explained previously, this definition was derived from the extant literature on salience. It must be noted that the same drink conveys the same sugar information in different formats. The respondents were debriefed about the brand and visuals were designed for external and face validity so that they appeared like a brand that is soon to be launched in the market.

The brand name of the product was introduced as 'Trusty'. Much like the current brands in the market, this product was specially designed to communicate health and convenience. It emphasized on added vitamins and words like 'pure, natural healthy' and cashed in on the UK government's '5-a-day' recommendation.

The product was deliberately designed to appear credible to the participants. In the next step, the sugar information was placed at the bottom of the front –of the pack in large font. The first experiment aimed to find the best-understood label that would be used in subsequent experiments in the thesis.

### **6.2.3 Priming technique**

As discussed in Chapter 3, research has shown that cues in the environment can automatically activate goals in people's minds, thereby motivating and guiding them (Bargh *et al.*, 2001; Custers *et al.*, 2008; Sheeran *et al.*, 2005). Priming has widely been employed to activate goals. Previous research has supported that, participants are likely to act in line with the content of the primed trait constructs (Bargh, Chen, & Burrows, 1996). This research employs widely tested methods of priming including scrambled sentence task (Srull and Wyer 1979) and story reading (Trafimow *et al.* 1991).

Participants completed a sentence-unscrambling task (Srull and Wyer, 1969) which was designed to prime states of enjoyment and responsibility. In the scrambled sentence task, participants are presented with a sentence with a string of 4 or 5 words in random order. The participants have to form a correct sentence with the given words. This is usually disguised as an English grammar exercise. Most of the sentences contain a synonym of

the goal to be primed. For example, enjoy happy, pleasure, fun to stimulate the participant to think of enjoyment as a motivation.

This research also employed the storytelling strategy to prime motivation of the constructs. Research has shown that when people are primed for distinctive qualities of self, they are reminded of cognitions that relate to that particular aspect of self (Trafimow *et al.*, 1991). In this method of storytelling, the participants read a story to heighten the salience of a construct and then answer questions about their feelings and motivations on a scale (Trafimow *et al.*, 1991).

#### **6.2.4 Scale development**

Measurement scales are designed to assign scores to phenomena that cannot be measured directly (Morgado *et al.*, 2017). Scales are comprised of items, which signify various levels of a theoretical variable (DeVellis, 2003). The items of the scale were generated based on learnings from pilot studies 1 and 2. Next, the reliability and validity of the scale were tested.

After completing the priming task, a scale was administered to the participants as part of a separate experiment, which helped to assess if they had been primed. A scale was designed to measure motivation for enjoyment and responsibility and reliability and validity analysis were conducted to determine the effectiveness of the scale (presented in chapter 7)

### **6.3 Research premise**

Data was collected on Qualtrics™ platform. The panel was directed to Qualtrics by a data collection site called Prolific Academic. The researcher specified the screening questions to the Prolific Academic and the suitable respondents were directed to the questionnaire on Qualtrics by an online link. Respondents were informed that they were invited to take part in two short studies for academic research. It was clearly stated that the research was being jointly conducted by the School of Psychology and Henley business school to economise on time and resources.

The introduction to the survey presented a brief explanation of the two studies. Participants were informed that the two separate studies were regarding food habits and advertising preferences. The welcome page also contained a section on confidentiality of the research along with the contact details of the researcher.

#### **6.4 The questionnaire**

This research employs questionnaire to explore the research objective. This method is chosen in line with the philosophical underpinnings of the research.

Questionnaires are quick to administer and are cost-saving (Bryman and Bell, 2011). The respondents can answer according to their convenience and all questions are administered in the same order to the respondents (Bryman and Bell, 2011). This method is useful in collecting specific data sets, which can then be evaluated and generalised, to larger populations (Remenyi *et al.*, 1998).

To engage the respondents in answering the questions with interest the questionnaire has deliberately been kept short. The welcome page informs the participants of the approximate time taken to complete the questionnaire (nine minutes). There are colourful visuals in the experiment to keep the respondent engaged. Furthermore, and the real questions are interspersed with interesting filler questions. To make this experiment appear real, the images of the fictitious product designed for this survey is visually similar to the products available in the market.

The questionnaire begins with a storytelling task and choosing a picture task followed by respondents answering the ERSO scale (Enjoyment-responsibility- self –other). The respondents are then directed to the next part of the study, which is presented as an advertising study. Here the respondents look at everyday products available in the supermarket and answer questions about the products based on their personal opinions. This section is followed by some questions about the respondents. Here the respondents answer health consciousness and scepticism scales followed by providing their demographic information. The respondents answer three funnel questions to gauge if they thought the studies were connected in any way (Appendix 4). Following this, the respondents are thanked for their participation.

### **6.4.1 Questionnaire item selection**

Following the literature review in chapters 2, 3 and 4, the researcher has identified four variables for priming. In the first step, the experiment involved priming respondents for these variables. The identified variables were motivation for enjoyment, motivation for responsibility, motivation to think of self and motivation to think of significant others. To measure these variables, scales were developed and tested. Scale development and item selection for the variables is discussed in Sections 6.5.1 and 6.5.2. The sections will outline the method of priming followed by the scale used to measure the effect of priming.

### **6.4.2 Self/other/control**

Pilot study 2 tested the effect of motivation for self or significant others on the perception of the beverage with salient sugar information. Scrambled sentence task (Srull and Wyer, 1979) was employed to prime the participants. The participants were randomly assigned to three groups – self, other and control groups. Each group completed one sentence completion task. The task consisted of 15 relevant sentences and 13 filler sentences. The sentences designed to motivate respondents to think of self, had keywords related to the word self. These words included my decision, my choice, my freedom, my independence, individual, myself etc. The sentences designed to motivate participants to think of significant others had keywords related to family members. These words included words like family, grandparent, son, daughter, child, couple, dependant, mother etc. The control group had neutral words like sky, road, cat, leaf, etc. After completing this task, the participants answered questions on a 7-point Likert scale to test and measure if priming for the desired motivation was successful. Singelis Self-construal scale (Singelis, 1994) was employed in this study. The scale consists of 12 independent items and 12 interdependent items. This scale helps to measure the independent or dependent self-construal, which implies the extent to which the *self* is defined independently of others or interdependently with others. Cronbach Alpha reliabilities with the 15 items have been ranging from the high .60's to the middle .70's. These reliabilities are considered adequate owing to the 'broadness of the construct and the wide range of thoughts, feelings, and behaviours assessed by the scale' (Singelis, 1994). The scale provides a mean score of independence and interdependence for each respondent. In the context of this research, if the priming has worked, participants primed for self should score higher on



independence and participants primed for significant others should score higher on interdependence. A complete list of questions used to measure the constructs in this study is presented in Appendix 2.

### **6.4.3 Enjoyment/responsibility/control**

Pilot study 3 tested the effect of motivation for enjoyment or responsibility on the perception of the beverage with salient sugar information. Scrambled sentence task (Srull and Wyer, 1979) was employed to prime the participants for responsibility.

This is study 1 on English language and memory. You will see five words. Please form a correct sentence using only four of the five words provided.  
For example: flew, table, the, away, bird  
Answer: the bird flew away

We may ask you questions regarding these sentences at the end of the survey.

The participants were randomly assigned to three groups – enjoyment, responsibility and control groups. Each group completed one sentence completion task. The task consisted of 15 relevant sentences and 13 filler sentences. The sentences designed to prime responsibility had keywords related to the word responsibility. These words included care, concern, duty, authority, role, accountable etc. The sentences designed to prime enjoyment had keywords related to the word enjoyment. These words included words like cheerful, lively, merry, fun, laughter etc. These words were selected based on an online pilot study conducted among Reading University students. The control group had neutral words like sky, road, cat, leaf, etc. After completing this task, the participants answered questions on a 7-point Likert scale to test and measure if priming for the desired motivation was successful. A complete list of questions used to measure the constructs in this study is presented in Appendix 2.

**It is very important for me to be responsible.**

**I am feeling more motivated to fulfil my responsibilities than to have fun.**

**It is very important for me to enjoy and have fun.**

**I am feeling more motivated to have fun than to be responsible.**

#### **6.4.4 Enjoyment-Responsibility-Self- Other combined effects.**

Experiment 4 tested the combined effects of the identified variables on the perception of the beverage. In this experiment, participation was limited to parents in the UK population. Storytelling task was employed to motivate the participants. After completing this task, the participants answered questions on a 7-point Likert scale to test and measure if priming for the desired motivation was successful. The four combined variables were

- Enjoyment- self
- Enjoyment- other
- Responsibility- self
- Responsibility other

Experiment 4 tested the effect of motivation for the above four variables on the perception of the beverages. The participants were randomly assigned to five groups – self-enjoyment, self-responsibility, other-enjoyment, other- responsibility and control groups. Storytelling technique (Trafimow *et al* 1991) was employed to motivate the participants. After reading the task, the participants wrote their own experiences according to the described context. Following this, they saw a picture of a related scenario and then proceeded to respond to three statements. These questions, on a 7-point Likert scale, were

designed to further motivate the participants. The first two statements are shown in Table 6-1 below.

**Table 6-1. Items in the scale**

<b>Prime</b>	<b>Items in the scale</b>
<b>Enjoyment –other (EO)</b>	It is important that my family members relish delicious food from time to time without worrying about calories.
	My family enjoys being rewarded with yummy food or drinks occasionally whether this food is healthy or not.
<b>Responsibility- self (RS)</b>	It is important for me to take care of myself by eating a balanced diet.
	I try to make sensible food choices and eat fresh meals whenever I can.
<b>Responsibility- other (RO)</b>	It is important for me to take care of my family by making sure they eat a balanced diet.
	I try my best to make sensible food choices and provide fresh meals to my family whenever I can.
<b>Enjoyment-self (ES)</b>	I find it important to relish delicious food from time to time without worrying about calories
	I enjoy rewarding myself with yummy food or drinks occasionally whether this food is healthy or not.

This was followed by administration of the ERSO scale. This scale was designed by the researcher based on previous experiments and extensive literature review. These 10 items included

- **I am feeling motivated to eat a balanced diet.**
- **I am feeling motivated to enjoy and indulge in delicious treats.**
- **I am feeling motivated to eat quick and convenient food.**
- **I am likely to choose salad or veggies at my next meal.**
- **I am likely to choose fast food at my next meal.**
- **I am feeling motivated to provide wholesome balanced dinner to my family tonight.**
- **I am feeling motivated to delight my family with delicious little treats tonight.**
- **I am feeling motivated to make very healthy food choices.**
- **I am feeling motivated to really enjoy my food without worrying about calories.**
- **I am feeling motivated to make very healthy food choices for my family members.**

The 10 items of the ESRO scale were subjected to principal components analysis (PCA) using SPSS version 21. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer- Olkin value was .82 exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett 1954) reached statistical significance, supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of two components with eigenvalues exceeding 1, explaining 44.4% and 15.6% of the variance respectively. An inspection of the scree plot revealed a break after the first component. Using Catell's (1966) scree test, it was decided to retain two components for further investigation. The two-component solution explained 60.06 % of the variance, with Component 1 contributing 44.40% and Component 2 contributing 15.65%. To aid in the interpretation of these two components,

oblimin rotation was performed. The rotated solution revealed the presence of simple structure (Thurstone 1947), with both components showing a number of strong loadings and all variables loading substantially on only one component. Responsibility items loaded strongly on Component 1 and enjoyment items loaded strongly on Component 2. There was a weak negative correlation between the two factors ( $r = -.15$ ). The results of this analysis support the use of enjoyment items and responsibility items as separate scales. A complete list of questions used to measure the constructs in this study is presented in Appendix 3.

#### Reliability of scales

Responsibility Scale – The Cronbach alpha coefficient was 0.94 indicating very good internal consistency reliability for the scale with this sample. The mean inter-item correlation value was .63 indicating a strong relationship among the items.

Enjoyment Scale - The Cronbach alpha coefficient was 0.63 indicating an acceptable value. The mean inter-item correlation value was .25 which is in recommended optimum range of .2 to .4 (Briggs and Cheek, 1986) for short scales.

#### **6.4.5 Dependent variables- Health and appeal of beverages**

Following the questions on priming, the respondents were led to a second study that posed as a study on advertising and marketing. Here, the respondents were shown pictures of everyday products and asked two questions about each product. The answers were recorded in 7-point Likert scale. As mentioned previously, to make the questionnaire interesting, the questions about the beverages were asked in random order and interspersed with other everyday objects like mobile phones, tissue rolls etc. The survey kept short and the questions were not difficult to answer. The beverages used in this study included the prototype developed in experiment 1, the prototype with a sugar label, a bottle of water and a carbonated beverage. The two questions asked about these beverages were ‘In my opinion this drink is healthy’ and ‘In my opinion, this drink is appealing’ on a 7 point Likert scale.

#### 6.4.6 Additional variables

In Experiment 4, besides answering demographic information, respondents also answered questions on health consciousness, scepticism and food restraint. Below is the description of these scales. Since this research primes the participants for responsibility or enjoyment in the context of healthy and unhealthy eating, it is essential to gauge if these additional variables had any impact on the perception of the beverage.

**Health consciousness scale** (Gould, 1990) is a 10-item scale to measure health self-consciousness, health alertness, health self-monitoring, and health involvement. The statements in this scale are

- I'm alert to changes in my health.
- I'm usually aware of my health.
- I reflect about my health a lot.
- I'm very self-conscious about my health.
- I'm generally attentive to my inner feelings about my health.
- I'm constantly examining my health.
- I'm very involved with my health.
- I'm aware of the state of my health as I go through the day.
- I notice how I feel physically as I go through the day.

**SKEP scale** - Skepticism towards advertising scale is a 9-item scale to measure 'the general tendency toward disbelief of advertising claims' (Obermiller and Spangenberg, 1998, p. 159). The statements in the SKEP scale are:

- We can depend on getting the truth in most advertising
- Advertising's aim is to inform the consumer
- I believe advertising is informative
- Advertising is generally truthful

- Advertising is a reliable source of information advertising about the quality and performance of products
- Advertising is truth well told
- In general, advertising presents a true picture
- I feel I've been accurately informed after viewing most advertisements
- Most advertising provides consumers with essential information

**Revised Restrained Scale (RRS)** -The RRS is a ten-item measure used for identifying restrained eaters. Dietary restraint is defined as the intention to restrict food intake in order to control body weight. Items of RRS are rated on a four- to five-point scale, with a maximum total score of 35. RRS consists of two subscales (a) weight fluctuation (WF) with four items for assessing history of weight fluctuation and (b) concern with dieting (CD) with six items for assessing the attitudes towards dieting. (Polivy and Herman, 1980)

Sub-scale structure in the scale is as follows:

- CD 1. How often are you dieting?
- WF 2. What is the maximum amount of weight you have ever lost within 1 month?
- WF 3. What is the maximum amount of weight gain within a week?
- WF 4. In a typical week, how much does your weight fluctuate?
- CD 5. Would a weight fluctuation of 5 lb affect the way you live your life?
- CD 6. Do you eat sensibly in front of others and splurge alone?
- CD 7. Do you give too much time and thought to food?
- CD 8. Do you have feelings of guilt after overeating?
- CD 9. How conscious are you of what you are eating?
- WF 10. How many pounds over your desired weight were you at your maximum weight?

\* RS, Restraint Scale; CD, concern for dieting; WF, weight fluctuation

#### **6.4.7 The Likert-type seven-point scale.**

Likert scale was chosen for this study. Scale questions are often used to collect attitude or belief data (Saunders Lewis and Thornhill, 2009). In these questions, respondents are asked how strongly they disagree with a given statement. If the research comprises of multiple statements, it is essential to keep the same order of response categories for all statements (Kervin, 1992). In the present research, all questions were asked on a 7 point Likert scale with 1 being strongly disagree and 7 being strongly agree. The participants indicated their level of agreement with statements by choosing a score. A low score indicates disagreement whereas a high score indicates agreement (from 1 = ‘strongly disagree’ to 7 = ‘strongly agree’).

A common criticism of Likert-type scales is regarding the midpoint (Oppenheim 1992). The midpoint of a Likert-type scale is regarded difficult to interpret as it can either mean a neutral response or an undecided response (Garland 1991, Guy & Norvell 1977, Komorita, 1963; Raaijmakers *et al.*, 2000). Research has also shown that on including and excluding midpoints, the results remain similar (Armstrong, 1987). Composite scores are usually not affected by inclusion, therefore it is advisable to provide a mid-point or neutral score (Albaum, 1997).

#### **6.5 Measurement scale determination and instrument refinement**

After the researcher had selected the most suitable prototype by running pilot study 1, the next step was to look at the effects of motivation on the perception of the beverages. The second and third pilot studies applied the context of goal priming on a broader spectrum. These experiments primed the participants for enjoyment/responsibility and self/other respectively. However, the motivation was focused on enjoyment in general. For example, the word ‘enjoyment’ could trigger a wide variety of memories in the respondent’s mind. Similarly, the word ‘responsibility’ could mean a myriad of things for the respondents.

While pilot study 3 was successful in priming the participants and yielded significant results, pilot study 2 did not provide significant results. In the next step, it was essential



to make the study more focused so the participants were motivated to think of the primed concepts in terms of food and beverage rather than generic items.

Moreover, the variety of beverages was increased in each successive experiment. Pilot study 2 explored the perception of beverage with sugar information label and water. Pilot study 3 focussed on the perception of beverage with sugar information, beverage without sugar information and water. This experiment also explored the behavioural outcomes.

Before delving deeper into the main experiment, it is notable that three pilot studies were undertaken. These pilots served well to refine and focus the experiments. The pilot tests are discussed below followed by a brief discussion of all the experiments.

The first step in building a survey instrument for this research was an extensive literature review and studying the market trends in the UK beverage market. An initial pilot was run to test the validity of the instrument. This pilot was carried out with four academics (marketing and psychology faculty) and fellow researchers. For external validity, great attention was paid to the development of the fictitious brand and the front of pack label.

From this pilot, a number of elements were modified. These included making the sugar information label much larger, so it could gain the consumer's attention almost immediately. The other changes included English language revisions to make the instructions clearer and easy to understand for the participants. The pictures of the labels were modified based on this pilot study.

Following these changes, another pilot was run to find the most suitable sentences for priming the respondents. This pilot was carried out with thirty academics and administrative staff of Henley Business School. Based on the feedback from this pilot, the most suitable and best-understood words were selected to be included in pilot study 2.

A third pilot study was run to explore the behavioural outcomes task. This pilot was carried out with two academics and colleagues from Henley Business School. Based on the results of this pilot study, the behavioural task was modified in accordance with the software limitations. While earlier, the task included dragging and dropping the chosen

drink to a box, due to software limitations this task was changed to a clicking task wherein the participant had to click on a drink to select it.

### 6.5.1 Pilot study 1

The first pilot study was conducted to decide which brand design and label will be used for the subsequent experiments. Data was collected online by a survey designed on Qualtrics software. Emails were sent out to staff members of Reading University, inviting them to participate in the short survey.

This is a marketing survey being conducted for academic research at Henley Business School, UK. The purpose of this survey is to learn about **your personal opinions** regarding some everyday products.

Participation will involve seeing 10 pictures of everyday products and then answering questions about them. The survey will take approximately 3 minutes of your time.

The participants were informed that the survey was to know their personal opinions about everyday products. None of the participants knew that the research was regarding how sugar information is perceived by the audience. The survey took three minutes to complete and was deliberately short to ensure the maximum attention of participants. Ten questions were to be answered by each respondent. Eight of these were filler questions while two questions were the juice carton and juice bottle with varying sugar information. The filler questions comprised of a picture of random everyday products like phone, books, shoes etc. and two generic questions were asked about each product. Each page on the questionnaire depicted a picture of the product and asked two questions regarding the product. The questionnaire for pilot study 1 is presented in Appendix 1.

All questions were presented randomly to each participant. A seven-point Likert scale was used in the study for all questions (1 = *strongly disagree* and 7 = *strongly agree*). Similar to the filler questions, the two relevant questions showed the participant a picture of the beverage and asked two questions about the beverage shown. These questions were 1) 'In my opinion this drink is healthy' and 2) 'In my opinion, this

drink is appealing’. In the concluding step, the participants answered some demographic questions on age, gender, income, ethnicity and age of youngest child. The participants were then thanked for their participation and the survey ended.

**The results of this survey helped the researcher in identifying which label would be best suited for further experiments.** This decision was based on the health and appeal scoring of all the drinks, statistical tests (discussed in detail in Chapter 7) and discussion with colleagues (faculty of marketing and psychology schools).

A set of hypotheses were presented based on pilot study 1. These hypotheses are presented below.

**Table 6-2. Hypotheses for pilot study 1**

<b>H</b>	<b>Description</b>
H1a	Salient sugar information on the label will decrease healthiness perception of beverage
H1b	Salient sugar information on the label will decrease the appeal of beverage.

### **6.5.2 Pilot study 2**

As discussed in chapter 3, this research argues that motivation of the respondent can influence the perception of the beverage. For example, a person motivated to think of oneself might perceive the same information differently than a person motivated to think of significant others or family. Furthermore, drawing from chapter 2 on goal priming literature, the aim of this experiment was three-fold. Firstly, to motivate the participants to think of themselves or significant others (family), secondly, to explore if motivation has an effect on the perception of the beverage and thirdly to assess respondents’ behavioural outcomes.

You will be asked to participate in **three independent studies** being conducted for doctoral research at different schools at the University of Reading. These three studies are presented in one survey to economize on time and resources.

The purpose of the first study is to research English language and memory. The second study is regarding your personal opinions. The third study is regarding food and beverage advertising.

This entire survey will take approximately 6 minutes to complete.

The participants were randomly assigned to three groups – self, other and control groups. Each group completed the sentence completion task. The task consisted of 15 relevant sentences and 13 filler sentences. The sentences designed to motivate respondents to think of self had keywords related to the word self. These words included my decision, my choice, my freedom, my independence, individual, myself etc. The sentences designed to motivate participants to think of significant others had keywords related to family members. These words included words like family, grandparent, son, daughter, child, couple, dependant, mother etc. The control group had neutral words like sky, road, cat, leaf, etc. After completing this task, the participants answered questions regarding their personal opinions on a 7-point Likert scale. This task was actually employed to test and measure if priming for the desired motivation was successful. Singelis Self-construal scale (Singelis, 1994) was employed in this study.

Following this study, were led to the behavioural outcomes study. This task was in the format of drag and drop online games. The respondent had to choose a sandwich and a drink for a lunch tray. In separate questions, the participants were presented with three drinks, a lunch tray, five sandwiches, and a lunch tray. On the computer screen, the respondents had to drag and drop their chosen drink and sandwich into a lunch tray.

From the given three drinks, please choose one drink.  
Drag and drop your chosen drink into the food tray on the right.

Building on from pilot study 1, another drink was added to this experiment. The three drinks were 1) prototype with salient sugar information, 2) prototype without salient sugar information and 3) a bottle of water. The prototype without salient sugar information was chosen to contrast and compare the effects of motivation on salient and non-salient information on the same product. The questionnaire for pilot study 2 is presented in Appendix 2.

Next, the respondents answered three questions about each drink. Each question was presented on a new screen to avoid any confusion. These three questions were 1) ‘In my opinion this drink is healthy’, 2) ‘In my opinion, this drink is appealing’ and 3) I would like to drink every day. In the next step, the participants answered some demographic questions and were thanked for their participation.

A set of hypotheses were presented based on pilot study 2. These hypotheses are presented below.

**Table 6-4. Hypotheses for pilot study 2**

<b>H</b>	<b>Description</b>
H2a	Respondents primed to think of significant others will perceive the beverage with salient sugar information less healthy than respondents primed to think of themselves and participants in the control group.
H2b	Respondents primed to think of significant others will perceive the beverage with salient sugar information less appealing than respondents primed to think of themselves and the control group.

### **6.5.3 Pilot study 3**

Now that the research had identified the prototype that was to be used in further experiments, the next step was to test for the effects of motivation on the perception of this prototype.

As discussed in chapter 3, this research argues that motivation of the respondent can influence the perception of the beverage. For example, a person motivated for enjoyment might perceive the same information differently than a person motivated to be responsible. Drawing from goal priming literature, the aim of this experiment was three-fold:

- To motivate the participants for enjoyment or responsibility
- To explore if motivation has an effect on the perception of the beverage and
- To assess respondents' behavioural outcomes.

The participants were provided with a cover story that they had to complete three studies.

You will be asked to participate in **three independent studies** being conducted for doctoral research at different schools at the University of Reading. These three studies are presented in one survey to economize on time and resources.

The purpose of the first study is to research English language and memory. The purpose of the second study regarding your personal opinions. The third study is regarding food and beverage advertising.

This entire survey will take approximately 4 minutes to complete.

The participants were randomly assigned to three groups – enjoyment, responsibility and control groups. Scrambled sentence task (Srull and Wyer, 1979) was employed to prime the participants for responsibility or enjoyment. Each group completed the sentence completion task. The task consisted of 15 relevant sentences and 13 filler sentences. The sentences designed to prime responsibility had keywords related to the word responsibility. These words included care, concern, duty, authority, role, accountable etc.

The sentences designed to prime enjoyment had keywords related to the word enjoyment. These words included words like cheerful, lively, merry, fun, laughter etc. These words were selected based on an online pilot study conducted among Reading University students. The control group had neutral words like sky, road, cat, leaf, etc. After completing this task, the participants answered questions regarding their personal opinions. This was actually a 7-point Likert scale to test and measure if priming for the desired motivation was successful.

In this pilot study, the two beverages used were the prototype with sugar information label and a bottle of water. Water was chosen as the second beverage to explore the

impact of motivation on perception. Water was chosen, as this is universal and healthy drink. It would be interesting to explore the impact of motivation on the perception of water. The participants were shown a picture of the beverage and asked two questions about the beverage shown. These questions were 1) ‘In my opinion this drink is healthy’ and 2) ‘In my opinion, this drink is appealing’. In the next step, the participants answered some demographic questions and were thanked for their participation. The questionnaire for pilot study 3 is presented in Appendix 3. A set of hypotheses were presented based on pilot study 2. These hypotheses are presented below.

**Table 6-4 . Hypotheses for pilot study 3**

<b>H</b>	<b>Description</b>
H3a	Respondents primed for responsibility will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment.
H3b	Respondents primed for responsibility will perceive the beverage with salient sugar information less appealing than respondents primed for enjoyment.

#### **6.5.4 Main experiment**

As the research progressed, it was felt essential to focus the research into the domain of food and beverages. In further discussions held with colleagues (marketing and psychology faculty), it was decided that focussing and refining the study should be the next step forward. Scrambled sentence task was used as the method of priming in pilot studies 2 and 3, it was decided to explore story telling task (Trafimow 1991) as the method to prime participants in the final experiment. Since a beverage was chosen as the fictitious brand in this thesis, refining the research would ensure that any effects or changes in the perception of the beverages could be assigned to motivation in a focused domain (food and beverage). It would be interesting to explore how perceptions are affected when combined motivations are primed. For example, a scenario of eating healthy food oneself versus healthy food with family or enjoying indulgent treats alone

versus enjoying tasty treats with family. Furthermore, another reason for selecting this method was to elicit food and eating focused thinking and responses from the participants. In summary, the reasons for selecting a different method for the main experiment were 1) further refinement of the experiment and 2) to prime participants for enjoyment or responsibility in the context of food/eating.

In the next step, a questionnaire was designed for the main experiment and the first hundred responses were used as a new pilot study. This was done to ensure that there were no technical glitches and the main experiment was run smoothly. Once the first hundred responses were collected, the responses were carefully studied. The responses depicted successful priming of participants by storytelling task. These responses were incorporated in to the main experiment which proceeded to collect four hundred more responses.

Another development in this research was the population. It was decided that this survey would be administered to parents in the UK population. Academic Prolific, the site that directs the participants to the survey, had the option of screening the participants on age, gender etc. For this research, parents were directed to the survey. Research had shown that fruit juice and fruit drinks consumption has been steadily growing among UK children (BSDA, 2015). The research focussed specifically on parents, as parents are the primary decision-makers when it comes to food and beverage presentation to children. It has been researched that ‘parents remain the real purchasers and the real reference of children’s food habits’, (Baldassarre 2015, p. 612) Parents play an important role in



supporting the health and well-being of children and adolescents (CDC, 2015).

Thank you for taking part in this research. We are very grateful for your support and time.

You will be asked to participate in two short studies being conducted for academic research at two different schools (**School of Psychology and Henley Business School**) at the University of Reading. These two studies are presented in one survey to economize on time and resources. The survey will conclude with a few questions about you.

Let us tell you about the studies.

The purpose of the first study is to research your **personal opinions** regarding your **food habits and preferences**. The second study is regarding your personal opinions on **marketing and advertising** of everyday products in the supermarkets. Please answer based on **your personal tastes and preferences** in both the studies.

Participants were welcomed and provided a cover page on how the survey will proceed.

The participants were randomly assigned to five groups – self-enjoyment, self-responsibility, other-enjoyment, other-responsibility and control groups. Storytelling technique (Trafimow *et al.*, 1991) was employed to motivate the participants. After reading the task the participants wrote about their own experiences according to the described context.

In what follows, we would like to find out more about your food habits. Please note that there are no wrong answers, we are interested in knowing your personal opinions and experiences. Please read the following paragraph carefully as it will give you important information on how to respond to this study.

From our previous research, we know that most people like to relish and enjoy tasteful food, at least from time to time. In this survey, we would like to find out more about when and why people like to eat enjoyable, tasty food. For instance, some people have told us that enjoying yummy food and beverages is a way of finishing and appreciating the end of a busy work day and to relax, others have told us that a birthday without a birthday cake would be no real birthday, and that birthdays are perfect occasions ‘to indulge my sweet tooth’, and some participants have told us that ‘little sins’ and little treats help them through stressful times.

**Please tell us in a few sentences three reasons or occasions when and why you personally consider it beneficial or important to indulge in food and just enjoy.** You can also tell us about your favourite tasty treats and when you enjoy eating them the most. Your reasons can be similar or different to the description above. Please feel free to write what comes to your mind and is most true for you. Please take 3 minutes to write your thoughts. The survey will proceed after 3 minutes. **Please use the time provided to elaborate on your opinions and explain your reasons in a few sentences.** Kindly make sure you write in all three boxes provided below.

Following this task, the participants saw a picture of a related scenario and then proceeded to answer three questions. These questions, on a 7point Likert scale, were designed to motivate the participants for the desired goal.

Next, the participants answered the ERSO scale (details in Section 6.11.4). The participants were informed that this was the end of study 1 and the next study would start from page 2. This page break was deliberately mentioned so that the participants would not relate or associate the two studies. The next study consisted of four relevant questions presented randomly and interspersed with twelve filler questions. The filler questions comprised of a picture of random everyday products like phone, books, shoes etc. and two generic questions were asked about each product. Each page on the questionnaire depicted a picture of the product and asked two questions regarding the product. All questions were presented randomly to each participant. A seven-point Likert scale was used in the study for all questions (1 =strongly disagree and 7= strongly agree). Similar

to the filler questions, the four relevant questions showed the participant a picture of the beverage and asked two questions about the beverage shown. These questions were 1) ‘In my opinion this drink is healthy’ and 2) ‘In my opinion this drink is appealing’. In the next step, the participants answered some demographic questions and the survey ended.

An important development in this experiment was that questions were asked regarding four beverage types. These were:

- 1) fruit juice without sugar label
- 2) fruit juice with sugar label
- 3) a carbonated beverage
- 4) a bottle of water

The images of these beverages are shown below.



Figure 6-2 Images of beverages used in the main experiment

A carbonated beverage was added to this list to explore the effects of motivation on a beverage that is widely considered unhealthy and has no health halo. In addition, it would serve as an example to compare and contrast the effect of motivation on the perception of different varieties of beverages in the soft drink category like water, juice and carbonated drinks. A fictitious bottle of a carbonated beverage was designed for this

purpose. This product was made similar to the brands present in the market for face validity.

Following this task, the participants were told a cover story regarding preparing a lunch box and asked to choose a sandwich and a drink for the lunch box.

Let us look at products in a typical lunch box.

Imagine that you have to prepare a lunch box with your choice of sandwich and drink.

From the given four drinks, please choose **one** drink for **your child's** lunch box.

From the given four drinks, please choose **one** drink for **your** lunch box

In the next question, the participants were presented with a sliding scale and were shown the pictures of the prototype with sugar label and prototype without sugar label. The participants were asked to rate the drinks on a sliding scale of 1 to 10 (1= Not at all healthy, 10 = extremely healthy). This was the end of study 2 and led the participants to answer questions on health consciousness and consumer scepticism followed by demographics. Before ending the survey, funnel questions were asked to ascertain if participants noticed the link between the studies. Based on the analysis of all questionnaires, none of the participants was aware of priming concepts and none noticed the connection between the two studies. The reasons for this could be that the two studies were clearly demarcated and defined as separate studies at the beginning of the survey and the end of each survey was explicitly mentioned to the participants. Moreover, the design, font and colour used in both surveys were different thereby making them look like separate surveys. The questionnaire for pilot study 1 is presented in Appendix 4.

A set of hypotheses were proposed for the main experiment. These hypotheses are presented in Table 6

**Table 6-5 . Hypotheses for the main experiment**

H	Description
H4a	Respondents primed for responsibility (in the context of food) will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment.
H4b	Respondents primed for responsibility (in the context of food) will perceive the beverage with salient sugar information less appealing than respondents primed for enjoyment.
H4c	Respondents primed to think of significant others (in the context of food) will perceive the beverage with salient sugar information less healthy than respondents primed to think of themselves.
H4d	Respondents primed to think of significant others (in the context of food) will perceive the beverage with salient sugar information less appealing than respondents primed to think of themselves.
H5	An interaction effect is likely to be observed between priming of self/other and enjoyment/responsibility motivations in the health perception of sugary beverages with/without salient sugar information.
H5a	Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of enjoying food with significant others.
H5b	Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of enjoying food with significant others.
H6a	Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating themselves.
H6b	Respondents primed to think of enjoying food themselves will perceive the beverage more appealing than respondents primed to think of responsible eating with significant others.
H7a	Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.
H7b	Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating with significant others.
H8a	Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating themselves.
H8b	Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating themselves.
H9a	Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.

H9b	Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating with significant others.
H10a	Respondents primed to think of eating food responsibly themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.
H10b	Respondents primed to think of eating food responsibly themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.
H11	Respondents primed for responsibility will be less likely to select the tsp label beverage for the lunch box than respondents primed for enjoyment or the control groups.
H12	Respondents primed for enjoyment will be more likely to select the tsp label beverage for the child's lunch box than respondents primed for responsibility.
H13	Respondents primed for enjoyment will give a higher health score to the beverage with salient sugar information, than respondents primed for responsibility.

## 6.6 Ethical considerations

The research proposal required some ethical considerations. Specifically, the research proposed to tell the participants a cover story that was not entirely true. The experiments involved manipulating consumers without their complete knowledge. The priming task was masked as an English Grammar exercise and the perception of beverages was presented as an advertising study.

Literature in experimental research has documented the widespread employment of cover stories to mask the manipulations (Bargh *et al.*, 1999, Champniss, 2013). For these experiments to work and be successful, it is essential that the participant is unaware of the manipulation. In this thesis, the intentions of the researcher were quite similar to what was portrayed in the cover message. The research was designed to understand how motivation affects the perception of various beverages. The results of this research can be useful to a wide audience including consumers, food and beverage industry and the government. The research would help consumers to make better decisions, government to design better food labelling policies and food companies to design effective brand

communication strategies. The purpose of the research was aligned with the brief presented to participants. Looking at the larger picture, the participants were indeed helping the academic researcher in exploring marketing initiatives.

Moreover, when analysed, the funnel questions answered by the participants after the study did not present any concerns. The comments suggested that participants paid more attention to the advertising and health aspect of the research rather than suspecting a link between the two studies. There were no specific comments or references from the participants about the manipulation.

Since experiment 4 was conducted through research panel Prolific, each respondent was paid £1 for participation. The other three surveys did not involve any payment to participants. The respondents were clearly told that the research was being carried out for doctoral research purposes and their responses were confidential. Furthermore, the researcher's email address was provided at the beginning and at the end of the questionnaires. Respondents were told that any queries or concerns were to be addressed to the email id provided.

**The research documentation was submitted to the ethics committee of Henley Business School ethics committee, and the researcher received an ethics clearance certificate for the research.**

## **6.7 Conclusion**

This chapter outlined the research design employed in this study. The next chapter discusses the results of the research, which includes a description of the data followed by statistical results of the pilot studies and the main experiment.

## CHAPTER 7. RESULTS AND HYPOTHESIS TESTING

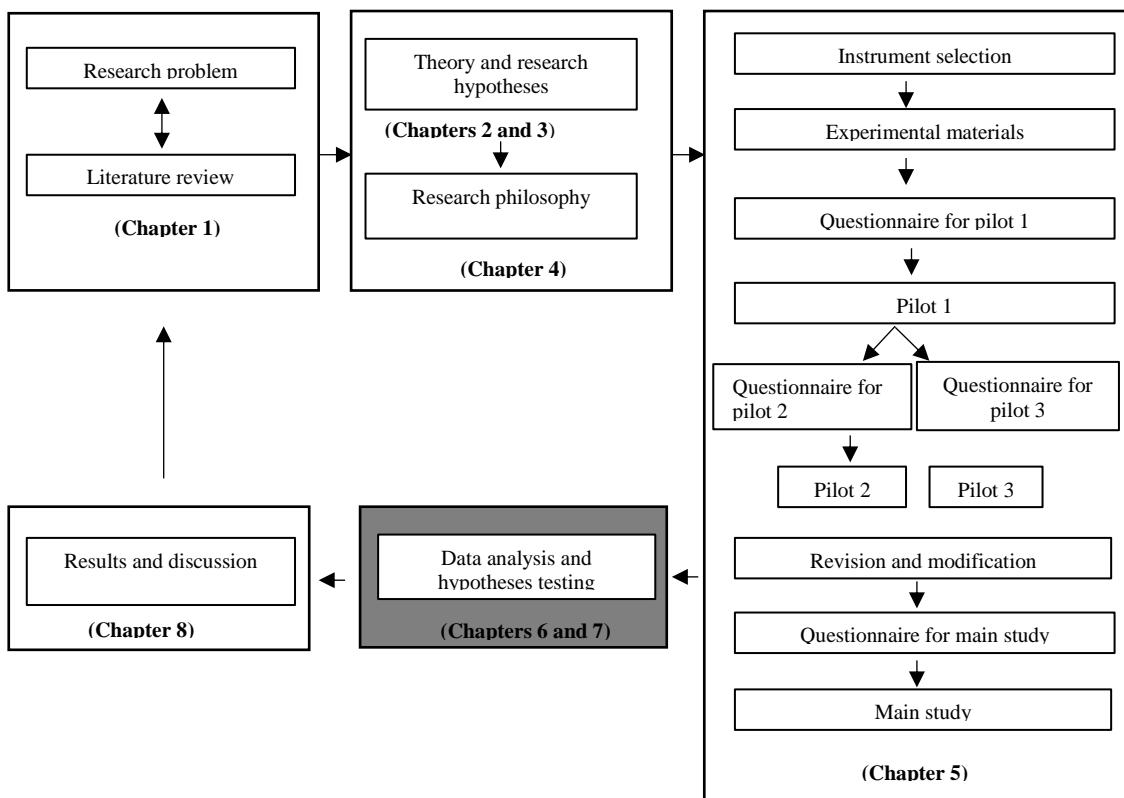
Having presented the research methodology and design in the previous chapter, this chapter presents the proposed hypotheses and describes the results of the experimental research. Section 7.1 introduces the chapter. Sections 7.2 and 7.3 describe initial examination collected data. Section 7.4 presents the demographic information. Section 7.5 describes the manipulation checks. In Section 7.6, the research hypotheses are tested. Section 7.6 focusses on the effects of additional variables, followed by conclusion in Section 7.8.

### 7.1 Introduction

This chapter prepares the empirical data for the application of statistical techniques. The data is gathered by an online survey, and the analysis starts with an initial examination of this data.

To guide the reader, the research framework is presented in Figure 7-1 below. This framework highlights the relevant areas of the thesis structure related to this chapter.

Figure 7-1. Structure of the research  
(Highlighted areas are covered in this chapter)





## **7.2 Data entry, cleaning and examination**

The preparation and initial examination of the data is described in the following four subsections:

7.2.1 Data entry and visual inspection

7.2.2 Missing data

7.2.3 Outliers

7.2.4 Assessment of normality

### **7.2.1 Data entry and visual inspection.**

Data collection and inspection methods for the main experiment are explained below.

Data was collected by an online questionnaire in June 2017. The data was collected in two phases. The first hundred responses were run as a pilot to check if the questionnaire on Qualtrics and Prolific platforms was running smoothly. Given the budget constraints and cost of this research through a paid panel data collector, this step of checking was essential for optimum utilization of the resources. Some missing values were detected in one question due to software error. This question was then again put on forced response option. A question regarding choice of beverage for child was also added in the questionnaire. Once the researcher was convinced that the questionnaire was progressing without fault and no further changes were required, the study was resumed in August 2017. The completed questionnaire totalling 580 responses was then downloaded in the SPSS Statistics 24 data file format from the Qualtrics platform. The data contained ten incomplete responses, which were due to internet connectivity error on respondent servers. These responses were omitted.

The next stage of data preparation is defining the variables (Pallant, 2013). This is the process of entering the variable names and coding instructions on the software. More specifically, the five different groups are given a brief variable name and assigned a value. For example, in the present research, the five priming conditions were given a variable name and assigned numerical values in accordance with the proposed priming manipulations. The values and value labels are shown in Table 7-1 below.

**Table 7-1. Value labels and values**

<b>Priming groups</b>	<b>Value label</b>	<b>Value</b>
Enjoyment in the context of indulgent eating with significant others	EO	1
Enjoyment in the context of indulgent eating by self	ES	2
Responsibility in the context of healthy eating with significant others	RO	3
Responsibility in the context of healthy eating by self	RS	4
Control (Neutral)	N	5

Next, the data set is checked for straight lining and central lining. Straight lining is a pattern of response where the respondents mark the same answer for most of the questions in the questionnaire pattern (Hair *et al.*, 2016). For example, if a respondent selected only 2s or 3s in a five-point Likert scale question, such a case is considered a straight liner and can be removed from the consideration set. Similarly, when the respondents select only the middle value in all the scale questions throughout the survey, it is referred to as central lining. For example, in a 7-item Likert scale, the respondents select only 4s. Usually, a visual inspection is performed and descriptive are analysed to identify straight-liners and central liners.

Resultantly, three questionnaires are identified as straight-liners and two questions are identified as central liners and are eliminated leaving 575 responses for the next stage of the data examination.

It is essential to look at the time taken by respondents to complete the questionnaire. It is recommended to look carefully at ‘survey speeders’. As the name suggests, these respondents speed through the survey and complete the survey in less than 25% of the median time required to complete a survey (Sauro, 2014). Research has shown that excluding too fast responses does not make a considerable difference in substantive results (Callegaro *et al.*, 2014). Hence, responses that had very short completion time were identified and three cases were eliminated.

In summary, these unusual patterns were eliminated from the survey resulting in 570 observations for the next stage of analysis.

### **7.2.2 Missing data**

The software Qualtrics provides forced response option for each question. This option ensures that the respondent can only proceed to the next question after answering the first question. The data file was also inspected for any data entry errors. No such errors were detected. The data did not contain any missing values.

### **7.2.3 Outliers**

An outlier is ‘an extreme response to a particular question, or extreme responses to all questions’ (Hair *et al.*, 2016, p. 72). Since outliers are likely to distort the interpretation of the data, it is essential to identify them (Vogt and Johnson, 2015). Three methods can be employed to detect outliers (Hair *et al.*, 2014a). These are univariate, bivariate, or multivariate methods. The univariate method helps to identify cases that fall at the opposite ends of the spectrum. Any values exceeding the standardised values of  $\pm 3.29$  are considered outliers (Tabachnik and Fidell, 2012). However, in this method, it is difficult to identify truly distinctive observations. For this reason, this method is used in conjunction with bivariate or multivariate methods. In the bivariate method, scatterplots are examined. This does leave the researcher with the task of examining numerous scatterplots. The multivariate method of identification of outliers involves measuring observations in the data set by Mahalanobis distance. In this method, the distance of each observation in multidimensional space is measured from the mean centre of all observations. However, the drawback of this method is that it only provides an overall assessment, without providing any insight about which particular variables led to a larger distance (Hair *et al.*, 2014).

In this research, univariate and multivariate methods were employed. Seven outliers were identified by the univariate method. In the next step, multivariate analysis using Mahalanobis distance was performed. (Hair *et al.*, 2014). This method revealed four outliers.

Each of these outliers was examined by creating individual profiles. The recommended examination involves examining the consistency of responses so that valid responses are

retained (Hair *et al.*, 2010). Once a careful analysis was performed, the sample was left with 559 observations.

#### **7.2.4 Assessment of normality**

The degree to which the distribution of the sample data corresponds to a normal distribution is known as normality (Hair *et al.*, 2014). Normality implies a symmetrical, bell-shaped curve, which has highest scores in the centre and smaller scores at the extremes (Pallant, 2013). Tests of normality are designed to find the distribution of each variable in comparison to the Gaussian normal distribution (Hair *et al.*, 2014a). If the variation from the normal distribution is sufficiently large, all resulting statistical tests could be invalid. In this study, both visual and statistical tests were performed to assess normality of the data. The result of Kolmogorov–Smirnov statistic test was used to assess the normality of distribution of scores. The test confirmed that data was not normally distributed (Appendix 5).

According to statistician Box, ‘... the statistician knows .... that in nature there never was a normal distribution, there never was a straight line, yet with normal and linear assumptions, known to be misleading, he can often derive results which match, to a useful approximation, those found in the real world’ (Box, 1976, p. 791).

Statistical research has suggested that if sample sizes are equal, ANOVA is quite robust to different variances (Zimmerman, 2010). Moreover, according to the central limit theorem in statistics, regardless of the initial distribution, as the sample size increases, the sampling distribution converges on a normal distribution (Bulmer, 1979; Weaver, 2011).

Scholars have suggested methods for correcting data distribution so that the distribution corresponds to a normal distribution. These include calculating the natural logarithm and square root values. However, these methods are not employed in this research for two reasons- firstly, the overall sample size is large. Large samples can lead to increase in statistical power (Hair *et al.*, 2014a). Secondly, since transformed data shares little in common with the original data, data transformation may lead to misinterpretation of the inferences from the original data (Feng *et al.*, 2014).

### **7.3 Common Method bias**

Research in behavioural studies often faces the problem of common method bias. Common method bias is ‘a variance that is attributable to the measurement method rather than to the constructs the measures represent’ (Podsakoff *et al.*, 2003). This implies that the measurement instrument may be responsible for false effects (Podsakoff *et al.*, 2012). Since the validity of conclusions may be jeopardised by errors of measurement, it is essential that common method bias be addressed.

Measurement errors can broadly be classified into random error and systematic error (Bagozzi & Yi, 1991). Systematic measurement error ‘provides an alternative explanation for the observed relationships between measures of different constructs that is independent of the one hypothesized’ (Podsakoff *et al.*, 2003). Various common methods biases have been mentioned by researchers. These include common rater effects, item characteristic effects, item context effects and measurement context effects (Podsakoff *et al.*, 2003).

Research has suggested that it is possible to minimize the potential effects of common methods bias by applying (1) procedural techniques and (2) statistical remedies. Procedural remedies include carefully designing and improving the questionnaire or instrument of data collection and statistical remedies include the application of Harman’s single factor test and partial correlations method (Podsakoff *et al.*, 2003). These two techniques are discussed below.

#### **7.3.1 Procedural techniques**

In order to decrease measurement error, the questionnaires were carefully designed and tested thoroughly before distribution to respondents. Firstly, it was ensured that the respondents knew that all responses were collected anonymously. Every section in the questionnaire emphasized that there were no wrong answers. Participants were asked to ‘feel free to write what comes to your mind and what is most true to you’. This acknowledgement was done to reduce any apprehension in the respondents. This

statement was deliberately presented to ensure that that the respondents answer honestly and they are less likely to answer in order to look socially desirable (Podsakoff *et al.*, 2003, p. 888). Secondly, a timer was introduced to the priming question. This ensured that the participants spent the time reading up and writing their responses rather than speeding and skipping quickly to the next question. Thirdly, all the scales were designed carefully and pre-tested in pilot studies before being sent out to respondents in the main study. It was ensured that easy and simple language was used throughout the questionnaire so that the questionnaire was understood well by the respondents. The questionnaire was also analysed by an expert academic to check for any obvious English language or general errors. Following the comments and suggestions, some questions were simplified and ambiguous words were removed.

After applying these procedural remedies, it is also essential to check for measurement errors. This is done by a statistical method described in the following section.

### **7.3.2 Statistical techniques**

In this study, Harman's single-factor test was used to check for measurement errors. In this technique, all variables are loaded into an exploratory factor analysis and the unrotated factor solution is examined to determine the number of factors that are necessary to account for the variance in the variables. (Podsakoff *et al.*, 2013). The logic behind this technique is that if a large amount of variance (greater than 50%) is detected, a single factor will emerge in the factor analysis or one factor will be responsible for covariance among the measures (Babin, Griffin and Hair, 2016; Podsakoff *et al.*, 2013). Harman's single test conducted on this study shows that all the variables do not load on a single factor (see Appendix 6)

Finally, after the administering the aforementioned procedures, it can be said that this data is less likely to suffer from common methods bias.

## 7.4 Sample demographics

The demographic data of research participants includes information on gender, age, income, employment, education and age of the child. In this research, since the participants were randomly assigned to five experimental groups, the demographic information is presented for the overall sample first followed by data for each group.

### 7.4.1 Demographics – total sample

**Table 7.4a. Demographics -age**

Age of respondents (years)	Sample size (n)
18 to 25	42 (7.5 %)
26 to 34	191 (34.2 %)
35 to 44	161 (28.8 %)
45 to 54	107 (19.1%)
55 to 64	53 (9.5%)
Above 65	5 (0.9%)
<b>Total</b>	<b>559 (100%)</b>

The total data comprises of 114 male respondents (20.4 %) and 445 female respondents (79.6 %) above 18 years old. ( $M = 41$ ,  $SD = 15.34$ ). More specifically, following the age group split, 42 respondents (7.5 per cent) are between 18 and 25 years old, 191 respondents (34.2 per cent) are between 26 and 34, 161 respondents (28.8 per cent) are between 35 and 44, 107 respondents (19.1 per cent) are between 45 and 54, 53 respondents (9.5 per cent) are between 55 and 64 and 5 respondents (0.9 per cent) are 65 and older.

Since this research is aimed at understanding decisions for self and significant others, a pre-screened setting in the data collection platform Prolific ensured that all participants

were parents. The data comprised of 114 fathers and 445 mothers. The analysis of the demographic data showed that 279 participants (49.9 per cent) had children in the infant and early years' stage, 119 (21.3%) participants had primary school age children and 60 participants (10.7 per cent) had children in the secondary school age ( $M = 11.05$ ,  $SD = 6.25$ ).

**Table 7.4b. Child age group**

Age of youngest child	Sample size
0 to 5 years old	279 (49.9%)
6 to 11 years old	119 (21.3%)
12 to 17 years old	60 (10.7%)
Over 18 years old	101 (18.1%)
<b>Total</b>	<b>559 (100%)</b>

The detailed demographic information including gender, age, income, employment, education and age of respondents' youngest child is presented in a table in appendix 7.

#### **7.4.2 Demographics – experimental groups**

The total sample of 559 falls equally into five experimental groups. Specifically, the first group, which was primed for enjoyment of food with others, includes 109 respondents (19.5 per cent); the second group, which was primed for enjoyment of food in the context of self includes 114 respondents (20.0 per cent); the third group, which was primed for responsible consumption of food with others includes 112 respondents (20.1 per cent); and the fourth group, primed for responsibility in food consumption in the context of self includes 110 respondents (19.7per cent) (Table 7-1). The control group has 114 respondents (20.4%).



**Table 7.4c. Total sample and experimental group samples**

Group	Sample size
Enjoyment-self	109 (19.5%)
Enjoyment other	114 (20.0 %)
Responsibility self	112 (19.9%)
Responsibility -other	110 (19.7%)
Neutral	114 (20.4%)
<b>Total</b>	<b>559 (100%)</b>

## **7.5 Factor analysis**

Factor analysis a statistical technique that is used extensively by researchers involved in the development and evaluation of scales (Pallant, 2013). This method reduces a large number of items in a scale to a small meaningful number.

The researcher conducted Principal Component Analysis (PCA) with Varimax Rotation. The aim of the PCA to assess whether the items group into a number of distinct and meaningful factors.

Sample size and strength of correlations among variables are the main two issues to be considered when determining whether factor analysis is appropriate for the particular data set. While there is little agreement between researchers, the general rule is that larger sample sizes are better with at least 300 cases and coefficients greater than .3 are acceptable (Tabachnik and Fidell, 2012). Two other statistical measures to assess the factorability of data are Bartlett's Test of Sphericity (Bartlett, 1954) and Kaiser-Meyer-Olkin (Kaiser 1970, 1974) measure of sampling adequacy. Bartlett's Test should be significant ( $p < 0.05$ ) and KMO must have a value greater than 0.6 for a good factor analysis (Tabachnik and Fidell, 2013, Pallant, 2013).

The 10 items of Enjoyment Responsibility scale were subject to Principal Components Analysis using SPSS version 24. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of correlation matrix revealed the presence of many coefficients of 0.3 and above. The Kaiser- Meyer-Olkin value was 0.91, exceeding

the recommended value of 0.6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ( $p < 0.01$ ), supporting the factorability of the correlation matrix. The tables for factor analysis are presented in Appendix 7.5.

Principal components analysis revealed the presence of two components with eigenvalues exceeding 1, explaining 56.1 % and 11.3 % of the variance respectively. An inspection of the scree plot revealed a clear break after the second component. This was further supported by the results of parallel analysis (Marley Watkins, 2000), which showed only two components with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (10 variables x 559 respondents). The results of parallel analysis are presented in appendix 8.

The two-component solution explained 59.01% of the variance, with component 1 contributing 43.97% and component 2 contributing 15.04%. The rotated solution revealed a number of strong loadings on both components. There was a weak negative correlation between the two factors ( $r = -.3$ ). The results of this analysis support the use of enjoyment items and responsibility items as separate scales.

### **7.5.1 Manipulation checks**

The experiment described in this study involves a set of manipulations between goal priming (enjoyment or responsibility) and salience (visible sugar information and no sugar information). Manipulation checks are performed to find if the manipulations have been successful by having the desired effect on the participants. Although manipulation checks are performed during previous experiments, it is also essential to conduct manipulation checks for the main dataset.

#### **7.5.1.1 Manipulation check for priming of enjoyment**

A scale consisting of 5 items was designed and administered to check manipulation for enjoyment. These five items were checked for internal consistency; to ensure they were measuring a single construct. Using Cronbach's alpha coefficient (Cronbach, 1951) an acceptable level (Kline, 1993) of consistency was found ( $\alpha = .77$ ). These five items were then combined to form a single measure of enjoyment motivation.

A one way between groups analysis of variance was conducted to explore the impact of priming on motivation, as measured by the enjoyment scale. Participants were divided into three groups according to the priming condition – enjoyment group, responsibility group and neutral group. There was a statistically significant effect of priming on enjoyment at  $p < .001$  level,  $F(2,556) = 10.75, p < .01$ . Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for enjoyment group ( $M = 4.31, SD = 1.04$ ) was significantly higher than mean score for responsibility group ( $M = 3.89, SD = 0.94$ ). The mean score for the neutral group ( $M = 4.21, SD = 0.94$ ) was significantly different from the responsibility group but did not differ significantly from the enjoyment group.

#### **7.5.1.2 Manipulation check for priming of responsibility**

A scale consisting of 5 items was designed and administered to check manipulation for responsibility. These five items were checked for internal consistency; to ensure they were measuring a single construct. Ideally, the Cronbach alpha coefficient of a scale should be above 0.7 (DeVellis, 2012). Using Cronbach's alpha coefficient (Cronbach, 1951) a 'good' level (Kline, 1993) of consistency was found ( $\alpha = .87$ ). These five items were then combined to form a single measure of enjoyment motivation.

A one way between groups analysis of variance (ANOVA) was conducted to explore the impact of priming on motivation, as measured by the responsibility scale. Participants were assigned to three groups according to the priming condition – enjoyment group, responsibility group and neutral group. There was a statistically effect of priming on responsibility at  $P < 0.000$  level for the three groups:  $F(2,556) = 9.61, p = <.01$ . Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for responsibility group ( $M = 5.36, SD = 0.97$ ) was significantly different from enjoyment group ( $M = 4.94, SD = 1.16$ ). The mean score for the neutral group ( $M = 4.97, SD = 1.15$ ) was significantly different from the responsibility group but did not differ significantly from the enjoyment group.

Since this experiment was focused on testing the combined effects of enjoyment/responsibility motivations with self/other motivations on the perception of

beverages and related behavioural outcomes, the participants were randomly assigned to five groups (ES, EO, RS, RO, N) and manipulations were tested as mentioned below.

### **7.5.1.3 Manipulation check for priming of enjoyment - self motivation**

From the 10-item ERSO scale, four items that measured enjoyment- self motivation were checked for manipulation for enjoyment- self motivation. These four items were checked for internal consistency; to ensure they were measuring a single construct. Using Cronbach's alpha coefficient (Cronbach, 1951) an acceptable level (Kline, 1993) of consistency was found ( $\alpha = .68$ ). For scales with less than ten items, it can be difficult to obtain high Cronbach alpha values (Pallant, 2013). In such cases, inter-item correlation values are considered. The inter-item correlation was 0.36. Mean inter-item correlation values ranging from .2 to .4 suggest an optimal relationship among items (Briggs & Cheek 1986). These four items were then combined to form a single measure of enjoyment- self motivation.

A one way between groups analysis of variance was conducted to explore the impact of priming on motivation, as measured by the enjoyment- self subscale. Participants were divided into five groups according to the priming condition. The five groups were – enjoyment-self group, enjoyment-other group, responsibility - self group, responsibility - other group and neutral group. There was a statistically significant difference at  $P < 0.000$  level for the five groups:  $F(4,554) = 6.15, p < .01$  Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for enjoyment-self group ( $M = 5.54, SD = 1.56$ ) was significantly different from responsibility- self group ( $M = 4.91, SD = 1.29$ ) and responsibility- other group ( $M = 4.85, SD = 1.22$ ). The mean score for enjoyment-other group ( $M = 5.45, SD = 1.32$ ) was significantly different from the mean score of the responsibility-self group ( $M = 4.91, SD = 1.29$ ) and responsibility- other groups ( $M = 4.85, SD = 1.22$ ). The mean score for the neutral group ( $M = 5.35, SD = 1.32$ ) did not differ significantly from the other four groups (Table 7.5).

**Table 7.4d. Enjoyment self**

Enjoyment-self			
	N	Mean	Std. Deviation
Enjoyment Self	109	5.5390	1.56539
Enjoyment other	114	5.4496	1.31876
Responsibility Self	112	4.9063	1.29018
Responsibility other	110	4.8545	1.21647
Neutral	114	5.3487	1.32355
Total	559	5.2205	1.37168

An independent samples t-test was conducted to compare the scores for participants in enjoyment-self and responsibility-self conditions. There was a statistically significant difference in scores for enjoyment- self ( $M = 5.54$ ,  $SD = 1.56$ ) and responsibility-self groups ( $M = 4.90$ ,  $SD = 1.29$ ;  $t(229) = 3.28$ ,  $p = .000$ , two-tailed).

An independent samples t-test was conducted to compare the scores for participants in enjoyment-self and responsibility-other conditions. There was a statistically significant difference in scores for enjoyment- self ( $M = 5.54$ ,  $SD = 1.56$ ) and responsibility-other groups ( $M = 4.85$ ,  $SD = 1.21$ ;  $t(227) = 3.61$ ,  $p = .000$ , two-tailed).

An independent samples t-test was conducted to compare the scores for participants in enjoyment-self and enjoyment-other conditions. There was a no statistically significant difference in scores for enjoyment- self ( $M = 5.54$ ,  $SD = 1.56$ ) and enjoyment-other groups ( $M = 5.45$ ,  $SD = 1.32$ ;  $t(227) = .46$ ,  $p = .64$ , two-tailed).

An independent samples t-test was conducted to compare the scores for participants in enjoyment-self and neutral conditions. There was a no statistically significant difference in scores for enjoyment- self ( $M = 5.54$ ,  $SD = 1.56$ ) and neutral group ( $M = 5.35$ ,  $SD = 1.32$ ;  $t(221) = .98$ ,  $p = .32$ , two-tailed).

### 7.5.1.4 Manipulation check for priming of enjoyment- other motivation

One item in the ERSO scale measured enjoyment-other motivation. A one way between groups analysis of variance was conducted to explore the impact of priming on motivation, as measured by the enjoyment- other subscale

Participants were divided into five groups according to the priming condition. The five groups were – enjoyment-self group, enjoyment-other group, responsibility - self group, responsibility - other group and neutral group. There was a marginally significant difference at  $p < 0.1$  level for the five groups:  $F(4,554) = 2.10, p < .01$ .

**Table 7.4e. Enjoyment other**

Enjoyment – other			
	N	Mean	Std. Deviation
Enjoyment Self	109	5.3670	1.71411
Enjoyment other	114	5.6842	1.74130
Responsibility Self	112	5.0357	1.76517
Responsibility other	110	5.4818	1.71733
Neutral	114	5.4649	1.74061
Total	559	5.4079	1.74288

An independent samples t-test was conducted to compare the scores of participants in enjoyment-other and responsibility-self conditions. There was a statistically significant difference in scores for enjoyment-other ( $M = 4.46, SD = 1.37$ ) and responsibility-self groups ( $M = 3.95, SD = 1.44; t(224) = 2.71, p = .007$ , two-tailed).

An independent samples t-test was conducted to compare the scores of participants in enjoyment-other and responsibility-other conditions. There was a no statistically significant difference in scores for enjoyment- other ( $M = 4.46, SD = 1.37$ ) and responsibility-other groups ( $M = 4.31, SD = 1.38; t(222) = .79, p = .42$  two-tailed).

An independent samples t-test was conducted to compare the scores of participants in enjoyment-self and neutral conditions. There was a no statistically significant difference

in scores for enjoyment- other ( $M = 4.46, SD = 1.37$ ) and neutral group ( $M = 4.27, SD = 1.40$ ;  $t(226) = 1.04, p = .29$ , two-tailed).

#### **7.5.1.5 Manipulation check for priming of responsibility- self motivation**

From the 10-item ERSO scale, three items that measured responsibility- self motivation were checked for manipulation for enjoyment- self motivation. These three items were checked for internal consistency; to ensure they were measuring a single construct. Using Cronbach's alpha coefficient (Cronbach, 1951) a good level (Kline, 1993) of consistency was found ( $\alpha = .79$ ). The mean inter-item correlation was 0.56. These three items were then combined to form a single measure of enjoyment- self motivation.

A one way between groups analysis of variance was conducted to explore the impact of priming on motivation, as measured by the responsibility- self subscale. Participants were divided into five groups according to the priming condition. The five groups were – enjoyment-self group, enjoyment-other group, responsibility - self group, responsibility - other group and neutral group. There was a statistically significant difference at  $p < 0.000$  level for the five groups:  $F(4,554) = 6.65, p < .001$ . Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for responsibility-other group ( $M = 5.38, SD = 1.03$ ) was significantly different from enjoyment self-group ( $M = 4.66, SD = 1.38$ ) and the control group ( $M = 4.71, SD = 1.31$ ). The mean score for enjoyment-other group ( $M = 4.77, SD = 1.22$ ) was significantly different from the mean score of responsibility-other group ( $M = 5.38, SD = 1.03$ ). The mean score for responsibility-self group ( $M = 5.02, SD = 1.08$ ) did not differ significantly from the other four groups.

**Table 7.4f. Responsibility- self**

Responsibility- Self			
	N	Mean	Std. Deviation
Enjoyment Self	109	4.6575	1.38218
Enjoyment other	114	4.7690	1.22022
Responsibility Self	112	5.0208	1.08431
Responsibility other	110	5.3788	1.03603
Neutral	114	4.7135	1.30793
Total	559	4.9064	1.23751

An independent samples t-test was conducted to compare the scores of participants in responsibility-self condition and responsibility other condition. There was a statistically significant difference in scores for responsibility self ( $M = 5.02$ ,  $SD = 1.08$ ) and responsibility-other groups ( $M = 5.38$ ,  $SD = 1.04$ ;  $t(220) = 2.51$ ,  $p = .01$ , two-tailed).

#### **7.5.1.6 Manipulation check for priming of responsibility- other motivation**

From the 10-item ERSO scale, two items that measured responsibility- self motivation were checked for manipulation for enjoyment- self motivation. These two items were checked for internal consistency; to ensure they were measuring a single construct. Using Cronbach's alpha coefficient (Cronbach, 1951) a good level (Kline, 1993) of consistency was found ( $\alpha = .76$ ). The mean inter-item correlation was 0.61. These two items were then combined to form a single measure of responsibility-other motivation.

A one way between groups analysis of variance was conducted to explore the impact of priming on motivation, as measured by the responsibility-other subscale. Participants were divided into five groups according to the priming condition. The five groups were



– enjoyment-self group, enjoyment-other group, responsibility - self group, responsibility - other group and neutral group. There was a statistically significant difference at  $p < 0.01$  level for the five groups:  $F(4,554) = 3.47, p = 0.008$ . Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for responsibility-other group ( $M = 5.73, SD = 0.95$ ) was significantly different from enjoyment- self group ( $M = 5.28, SD = 1.23$ ) and enjoyment-other group ( $M = 5.26, SD = 1.04$ ). The mean score for responsibility-self group ( $M = 5.02, SD = 1.08$ ) and neutral groups ( $M = 5.35, SD = 1.14$ ) did not differ significantly from the other four groups.

**Table 7.4d. Responsibility other**

Responsibility - other			
	N	Mean	Std. Deviation
Enjoyment Self	109	5.2844	1.23672
Enjoyment other	114	5.2632	1.04163
Responsibility Self	112	5.4732	1.04157
Responsibility other	110	5.7318	.95465
Neutral	114	5.3465	1.14468
Total	559	5.4186	1.09744

An independent samples t-test was conducted to compare the scores for participants in responsibility-other condition and enjoyment-other condition. There was a statistically significant difference in scores for responsibility other ( $M = 5.73, SD = .95$ ) and enjoyment-other groups ( $M = 5.26, SD = 1.04; t(222) = 3.5, p = .001$ , two-tailed).

## **7.6 Main effects**

This section details the results for those hypotheses that are considered the main effects, namely the effects of the salience and motivation manipulations on perception and behaviour.

## **7.6.1 Effects on perceived health and appeal of beverages**

### **7.6.1.1 Hypotheses from pilot study 1**

To remind the reader, the hypotheses 1a and 1b are derived from pilot study 1 which was conducted to (1) find the effect of salient sugar information on health perception and appeal of beverage with and without sugar information and (2) to find a suitable (widely understood) front of pack label for this research.

**H1a: Salient sugar information on the label will decrease healthiness perception of the beverage.**

A one-way between-groups analysis of variance was conducted to explore the impact of salience on the perception of the beverage bottle. Participants were divided into five groups according to the label they were presented with (Group 1: No salient sugar information; Group 2: Teaspoon label; Group 3: Cookies label; Group 4: Candies label and Group 5: Sugar cubes label). There was a significant effect of salient sugar label on the health perception of beverage at the  $p < .001$  level for the five groups ( $F(4,134) = 8.56$ ,  $p = .000$ ). Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for the no label condition, ( $M = 4.11$ ,  $SD = 1.88$ ) was significantly different from teaspoon label ( $M = 1.97$ ,  $SD = 1.18$ ), cookies label ( $M = 2.39$ ,  $SD = 1.37$ ), candies label ( $M = 2.72$ ,  $SD = 1.54$ ) and sugar cubes label ( $M = 2.20$ ,  $SD = 1.56$ ). **Consequently, H1a is supported.**

**The data provided evidence to support Hypothesis 1a that salient sugar information on the label decreases the healthiness perception of the beverage. The beverage without sugar information was perceived to be healthier than the beverages with sugar information. It was notable that the beverage with teaspoon label was perceived to be unhealthier than all other beverages as it scored lowest on healthiness. Consequently, it was decided to use teaspoon label in subsequent studies in this research.**

**H1b: Salient sugar information on the label will decrease the appeal of the beverage.**

A one-way between-groups analysis of variance was conducted to explore the impact of salience on the appeal of the juice bottle. Participants were divided into five groups according to the label they saw. (Group 1: No label; Group 2: Teaspoon label; Group 3: Cookies label; Group 4: Candies label and Group 5: Sugar cubes label). There was a statistically significant difference in the appeal of beverages for the five groups at the  $p < .001$  level ( $F(4,134) = 4.01, p = .007$ ). Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for beverage without sugar information ( $M = 4.59, SD = 1.65$ ) was significantly different from teaspoon label ( $M = 2.86, SD = 1.68$ ) and sugar cubes label ( $M = 3.45, SD = 1.80$ ). Cookies label ( $M = 3.32, SD = 1.76$ ) and candies label ( $M = 3.20, SD = 1.83$ ) did not differ significantly from the other groups. **Consequently, H1b is supported.**

**The data provides evidence to support Hypothesis 1b that salient sugar information on the label decreases the appeal of the beverage. The beverage with no sugar information was perceived to be less appealing than the beverage with no sugar information. As compared to other labels, teaspoon label was most successful in decreasing the appeal of the product as it scored the lowest on appeal. This result, along with the result of H1 provided further support to the decision to use teaspoon label in subsequent studies in this research.**

#### **7.6.1.2 Hypotheses from Pilot study 2**

To remind the reader, the hypotheses 2a and 2 b are derived from pilot study 2 which was conducted to find the effect of priming of self/other motivation on the health perception and appeal of beverage with and without salient sugar information. The respondents completed the scrambled sentence task adapted from Srull and Wyer (1979).

**H2a Respondents primed to think of significant others will perceive the beverage with salient sugar information less healthy than respondents primed to think of themselves and participants in the control group.**

A one-way between-groups analysis of variance was conducted to explore the impact of priming for self or significant other on health perception of beverage with salient sugar

information. Participants were divided into three groups according to the motivation they were primed for. (Group 1: Self; Group 2: Significant other; Group 3: Control group). There was a significant effect of salient sugar label on the health perception of beverage at the  $p < .05$  level for the three groups ( $F(2, 106) = 4.01, p = .02$ ). Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for the significant other group, ( $M = 1.97, SD = 1.57$ ) was significantly different from the control group ( $M = 2.97, SD = 1.71$ ). The self-group ( $M = 2.4, SD = 1.57$ ) did not differ significantly from the other groups. **Consequently, H2a is partially supported.**

These effects were not observed in the beverage without salient sugar information ( $F(2, 106) = .78, p = .46$ ). Based on these findings, although the respondents primed to think of significant others did perceive the beverage unhealthier than respondents primed to think of themselves, this difference was not statistically significant. A notable result was that there was a significant difference in the health perception scores of significant other and neutral groups. **These findings showed that the priming for significant other lowered the health perception of the beverage with salient sugar information.**

**H2b Respondents primed to think of significant others will perceive the beverage with salient sugar information less appealing than respondents primed to think of themselves and the control group.**

A one-way between-groups analysis of variance was conducted to explore the impact of priming for self or significant other on the appeal of the beverage with salient sugar information. Participants were divided into three groups according to the motivation they were primed for. (Group 1: Self; Group 2: Significant other; Group 3: Control group). The results did not find statistical significance  $F(2, 106) = .19, p = .82$ . **Consequently, H2b is not supported.**

The findings from this pilot study (presented in Appendix 9) gave a new direction to the research and led the researcher to test for the effects of enjoyment/responsibility priming on the health perception and appeal of sugary beverages with salient sugar information. These effects were tested in the pilot study 3 discussed below.

### 7.6.2.3 Hypotheses from Pilot study3

To guide the reader, the hypotheses 3a and 3b are derived from pilot study 3 which was conducted to find the effect of priming of enjoyment/responsibility motivation on the health perception and appeal of beverage with and without salient sugar information. The respondents completed the scrambled sentence task adapted from Srull and Wyer (1979).

**H3a: Respondents primed for responsibility will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment.**

A one -way between - groups analysis of variance was conducted to explore the impact of priming for responsibility on healthiness perception of the beverage with salient sugar information and the beverage without salient sugar information. Participants were divided into three groups according to the motivation they were primed for. (Group 1: Enjoyment; Group 2: Responsibility; Group 3: Control group). There was a statistically significant difference at the  $p < .01$  level in health scores for the three groups:  $F(2,100) = 7.14$ ,  $p = .001$ ). Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for the enjoyment group ( $M = 3.30$ ,  $SD = 1.26$ ) was significantly different from responsibility group ( $M = 2.16$ ,  $SD = 1.06$ ). The control group ( $M = 2.72$ ,  $SD = 1.54$ ) did not differ significantly from other groups. These effects were not observed in the beverage without salient sugar information. **Consequently, H3a is supported.**

**The data provides evidence to support Hypothesis 3a that respondents primed for responsibility will perceive the beverage with salient sugar information less healthy than respondents in the control group. Consequently, H3 a is supported.**

**H3b: Respondents primed for responsibility will perceive the beverage with salient sugar information less appealing than respondents primed for enjoyment.**

A one -way between - groups analysis of variance was conducted to explore the impact of priming for responsibility on the appeal of the beverage with salient sugar information and the beverage without salient sugar information. Participants were divided into three groups according to the motivation they were primed for. (Group 1: Enjoyment; Group

2: Responsibility; Group 3: Control group). The results did not find statistical significance  $F(2, 100) = .92, p = .4$ . **Consequently, H3b is not supported.**

The data from pilot study 3 (presented in Appendix 10) provides evidence to support Hypothesis 3a that respondents primed for responsibility will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment. The findings gave a new direction to the research and led the researcher to test for the combined effects of self/other/enjoyment/responsibility priming on the health perception and appeal of sugary beverages with salient sugar information. These effects were tested in the main experiment discussed below.

#### **7.6.2.4 Hypotheses for the main experiment**

To remind the reader, following from the findings of pilot studies, the main experiment was conducted to find the effect of priming of enjoyment/responsibility/self/other motivation on the health perception and appeal of beverage with and without salient sugar information. The respondents were primed by a storytelling task adapted from Trafimow *et al.*, 1991.

Before the research proceeds to test the effect of combined priming effect, it is important to test for the interaction effect of enjoyment responsibility priming and self-other priming on the health perception and appeal of beverages (presented in Appendix 11). The hypotheses below test this interaction.

In order to test this interaction, it was essential to do a preliminary analysis by grouping the respondents based on the priming. More specifically, respondents primed for enjoyment-self and enjoyment other were grouped as enjoyment group and respondents primed for responsibility-self and responsibility other were grouped into responsibility group. This analysis is presented below.

**H4a Respondents primed for responsibility in the context of food will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment.**

A one-way between-groups analysis of variance was conducted to explore the impact of priming for responsibility on healthiness perception of the beverage with salient sugar

information and the beverage without salient sugar information. Participants were divided into three groups according to the motivation they were primed for. (Group 1: Enjoyment; Group 2: Responsibility; Group 3: Control group). There was a statistically significant difference at the  $p < .001$  level in health scores for the three groups ( $F(2,556) = 15.82, p = .000$ ). Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for the enjoyment group ( $M = 2.84, SD = 1.73$ ) was significantly different from responsibility group ( $M = 2.05, SD = 1.16$ ) and control ( $M = 2.32, SD = 1.54$ ). The difference between responsibility and control group was not significant. **Consequently, H4a is supported.**

The data provides evidence that respondents primed for responsibility will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment. This finding is also in line with the finding of pilot study 2 where similar results were obtained for respondents primed for enjoyment and responsibility.

**H4b Respondents primed for responsibility will perceive the beverage with salient sugar information less appealing than respondents primed for enjoyment.**

A one -way between - groups analysis of variance was conducted to explore the impact of priming for responsibility on the appeal of the beverage with salient sugar information. Participants were divided into three groups according to the motivation they were primed for (Group 1: Enjoyment; Group 2: Responsibility; Group 3: Control group). There was a statistically significant difference at the  $p < .01$  level in appeal scores for the three groups:  $F(2,556) = 5.49, p = .004$ . Post hoc comparisons using the test with Bonferroni correction indicated that the mean score for enjoyment group ( $M = 3.48, SD = 1.74$ ) was significantly different from responsibility group ( $M = 2.95, SD = 1.61$ ). The control group ( $M = 3.20, SD = 1.83$ ) did not differ significantly from the other groups. **Consequently, H4b is supported.**

The data provides evidence that respondents primed for responsibility will perceive the beverage with salient sugar information less appealing than respondents primed for enjoyment.

As mentioned earlier, in order to test the interaction, it was essential to do a preliminary analysis by grouping the respondents based on the priming. More specifically, respondents primed for enjoyment-self and responsibility –self were grouped as self-group and respondents primed for enjoyment- other and responsibility- other were grouped into significant other group. This analysis is presented below.

**H4c Respondents primed to think of significant others in the context of food will perceive the beverage with salient sugar information less healthy than respondents primed to think of themselves.**

A one -way between - groups analysis of variance was conducted to explore the impact of priming for self or significant other on health perception of the beverage with salient sugar information. Participants were divided into three groups according to the motivation they were primed for. (Group 1: Self; Group 2: Significant other; Group 3: Control group). The results did not find statistical significance  $F(2, 556) = .44, p = .64$ . **Consequently, H4c is not supported.**

**H4d Respondents primed to think of significant others will perceive the beverage with salient sugar information less appealing than respondents primed to think of themselves.**

A one -way between - groups analysis of variance was conducted to explore the impact of priming for self or significant other on the appeal of the beverage with salient sugar information. Participants were divided into three groups according to the motivation they were primed for. (Group 1: Self; Group 2: Significant other; Group 3: Control group). The results did not find statistical significance  $F(2, 556) = .00, p = .97$ . **Consequently, H4d is not supported.**

**After finding the effect of E/R/N priming and S/O/N priming, the next step was to explore the interaction effects of these primes on the health and appeal of beverages.**



**H5: The combined presentation of enjoyment/ responsibility priming and self/other priming is likely to affect the perception and appeal of the beverage (with salient sugar information).**

This implies that an interaction effect is likely to be observed between priming of self/other and enjoyment/responsibility motivations in the health perception of sugary beverages with/without salient sugar information.

Univariate analysis was conducted to explore the impact of self/other and enjoyment responsibility priming. The interaction effect between the two priming conditions was statistically significant ( $F(1,554) = 7.03, p = .008$ ). There was a significant main effect for enjoyment/responsibility condition ( $F(1,554) = 31.04, p < .01$ ). There was no significant main effect for self/ other condition ( $F(1,554) = .22, p = .63$ ). **This result suggests that enjoyment/ responsibility prime has an effect on the perception of beverage. Moreover, the two primes (enjoyment/responsibility and self/other) when presented together, present a significant interaction effect. This implies that presenting these primes together is likely to affect the perception of beverage.** No significant interaction effect was found for appeal of beverage ( $F(1,554) = .03, p = .86$ ). However, a statistically significant main effect was found for enjoyment/ responsibility condition in the appeal of beverage ( $F(1,554) = 10.9, p = .001$ )

Based on findings of a significant interaction effect between the primes, further tests were conducted to test the effect of enjoyment/responsibility/self/other motivations on health and appeal of beverage (presented in Appendix 12). In further tests, participants were divided into five groups according to the priming they underwent. The five groups were group 1: enjoyment-self; group 2: enjoyment-other; Group 3: responsibility-self; Group 4: responsibility- other and Group 5: neutral or control group. These tests are presented below.

In my opinion, this drink is healthy - TSP

	N	Mean	Std. Deviation
Enjoyment Self	109	2.61	1.632
Enjoyment other	114	3.05	1.794
Responsibility Self	112	2.21	1.239
Responsibility other	110	1.90	1.058
Neutral	114	2.32	1.537
Total	559	2.42	1.524

In my opinion, this drink is appealing - TSP

	N	Mean	Std. Deviation
Enjoyment Self	109	3.50	1.725
Enjoyment other	114	3.46	1.771
Responsibility Self	112	2.95	1.564
Responsibility other	110	2.95	1.672
Neutral	114	3.21	1.696
Total	559	3.21	1.698

Firstly, a one-way between-groups analysis of variance was conducted to explore the impact of combined priming effects on health perception of the beverage. Participants were divided into five groups according to the priming they underwent. (Group 1: Enjoyment self; Group 2: Enjoyment other; Group 3: Responsibility self; Group 4: Responsibility other and Group 5: Neutral. There was a statistically significant difference in the health scores of the groups at the  $p < .001$  level ( $(F_{4,554}) = 9.80, p < .001$ ). Post hoc comparisons using Bonferroni test indicated that the enjoyment-self group ( $M = 2.61, SD = 1.63$ ) rated the beverage healthier than responsibility other group ( $M = 1.90, SD = 1.05$ ). The enjoyment-other group ( $M = 3.05, SD = 1.79$ ) rated the beverage healthier than responsibility-self group ( $M = 2.21, SD = 1.23$ ), responsibility-other group ( $M = 1.90, SD = 1.05$ ) and the control group ( $M = 2.32, SD = 1.53$ ). The results are presented in Appendix 13.

Secondly, a one-way between-groups analysis of variance was conducted to explore the impact of combined priming effects on the appeal of beverage. Participants were divided into five groups according to the priming they underwent. (Group 1: Enjoyment self; Group 2: Enjoyment other; Group 3: Responsibility self; Group 4: Responsibility other and Group 5: Neutral. There was a statistically significant difference in the appeal scores

of the groups at the  $p < .001$  level ( $(F 4,554) = 2.75, p = .03$ ). The results are presented in Appendix 13.

**These preliminary results from ANOVA indicated that there were significant differences in groups in the sample. To find out which of the pairs had significant differences, the data was further analysed with the help of independent t-tests (presented in Appendix 13). These tests are presented below.**

**H5a Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of enjoying food with significant others.**

An independent samples t-test was conducted to compare the health perception scores for participants in enjoyment-self and enjoyment-other conditions. There was a difference approaching significance in health perception scores for enjoyment-self ( $M = 2.61, SD = 1.63$ ) and enjoyment-other groups ( $M = 3.05, SD = 1.79; t(221) = -1.90, p = .06$ , two-tailed). **Consequently, H5a is not significant.**

The data provides evidence to partially support Hypothesis 5a that respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) as being healthier than respondents primed to think of responsible eating with significant others.

**H5b Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of enjoying food with significant others.**

An independent samples t-test was conducted to compare the appeal scores for participants in enjoyment-self and enjoyment-other conditions. There was no significant difference in health perception scores for enjoyment-self ( $M = 3.50, SD = 1.72$ ) and enjoyment-other groups ( $M = 3.46, SD = 1.77; t(221) = .20, p = .84$ , two-tailed). **Consequently, H5b is not supported.**

**H6a: Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating themselves.**

An independent samples t-test was conducted to compare the health perception scores for participants in enjoyment-self and responsibility-self conditions. There was a significant difference in health perception scores for enjoyment- *self* ( $M = 2.61, SD = 1.63$ ) and responsibility-self groups ( $M = 2.21, SD = 1.24; t(219) = 2.09, p = .04$ , two-tailed). **Consequently, H6a is supported.**

**H6b: Respondents primed to think of enjoying food themselves will perceive the beverage more appealing than respondents primed to think of responsible eating with significant others.**

An independent samples t-test was conducted to compare the appeal scores for participants in enjoyment-self and responsibility-self conditions. There was a significant difference in appeal scores for enjoyment- *self* ( $M = 3.50, SD = 1.63$ ) and responsibility-self groups ( $M = 2.95, SD = 1.24; t(219) = 2.5, p = .01$ , two-tailed). **Consequently, H6b is supported.**

**H7a: Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.**

An independent samples t-test was conducted to compare the health perception scores for participants in enjoyment-self and responsibility-other conditions. There was a significant difference in the health perception scores for enjoyment- *self* ( $M = 2.61, SD = 1.63$ ) and responsibility-other groups ( $M = 1.90, SD = 1.06; t(217) = 3.85, p = .00$ , two-tailed). **Consequently, H7a is supported.**

**H7b: Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating with significant others.**

An independent samples t-test was conducted to compare the appeal scores for participants in enjoyment-self and responsibility-other conditions. There was a significant difference in the appeal scores for enjoyment- self ( $M = 3.50$ ,  $SD = 1.73$ ) and responsibility-other groups ( $M = 2.95$ ,  $SD = 1.67$ ;  $t(217) = 3.85$ ,  $p = .02$ , two-tailed). **Consequently, H7b is supported.**

**H8a: Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating themselves.**

An independent samples t-test was conducted to compare the health perception scores for participants in enjoyment-other and responsibility-self conditions. There was a significant difference in the health perception scores for enjoyment- other ( $M = 3.05$ ,  $SD = 1.79$ ) and responsibility-self groups ( $M = 2.21$ ,  $SD = 1.24$ ;  $t(224) = 4.13$ ,  $p = .00$ , two-tailed). **Consequently, H8a is supported.**

**H8b: Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating themselves.**

An independent samples t-test was conducted to compare the appeal scores for participants in enjoyment-other and responsibility-self conditions. There was a significant difference in the appeal scores for enjoyment- other ( $M = 3.46$ ,  $SD = 1.77$ ) and responsibility-self groups ( $M = 2.95$ ,  $SD = 1.56$ ;  $t(224) = 2.29$ ,  $p = .02$ , two-tailed). **Consequently, H8b is supported.**

**H9a: Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.**

An independent samples t-test was conducted to compare the health perception scores for participants in enjoyment-other and responsibility-other conditions. There was a

significant difference in the health perception scores for enjoyment- other ( $M = 3.05$ ,  $SD = 1.79$ ) and responsibility-other groups ( $M = 1.90$ ,  $SD = 1.75$ ;  $t(222) = 5.83$ ,  $p = .00$ , two-tailed). **Consequently, H9a is supported.**

**H9b: Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating with significant others.**

An independent samples t-test was conducted to compare the appeal scores for participants in enjoyment-other and responsibility-other conditions. There was a significant difference in the appeal scores for enjoyment- other ( $M = 3.46$ ,  $SD = 1.77$ ) and responsibility-other groups ( $M = 2.95$ ,  $SD = 1.67$ ;  $t(222) = 2.18$ ,  $p = .03$ , two-tailed). **Consequently, H9b is supported.**

**H10a: Respondents primed to think of eating food responsibly themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.**

An independent samples t-test was conducted to compare the health perception scores for participants in responsibility-self and responsibility-other conditions. There was a significant difference in the health perception scores for responsibility-self ( $M = 2.21$ ,  $SD = 1.24$ ) and responsibility-other groups ( $M = 1.90$ ,  $SD = 1.06$ ;  $t(220) = 5.83$ ,  $p = .05$ , two-tailed). **Consequently, H10a is supported.**

**H10b: Respondents primed to think of eating food responsibly themselves will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating with significant others.**

An independent samples t-test was conducted to compare the appeal scores for participants in responsibility-self and responsibility-other conditions. There was no

significant difference in appeal scores for enjoyment- self ( $M = 2.95$ ,  $SD = 1.56$ ) and enjoyment-other groups ( $M = 2.95$ ,  $SD = 1.67$ ;  $t(221) = .04$ ,  $p = .97$ , two-tailed). **Consequently, H10b is not supported.**

**Further tests were conducted to find the effect of priming conditions and the control groups on the health and appeal of beverages. By means of t-tests, the four primed groups were compared with the control group. Significant differences in health perception scores were found for enjoyment-other and responsibility-other groups while no significant results were found for enjoyment-self and responsibility- self groups.** The significant results are presented below. The tables are presented in Appendix 11.

An independent samples t-test was conducted to compare the health perception scores for participants in enjoyment-other and control conditions. There was a significant difference in the health perception scores for enjoyment-other ( $M = 3.05$ ,  $SD = 1.79$ ) and control groups ( $M = 2.32$ ,  $SD = 1.54$ ;  $t(226) = 3.29$ ,  $p = .00$ , two-tailed).

An independent samples t-test was conducted to compare the health perception scores for participants in responsibility-other and control conditions. There was a significant difference in the health perception scores for responsibility-other ( $M = 1.90$ ,  $SD = 1.06$ ) and control groups ( $M = 2.32$ ,  $SD = 1.54$ ;  $t(222) = 2.4$ ,  $p = .02$ , two-tailed).

**In summary, priming conditions had an effect on the health perception and appeal of the sugary beverage with salient sugar information. These effects were not seen in the same beverage without sugar information. More specifically, respondents primed for responsibility perceived the carbonated beverage unhealthier and less appealing than respondents primed for enjoyment. As expected, respondents in the responsibility-other condition rated the beverage unhealthier than respondents in the enjoyment and control conditions. Most interestingly, respondents in the enjoyment-other condition rated the beverage healthier than respondents in all other conditions and respondents in enjoyment-self condition rated the beverage more appealing than all other conditions.**

## **Results for other beverages presented in the study**

To remind the reader, the main experiment showed the participant four drinks. These were

- Juice with sugar label
- Juice without sugar label
- Water
- Carbonated beverage

No significant differences were found in the health and appeal of juice without sugar information and water. However, a noticeable finding was that the carbonated beverage was perceived differently based on three priming conditions. These tests are presented below. The tables are presented in Appendix 12.

Firstly, a one-way between-groups analysis of variance was conducted to explore the impact of combined priming effects on health perception and appeal of the carbonated beverage. Participants were divided into five groups according to the priming they underwent. (Group 1: Enjoyment self; Group 2: Enjoyment other; Group 3: Responsibility self; Group 4: Responsibility other and Group 5: Neutral). There was a statistically significant difference in the health scores of the groups at the  $p < .05$  level ( $F(4,554) = 2.63, p = .03$ ). Post hoc comparisons using Bonferroni test indicated that the mean score for enjoyment-other group ( $M = 2.01, SD = 1.31$ ) was significantly different from the responsibility-other group ( $M = 1.61, SD = .86$ ).

These preliminary results from ANOVA indicated that there were significant differences in groups in the sample. To find out which of the pairs have significant differences, the data was further analysed with the help of independent t-tests (presented in Appendix 14). Significant differences were found in the health scores of enjoyment-other, responsibility-other and responsibility-self groups. These tests are presented below.

An independent samples t-test was conducted to compare the health perception scores for participants in enjoyment-other and responsibility-other conditions. There was a significant difference in the health perception scores for enjoyment-other ( $M = 2.01, SD = 1.31$ ) and responsibility-other groups ( $M = 1.61, SD = .86; t(222) = 2.68, p = .007$ , two-tailed).



An independent samples t-test was conducted to compare the health perception scores for participants in enjoyment-other and responsibility-self conditions. There was a significant difference in the health perception scores for enjoyment-other ( $M = 2.01$ ,  $SD = 1.31$ ) and responsibility-self groups ( $M = 1.65$ ,  $SD = .89$ ;  $t(224) = 2.68$ ,  $p = .01$ , two-tailed).

**In summary, priming conditions had an effect on the health perception of the carbonated beverage. More specifically, respondents primed for responsibility perceived the carbonated beverage unhealthier than respondents primed for enjoyment. As expected, respondents in the responsibility-other condition rated the beverage unhealthier than respondents in the other conditions. Most interestingly, respondents in the enjoyment-other condition rated the carbonated beverage healthier than respondents in all other conditions.**

### **7.6.2 Behavioural outcomes**

As described in Chapter 6, three behavioural outcome exercises were designed to test the effect of priming. These were (1) a task in which participants were asked to choose a sandwich and drink for their lunch box (2) their child's lunch box and (3) participants were asked to drag a slider on a scale to rate the healthiness of the beverage. The data for these outcomes is presented in Appendix 13.

Most respondents chose water (58.5%) followed by beverage without salient sugar information (24.5%), carbonated beverage (14.1%) and beverage with salient sugar information (2.9%). (Table 7.6).

To explore the relationship between priming and choice of beverage (two categorical labels), Chi-square test of independence was employed. This test compares the observed frequencies in each of the categories to the values that would be expected if there was no association between the variables (Pallant, 2013).

<b>Table 7-3. Choice of beverage for self</b>						
From the given four drinks, please choose one drink for your lunch box						
	ES_EO_RS_RO_N					Total
	Enjoyment Self	Enjoyment other	Responsibility Self	Responsibility other	Neutral	
Juice with tsp label	5	5	0	1	5	16
water	63	66	66	73	59	327
Juice without label	21	29	28	27	32	137
Carbonated beverage	20	14	18	9	18	79
	109	114	112	110	114	559

**H11: Respondents primed for responsibility will be less likely to select the tsp label beverage for the lunch box than respondents primed for enjoyment or the control groups.**

A Chi-square test for independence (with Yates Continuity Correction) indicated a significant association between priming for responsibility and selection of beverages for the lunch box,  $\chi^2(1, n=559) = .009, phi = .02$ . This implies that the proportion of respondents primed for responsibility who chose tsp label beverage is significantly different from the respondents primed for enjoyment. There appears to be an association between priming and choice of beverage.

To explore this further, tests were conducted to find the relationship between responsibility- other/ responsibility-self priming and choice of beverages.

Fisher's exact test indicated a significant association between priming for responsibility-other and selecting carbonated beverage for the lunch box ( $p = .05$ , two-tailed Fisher's exact test, Cramer's  $V = 0.085$ ). These results imply that when primed for responsibility-other, respondents are less likely to choose the carbonated beverage for the lunch box.

Fisher's exact test indicated a significant association between priming for responsibility-self and selecting tsp label beverage for the lunch box ( $p = .05$ , two-tailed Fisher's exact test, Cramer's  $V = 0.086$ ). These results imply that when primed for responsibility-self, respondents are less likely to choose tsp label beverage for the lunch box. **Consequently, Hypothesis 11 is supported.**

**H12: Respondents primed for enjoyment will be more likely to select the tsp label beverage for the child's lunch box than respondents primed for responsibility.**

In the second task, the respondents were asked to choose a drink and sandwich for their child's lunch box. Most respondents chose water (64.4%) followed by beverage without salient sugar information (33.2%), beverage with salient sugar information and (2.9 %), carbonated beverage (0.4 %). Table (7.4).

<b>Table 7.4. Choice of beverage for child</b>						
From the given four drinks, please choose one drink for your child's lunch box.						
	ES_EO_RS_RO_N					Total
	Enjoyment Self	Enjoyment other	Responsibility Self	Responsibility other	Neutral	
Juice with tsp label	4	3	1	1	0	9
water	55	61	59	64	56	295
Juice without label	31	26	30	27	38	152
Carbonated beverage	1	0	1	0	0	2
	91	90	91	92	94	458

A Chi-square test for independence (with Yates Continuity Correction) indicated a significant association between priming for responsibility/enjoyment priming and selection of sugary beverage for the lunch box,  $\chi^2 (1, n= 559) = .009, phi = .02$ . This implies that the proportion of respondents primed for responsibility who chose tsp label beverage is significantly different from the respondents primed for enjoyment. There appears to be an association between priming and choice of beverage

Of the total number of beverages with salient sugar information chosen, the majority (77.8%) of the beverages were chosen by respondents primed for enjoyment.

Fisher's exact test indicated a significant association between priming for enjoyment and selecting tsp label beverage for the child's lunch box ( $p = .03$ , two-tailed Fisher's exact test, Cramer's  $V = 0.09$ ). **Consequently, Hypothesis 9 is supported.**

Fisher's exact test indicated a significant association between priming for responsibility-self (respondents primed to for responsible eating for themselves) and selecting tsp label beverage for the lunch box ( $p = .05$ , two-tailed Fisher's exact test,  $phi = -.08$ ).

A Chi-square test for independence (with Yates Continuity Correction) indicated a marginally significant association between priming for responsibility-other and selecting water for the lunch box,  $\chi^2(1, n= 559) = .1, phi = .07$ .

A Chi-square test for independence (with Yates Continuity Correction) indicated a marginally significant association between priming for responsibility-other and selecting carbonated beverage for the lunch box,  $\chi^2(1, n= 559) = .06, phi = -.85$ .

**H13: Respondents primed for enjoyment will rank the beverage with salient sugar information healthier than respondents primed for responsibility on the sliding scale.**

To remind the reader, in this task a scale was presented on the screen with a movable slider on it. The respondents had to drag the slider to the chosen number from 1 to 10 with 1 denoting unhealthy and 10 denoting extremely healthy.

A one-way between-groups analysis of variance was conducted to explore the impact of combined priming effects on health perception of the beverage. Participants were divided into five groups according to the priming they underwent. (Group 1: Enjoyment self; Group 2: Enjoyment other; Group 3: Responsibility self; Group 4: Responsibility other and Group 5: Neutral. There was a statistically significant difference in the health scores of the groups at the  $p < .01$  level ( $F(4,528) = 16.30, p = .004$ ). Post hoc comparisons using Bonferroni test indicated that the mean score for the enjoyment-self group ( $M = 2.8, SD = 1.89$ ) was significantly different from the enjoyment-other group ( $M = 3.58, SD = 2.46$ ). The mean score of enjoyment-other group ( $M = 3.58, SD = 2.46$ ) was significantly different from responsibility-other group ( $M = 2.55, SD = 1.68$ ) and the control group ( $M = 2.76, SD = 2.05$ ).

**The data provides evidence to support Hypothesis 13 that respondents primed for enjoyment will rank the beverage with salient sugar information healthier than respondents primed for responsibility.**

**7.6.2 Summary of results.**

This chapter has reported results for the effects of priming manipulations on the perception of health and the appeal of beverages, along with related behavioural outcomes.

The results support the proposition that salience and goal activation together can alter the perception and appeal of beverages. For the convenience of the reader, the main effects hypotheses and results are presented in table 7-6 on the next page.

**Table 7-6. Summary of results**

H	Description	Result	Sig
H1a	Salient sugar information on the label will decrease healthiness perception of beverage	Supported	***
H1b	Salient sugar information on the label will decrease the appeal of beverage.	Supported	***
H2a	Respondents primed to think of significant others will perceive the beverage with salient sugar information less healthy than respondents primed to think of themselves and participants in the control group.	Partially supported	**
H2b	Respondents primed to think of significant others will perceive the beverage with salient sugar information less appealing than respondents primed to think of themselves and the control group.	Not supported	
H3a	Respondents primed for responsibility will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment.	Supported	***
H3b	Respondents primed for responsibility will perceive the beverage with salient sugar information less appealing than respondents primed for enjoyment.	Not supported	
H4a	Respondents primed for responsibility (in the context of food) will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment.	Supported	***
H4b	Respondents primed for responsibility (in the context of food) will perceive the beverage with salient sugar information less appealing than respondents primed for enjoyment.	Supported	***
H4c	Respondents primed to think of significant others (in the context of food) will perceive the beverage with salient sugar information less healthy than respondents primed to think of themselves.	Not supported	
H4d	Respondents primed to think of significant others (in the context of food) will perceive the beverage with salient sugar information less appealing than respondents primed to think of themselves.	Not Supported	
H5	An interaction effect is likely to be observed between priming of self/other and enjoyment/responsibility motivations in the health perception of sugary beverages with/without salient sugar information.	Supported	***
H5a	Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of enjoying food with significant others.	Partially supported	
H5b	Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of enjoying food with significant others.	Not supported	
	(continued on next page)		

	Hypotheses(table continued from previous page)		
H6a	Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating themselves.	Supported	**
H6b	Respondents primed to think of enjoying food themselves will perceive the beverage more appealing than respondents primed to think of responsible eating with significant others.	Supported	**
H7a	Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.	Supported	***
H7b	Respondents primed to think of enjoying food themselves will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating with significant others.	Supported	**
H8a	Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating themselves.	Supported	***
H8b	Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating themselves.	Supported	**
H9a	Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.	Supported	***
H9b	Respondents primed to think of enjoying food with significant others will perceive the beverage (with salient sugar information) more appealing than respondents primed to think of responsible eating with significant others.	Supported	**
H10a	Respondents primed to think of eating food responsibly themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.	Supported	**
H10b	Respondents primed to think of eating food responsibly themselves will perceive the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others.	Supported	**
H11	Respondents primed for responsibility will be less likely to select the tsp label beverage for the lunch box than respondents primed for enjoyment or the control groups.	Supported	**
H12	Respondents primed for enjoyment will be more likely to select the tsp label beverage for the child's lunch box than respondents primed for responsibility.	Supported	**
H13	Respondents primed for enjoyment will give a higher health score to the beverage with salient sugar information, than respondents primed for responsibility.	Supported	**

## 7.7 Other effects

As discussed in this research, salience and goal activation are proposed as potential mechanisms by which perceptions and behaviours are likely to be affected. After being exposed to the prime, the members of the primed groups are likely to make choices aligning with the primed goal.

However, it has also been shown in the literature that effects of primes are likely to be moderated by the motivation of the participants (Papies, 2016). If the goal primes are relevant to certain participants, the priming effects are likely to be more pronounced for them, for example in this research, responsibility priming may work better because the respondents are motivated to live healthily (Weingarten *et al.*, 2016). In other words, motivational benefits are seen when the concept is valued by the person. Research has also demonstrated that health-related primes could lead to healthier choices (Papies, 2014). Thus, it can also be argued that priming of food-related cues might have served as a subtle reminder or cue to prime health consciousness.

Another potential moderator in this research could be skepticism toward advertising. In the context of marketing, skepticism is 'defined as the tendency toward disbelief of advertising claims' (Obermiller and Spangenberg, 1998, p. 159). Thus, highly sceptical consumers may be less likely to believe advertising claims.

Furthermore, dietary restraint could have influenced the perception of the beverages. 'Dietary restraint is the intention to restrict food intake in order to control body weight' (Herman & Mack, 1975). Additionally, since this study is regarding beverages, it has been shown that basic needs such as hunger and thirst, cause the respondents to perceive those cues more readily which are capable of fulfilling these needs (Aarts *et al.*, 2001).

Therefore, it is important to explore the potential effects of other independent variables such as health consciousness, skepticism, restraint and effects of hunger and thirst on the health perception and appeal of the beverage. The results of these effects are explored next.



### **7.7.1 Mediation and moderation analysis**

The techniques considered for mediation analysis include 'Baron and Kenny four-step method' (Baron & Kenny, 1986) and PROCESS plugin (Hayes, 2012). On reviewing recent literature and criticisms on mediation analysis (Zhao, Lynch Jr., & Chen, 2010) (Hayes, 2011), it was decided to employ PROCESS third-party plug-in for SPSS in this research.

On analysing the data for possible mediation effects of health consciousness and skepticism on the appeal and health of beverages, no indirect effects were detected. The data was then checked for possible moderating variables.

### **7.7.2 Health consciousness**

Health consciousness is the motivation that leads consumers to activities related to health (Jayanti and Burns, 1998; Michaelidou and Hassan, 2008). Health conscious consumers are likely to engage in healthy behaviours. These consumers are aware of their health and constantly aim to improve their wellness and health. For example, eating a balanced diet or exercising to keep fit. Research has shown that health consciousness leads to changes in preventive health care, attitude towards organic food and purchase intentions (Jayanti and Burns, 1998, Hughner *et al.*, 2007, Lockie *et al.*, 2002).

Since this research primes the participants for responsibility or enjoyment in the context of healthy and unhealthy eating, it is essential to gauge if participant's health consciousness had any impact on the perception of the beverage. This research uses the 9 item health consciousness scale (Gould, 1990).

It is acknowledged by the researcher that priming may have had an effect on variables like health consciousness and skepticism as these were measured after the experiment. However, given the experimental nature of the research, measuring these variables before the experiment would have exposed the participants to the nature of the research. This would defeat the purpose of priming which requires the absence of conscious guidance or intention. Regression analysis and t-test are reported below.

### Effect of priming on health consciousness

A one way between groups analysis of variance was conducted to explore the impact of priming on health consciousness scores of the five groups. Participants were divided into five groups according to the priming condition. The five groups were – enjoyment-self group, enjoyment-other group, responsibility - self group, responsibility - other group and neutral group. No differences in score were observed between the groups  $F(4,554) = .20$ ,  $p = .93$ . Based on these results it was concluded that health consciousness scores of the five groups were not significantly different from each other.

### Effect of health consciousness on health perception of beverage with tsp label

A simple linear regression was calculated to predict the health perception of tsp label beverage based on health consciousness scores. A non-significant regression equation was found ( $F(1, 557) = 3.36$ ,  $p > .05$  with and Rsquare value of .006).

### Effect of health consciousness of appeal of beverage with tsp label

A simple linear regression was calculated to predict the appeal of tsp label beverage based on health consciousness scores. A significant regression equation was found ( $F(1, 557) = 5.76$ ,  $p < .05$  with and Rsquare value of .010. Participant's predicted score is  $= 4.091 \pm 0.19$ . The appeal scores decreased by 0.19 for each score increase in health consciousness.

To test this effect further, it was decided to split the sample into high and low health consciousness as suggested by the author of the health consciousness scale (Gould, 1988). The researcher acknowledges that this may result in loss of statistical power.

To find out if respondents with higher reported levels of health consciousness will rate the beverage with salient sugar information unhealthier than respondents with lower reported levels of health consciousness, a t-test was conducted. The mean scores of health consciousness were segregated into low and high scores (Gould, 1988). The sample was split based on the scale centre. An independent samples t-test was conducted to compare the health perception of tsp label beverage for respondents with high health consciousness and low health consciousness. Although the respondents with high health consciousness

rated the beverage unhealthier ( $M = 2.55$ ,  $SD = 1.74$ ) than respondents with low consciousness ( $M = 2.41$ ,  $SD = 1.50$ ), the difference was not statistically significant.

An independent samples t-test was conducted to compare the appeal of tsp label beverage for respondents with high health consciousness and low health consciousness. There was a statistically significant difference in the appeal scores. The respondents with high health consciousness rated the beverage unhealthier ( $M = 3.17$ ,  $SD = 1.89$ ) than respondents with low consciousness ( $M = 3.67$ ,  $SD = 1.67$ ;  $t(557) = 1.98$ ,  $p = .04$ ).

A notable finding was that statistically significant results were also obtained for some other beverages like water and juice without salient sugar information as shown below. In line with the extant literature on health consciousness, respondents high in high in health consciousness rated the healthy beverages like water and juice without salient sugar information significantly healthier than respondents with low health consciousness.

<b>Independent Samples Test - Health and appeal scores by health consciousness</b>			
	<i>F</i>	<i>P value</i>	<i>Sig.</i>
In my opinion, this drink is healthy - TSP	.575	.536	-
In my opinion, this drink is appealing - TSP	3.231	.048	*
In my opinion this drink is healthy - Plain	5.405	.012	*
In my opinion, this drink is appealing - Plain	.013	.212	-
In my opinion this drink is healthy - water	8.207	.003	**
In my opinion, this drink is appealing - water	.351	.002	**
In my opinion this drink is healthy - Cola	4.091	.238	-
In my opinion, this drink is appealing - Cola	.784	.080	-

\* significance at  $p < .05$ , \*\*significance at  $p < .01$

### Effect of health consciousness on the choice of beverage

From the given four drinks, please choose one drink for your child's lunch box.			
	Health consciousness		Total
	Low	High	
tsp label	3	13	16
water	17	310	327
Plain	14	123	137
Carbonated beverage	15	64	79
Total	49	510	559

A Chi-square test for independence (with Yates Continuity Correction) indicated a significant association between health consciousness and selection of water for the lunch box,  $\chi^2 (1, n= 559) = .001, phi = .000$ .

A Chi-square test for independence (with Yates Continuity Correction) indicated a significant association between health consciousness and selection of carbonated beverage for the lunch box,  $\chi^2 (1, n= 559) = .001, phi = .000$ .

No significant effects were observed for the other beverages.

### 7.7.3 Skepticism

Skepticism toward advertising, defined as the ‘general tendency toward disbelief of advertising claims’ (Obermiller and Spangberg, 1998). The literature states a wide variety of consumers may not believe claims of advertising (Calfee and Ringold, 1994) and that highly sceptical consumers are more sceptical of media and advertising than are their less sceptical counterparts (Obermiller and Spangberg, 2000, Obermiller *et al.*, 2005). In this research, we propose that respondents with higher levels of skepticism will rate the beverages healthier than respondents with lower skepticism. This research employs the 9 item SKEP scale (Obermiller and Spangberg, 1998). Regression tests and t-tests are reported below.

#### Effect of skepticism on health perception of beverage

A simple linear regression was calculated to predict the health perception of tsp label beverage based on skepticism scores. A significant regression equation was found ( $F(1, 557) = 4.08, p < .05$  with an  $R^2$  value of .007. Participant's predicted score is equal to  $2.062 + .011$  when score is measured on a 7-point scale. The health score increased .011 for each score increase in skepticism.

To test this further, the mean scores of skepticism were segregated into low and high scores. The sample was split based on the scale centre.

An independent samples t-test was conducted to compare the health perception of tsp label beverage for respondents with high skepticism and low skepticism. There was no significant difference in the health scores for respondents with high skepticism score ( $M = 2.35, SD = 1.41$ ) and respondents with low skepticism score ( $M = 2.54, SD = 1.68; t(557) = -1.4, p = .14$ ).

#### Effect of skepticism on the appeal of beverage

A simple linear regression was calculated to predict the appeal of tsp label beverage based on skepticism scores. A significant regression equation was found ( $F(1, 557) = 4.60, p < .05$  with an  $R^2$  value of .008. Participant's predicted score is equal to  $2.79 + .013$  when score is measured on a 7-point scale. The appeal score increased .013 for each score increase in skepticism.

An independent samples t-test was conducted to compare the health perception of tsp label beverage for respondents with high skepticism and low skepticism. There was no significant difference in the health scores for respondents with high skepticism score ( $M = 3.13, SD = 1.68$ ) and respondents with low skepticism score ( $M = 3.37, SD = 1.71; t(557) = -1.6, p = .106$ ).

Most notably, statistically significant results were obtained for some other beverages like beverage without sugar information, water and carbonated beverage. Respondents with high skepticism levels rated the carbonated beverage and the beverage without sugar information significantly healthier than respondents with low skepticism. In summary, the respondents with high skepticism doubted the product or the product information.

However, this effect was not seen in the beverage with salient sugar information thus establishing the effectiveness of the label.

<b>Independent Samples Test - Health and appeal scores by skepticism</b>			
	<i>F</i>	<i>Sig</i>	<i>p-value</i>
Q46 - In my opinion, this drink is healthy - TSP	10.030	.148	-
Q46 - In my opinion, this drink is appealing - TSP	.658	.106	-
Q53 - In my opinion this drink is healthy - water	.414	.128	-
Q53 - In my opinion, this drink is appealing - water	1.030	.006	**
Q59 - In my opinion this drink is healthy - Plain	4.412	.000	**
Q59 - In my opinion, this drink is appealing - Plain	3.117	.002	**
Q62 - In my opinion this drink is healthy - Cola	15.156	.000	**
Q62 - In my opinion, this drink is appealing - Cola	2.073	.003	**

\* significance at  $p < .01$ , \* significance at  $p < .05$

#### Effect of skepticism on the choice of beverage

No significant effects of skepticism were observed for the choice of beverage, in the lunch box.

#### **7.7.4 Dietary Restraint**

‘The intention to restrict food intake in order to control body weight’ is known as dietary restraint (Herman & Mack, 1975). Research has shown that presence of attractive food cues may trigger eating in subjects with high dietary restraint. The reason for this has been attributed to being in states of constant deprivation (Herman & Mack, 1975). In this research, we propose that respondents with higher levels of dietary restraint may rate the sugary beverages unhealthy than respondents with lower levels of dietary restraint. This research employs the 10 item Revised Restraint Scale (Polivy and Herman, 1980). The mean scores of restraint were segregated into low and high scores. The sample was split based on the scale centre. Regression analysis and t-test are reported below.

### Effect of dietary restraint on health perception of beverage

A simple linear regression was calculated to predict the health perception of tsp label beverage based on dietary restraint scores. A non-significant regression equation was found ( $F(1, 557) = 2.15, p > .05$  with and Rsquare value of .004).

An independent samples t-test was conducted to compare the health perception of the tsp label beverage for respondents with high restraint and low restraint. There was no significant difference in the health scores for participants with high or low restraint scores. The respondents with high restraint rated the beverage unhealthier ( $M = 2.28, SD = 1.46$ ) than respondents with low restraint score ( $M = 2.51, SD = 1.78; t(557) = 1.76, p = .07$ ).

### Effect of dietary restraint on the appeal of beverage

A simple linear regression was calculated to predict the appeal scores of tsp label beverage based on dietary restraint scores. A non-significant regression equation was found ( $F(1, 557) = .80, p > .05$  with and Rsquare value of .004).

An independent samples t-test was conducted to compare the appeal of the tsp label beverage for respondents with high restraint and low restraint. There was no significant difference in the appeal scores for participants with high or low restraint scores. The respondents with high restraint rated the beverage less appealing ( $M = 3.15, SD = 1.70$ ) than respondents with low restraint score ( $M = 3.25, SD = 1.69; t(557) = .67, p = .50$ ).

Most notably, statistically significant results were obtained for some other beverages like water and carbonated beverage. Respondents with high restraint levels rated water healthier and the carbonated beverages unhealthier than respondents with low restraint.

Independent Samples Test - Health and appeal scores by dietary restraint			
	<i>F</i>	<i>Sig</i>	<i>p-value</i>

Q46 - In my opinion, this drink is healthy - TSP	4.330	.079	-
Q46 - In my opinion, this drink is appealing - TSP	.002	.501	-
Q53 - In my opinion this drink is healthy - water	1.968	.000	**
Q53 - In my opinion, this drink is appealing - water	.414	.227	-
Q59 - In my opinion this drink is healthy - Plain	.651	.168	-
Q59 - In my opinion, this drink is appealing - Plain	.032	.164	-
Q62 - In my opinion this drink is healthy - Cola	10.73	.006	**
Q62 - In my opinion, this drink is appealing - Cola	2.78	.526	-

\* significance at  $p < .01$ , \* significance at  $p < .05$

#### **Independent Samples Test - Health and appeal scores by dietary restraint (low/high)**

##### Effect of dietary restraint on the choice of beverage

No significant effects of restraint were observed for the choice of beverage, in the lunch box.

### **7.7.5 Results related to demographics**

#### **7.7.5.1 Gender**

From a theoretical perspective, a number of studies have established gender differences when it comes to the perception of health and healthiness of food in general (Anson *et al.*, 1993; Arslanagic, Pestek and Maglajlic, 2014, Levy, Fein and Schucker, 1992; Oakes and Slotterback, 2007). Literature suggests that food label use is affected by education, gender, age and time pressure (Drichoutis, Lazaridis & Nayga, 2006). More specifically, empirical studies have shown that men and women differ in their perceptions of healthy food packaging (Arslanagic *et al.*, 2014).

To remind the reader, the sampled consisted of 114 males and 445 females. The participants were randomly assigned to the questionnaire and no pre-screening questions were added to the survey to ensure equal distribution of sex. The researcher acknowledges that this unequal split of gender may yield different results than a study conducted with equal gender split. The results are presented below.

An independent samples t-test was conducted to compare the health perception of beverage with salient sugar information for males and females. There was a statistically



significant difference in the health scores. Male respondents in the sample rated the beverage healthier ( $M = 2.77$ ,  $SD = 1.65$ ) than female respondents ( $M = 2.33$ ,  $SD = 1.47$ ;  $t(557) = 2.76$ ,  $p = .01$ ).

An independent samples t-test was conducted to compare the appeal of beverage with salient sugar information for males and females. There was a statistically significant difference in the appeal scores. Male respondents in the sample rated the beverage more appealing ( $M = 3.61$ ,  $SD = 1.70$ ) than female respondents ( $M = 3.11$ ,  $SD = 1.70$ ;  $t(557) = 2.77$ ,  $p = .006$ ).

Statistically significant results were also obtained for carbonated beverages. Male respondents rated the carbonated beverage significantly healthier and significantly more appealing than female respondents did. A similar effect was observed in the health perception and appeal of juices, with men rating the juices healthier and more appealing than women do. This difference was statistically significant ( $p = .03$ ) for appeal of juice while marginally significant for the health perception of juice ( $p = .06$ ).

<b>Independent Samples Test - Health and appeal scores by gender (male/female)</b>				
	F	t	Sig. (2-tailed)	p value
Q46 - In my opinion, this drink is healthy - TSP		2.581	.011	*
Q46 - In my opinion, this drink is appealing - TSP	.131	2.770	.006	**
Q53 - In my opinion this drink is healthy - water	.113	-1.467	.143	-
Q53 - In my opinion, this drink is appealing - water	1.045	-.678	.498	-
Q59 - In my opinion this drink is healthy - Plain	1.390	1.888	.060	-
Q59 - In my opinion, this drink is appealing - Plain	10.461	1.860	.033	-
Q62 - In my opinion this drink is healthy - Cola		3.419	.001	**
Q62 - In my opinion, this drink is appealing - Cola	3.139	2.265	.020	*

\* Significance at  $p < .05$ , \*\* significance at  $p < .01$

#### Effect of gender on the choice of beverage for respondent's lunch box

Looking at behavioural outcomes, a Chi-square test for independence (with Fisher's exact test) indicated a significant association between gender and choice of beverage with salient sugar information for the respondent's lunch box,  $X^2(1, n=559, p=.028, \phi = -.1)$ . This implies that the proportion of males who chose beverage with salient sugar information (6.1%) is significantly different from the proportion of females who chose the same beverage (2%).

A significant association was observed between gender and choice of the beverage without salient information ( $p = .010$ ). A significant association was observed between gender and choice of water ( $p = .03$ ). No significant association was found between gender and choice of carbonated beverage.

#### Effect of gender on the choice of beverage for child's box.

A significant association was observed between gender and choice of water for the child's lunch box,  $X^2(1, n=559, p=.012, \phi = .11)$ . This implies that the proportion of males who chose water (42%) is significantly different from the proportion of females who chose water (56%).

#### Effect of gender on the slider scale to indicate healthiness of beverages

An independent samples t-test was conducted to compare health rating of beverage with salient sugar information for males and females. There was a statistically significant difference in the health rating. Male respondents in the sample rated the beverage healthier ( $M = 3.29, SD = 2.02$ ) than female respondents ( $M = 2.82, SD = 2.02; t(527) = 2.11, p = .03$ ).

An independent samples t-test was conducted to compare health rating of the beverage without salient sugar information for males and females. There was a statistically significant difference in the health rating. Male respondents in the sample rated the beverage healthier ( $M = 6.86, SD = 1.91$ ) than female respondents ( $M = 6.16, SD = 2.31; t(527) = 3.29, p = .001$ ).

### 7.7.5.2 Age

To remind the reader, the total data comprised of 114 male respondents (20.4 %) and 445 female respondents (79.6 %) above 18 years old ( $M = 41$ ,  $SD = 15.34$ ). The participants were randomly assigned to the questionnaire and no pre-screening questions were added to the survey to ensure equal distribution of age. The researcher acknowledges that this unequal split of age may yield different results than a study conducted with equal age split. The results are presented below.

#### Effect of participant's age on choice of beverage for respondents' lunch box

A Chi-square test for independence (with Fisher's exact test) indicated a significant association between age and choice of beverage with salient sugar information for the respondent's lunch box,  $X^2(1, n = 559, p = .005, \phi = -.1)$ . This implies that the proportion of younger respondents who chose the beverage with salient sugar information (4%) is significantly different from the proportion of older respondents who chose the same beverage (0%).

A significant association was observed between age and choice of carbonated beverage ( $p = .002$ ). A significant association was observed between age and choice of water ( $p = .005$ ). No significant association was found between age and beverage without salient information ( $p > .1$ ).

#### Effect of participant's age on choice of beverage for child's lunch box

No significant association was found between gender and choice of other beverages for child's lunch box.

#### Effect of participant's age on slider task to indicate healthiness of beverages

No significant association was found between gender and choice of other beverages for child's lunch box.

### **7.7.6 Hunger and thirst levels**

Studies have shown that physiological aspects like hunger and thirst might lead to an increased perceptual readiness to environmental cues if these cues are useful for satisfying that physiological need (Aarts *et al.*, 2001). For example, thirsty participants drink more liquid when they are primed by thirst or drink related words (Strahan, Spencer and Zanna, 2002).

Since this study was regarding beverages, the participants' level of hunger and thirst are measured on a 10-point scale at the beginning of the study. The variance for thirst ( $M = 4.8$ ,  $SD = 2.51$ ) and hunger ( $M = 5.2$ ,  $SD = 2.2$ ) was 6.3 and 4.8 respectively. There were no significant effects of hunger or thirst on priming and health/appeal perception of beverages. While no association was found between hunger/thirst and choice of beverages, it is notable that a significant association was found between thirst and water as the choice of beverage ( $p = .032$ ).

### **7.8 Conclusion**

In addition to reviewing the manipulation checks, this chapter has reviewed results regarding the perception of beverage and behavioural outcomes. The research hypotheses related to salience and goal activation are presented and tested empirically. The next chapter will address the findings and discuss the relevance of the results.

## **CHAPTER 8. DISCUSSION AND CONCLUSION**

**This chapter discusses the overall findings of this research and presents the research contributions along with limitations and suggestions for future research. The chapter begins with Section 8.1, which provides an overview of the chapter. The next Section 8.2 presents a discussion of research findings in relation to research hypotheses and literature. Section 8.3 outlines the contributions of the research. The limitations of the research and suggestions for further research are presented in section 8.5 followed by conclusion in section 8.6.**

### **8.1 Introduction**

Most research in the field of food marketing – especially food and nutrition labelling is based on the assumption that most consumers are able to understand the labels and make informed decisions (Graham and Jeffery, 2011; Grunert, 2007; Miller and Cassady, 2015). Moreover, most research focusses on ways to promote the brand rather than approaching the problem from a social marketing perspective. While such an approach is effective for a few consumers, it might not be beneficial for the majority of consumers.

This thesis has explored the possibility that psychology and marketing research together may be utilized for better decision making by consumers. By researching most overlooked aspects like making communication simple and easy to understand and studying goal activation (in light of decisions for the betterment of individuals and the society rather than with profitmaking motives), this thesis attempts to draw attention and adds to the scant literature in beverage marketing from a social wellbeing perspective.

To guide the reader, the research framework is presented in figure 8-1 below. This framework highlights the relevant areas of the thesis structure related to this chapter.

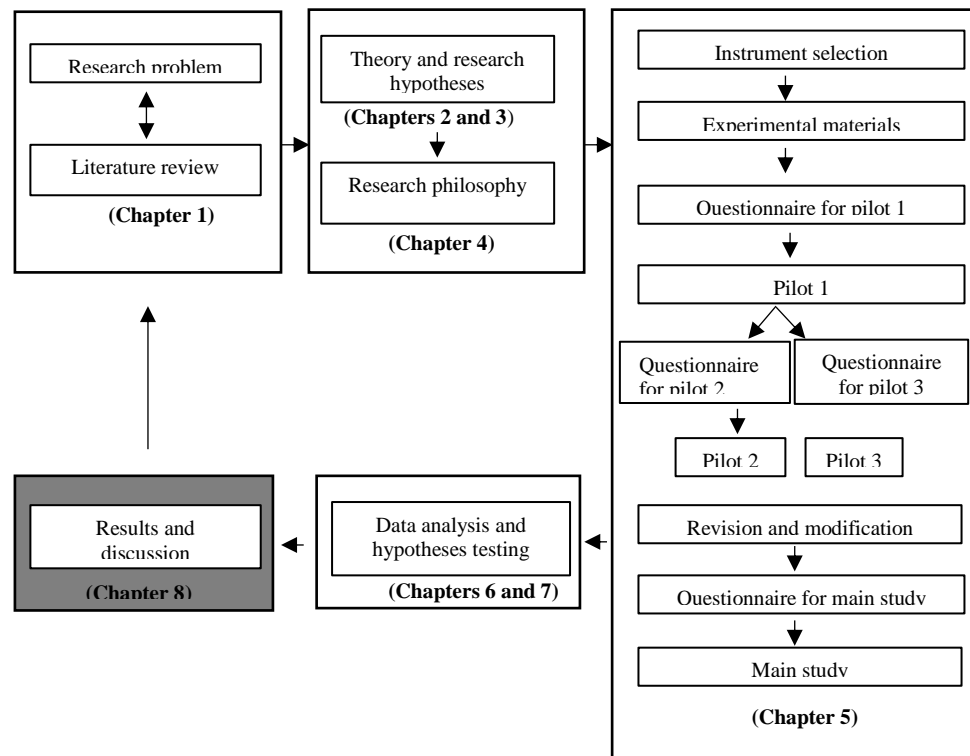


Figure 8-1: Structure of research

(The highlighted area represents the topic covered in this chapter).

## **Section 8.2 Discussion of research findings in relation to research hypotheses and literature**

This section will discuss the results relating to the manipulation of salience and goal activation. To guide the reader through the discussion, this section is structured into seven subsections:

Section 8.2.1: Salience and perception of beverage – Hypotheses 1a, 1b

Section 8.2.2: Goal activation –Self/other – Hypotheses 2a, 2b, 4c, 4d

Section 8.2.3: Goal activation – Enjoyment/responsibility– Hypotheses 3a, 3b, 4a, 4b

Section 8.2.4: Goal activation – combined effects – Hypotheses 5 to 13

Section 8.2.5: Impact of health consciousness

Section 8.2.6: Impact of scepticism

Section 8.2.7: Impact of food restraint

Section 8.2.7: Impact of demographics

### **8.2.1 Salience and perception of beverage – Hypotheses 1a and 1b**

The results confirm that the effect of health halos of beverages can be overcome by presenting salient sugar information on the labels. A fictitious product (juice bottle) with a fictitious brand name and label were presented to the participants. The beverage with sugar information was perceived as being less healthy and less appealing, than the same beverage without any sugar information. Furthermore, while all the labels used in the experiment (teaspoon, cookies, candies and sugar cubes) significantly lowered the health perception of the beverage, one label (teaspoon) lowered the health perception more than others did. The researcher acknowledges that although the score of tsp label was significantly different from no label beverage, it was not significantly different from all other sugary labels. Consequently, since the tsp label achieved the lowest health and appeal scores, this label was used in subsequent studies in the research.

From a conceptual perspective, this finding is in accordance with the extant literature in psychology and marketing (Tversky and Kahneman, 1974; Zajonc, 1968, Dolan *et al.*, 2010, Higgins, 1996, Kahneman and Thaler, 2006, BIT, 2018). Salient information stands out and captures attention and people are likely to take account of and remember stimuli that are novel, accessible and simple (Houser, Reiley, and Urbancic, 2008). Additionally, it has been established that consumers rely on a limited number of heuristic principles, which reduce the complex task of decision making to simpler judgmental operations (Kahneman and Tversky, 1974). Salience is one such bias that is explored in this research. The findings offer support to the literature by showing that salient sugar information was noticed by the participants, which in turn affected the health perception of the beverage.

In practical terms, this finding suggests that consumer perception of beverages can be altered by presenting easy to understand salient information. This finding is particularly useful for beverages, which carry health halos despite their high sugar content. These beverages leverage on either semantic association (by using words like pure, natural,

healthy or words like energy booster, smart choice) or emphasize the miniscule fruit content or the vitamin and mineral content, thereby misleading the consumers. Moreover, a label on the beverage is likely to serve as a constant reminder of its sugar content and thus reduce impulsive consumption. It is suggested that mandatory sugar information is likely to lead to better choices by reducing the health and appeal of beverages with health halos. It is worth noting here that the contradictory information regarding juices for children is prevalent on social media. As an example, National Health Services webpage ([www.nhs.uk](http://www.nhs.uk)) firstly mentions that juices are harmful to children and at the same time, on the same webpage, emphasises that essential vitamins, minerals are present in juices, and they can be consumed (150ml) every day by children. It is suggested that salient and easy to understand sugar information on fruit juices reduce the health and appeal of beverages, which is likely to lead to informed choices by parents and consumers in general.

### **8.2.2. Goal activation –Self/other – Hypotheses 2a, 2b**

The results confirm that products are perceived differently based on which identity is dominant in the respondent's mind. The research shows that people's identities motivate them to pursue related goals. The results support the hypothesis that respondents primed for significant others will rate the beverage with sugar information unhealthier than respondents in the control group. (To remind the reader, in pilot study 2, although significant differences were detected in the control and other groups, the difference between self and other groups was not statistically significant). Nevertheless, the results showed significant differences in health and appeal of the beverage with salient sugar information.

From a conceptual perspective, the results add support to literature by confirming that relationship partners play a powerful and strong role in affecting individual's interpersonal motivations (Fitzsimons and Bargh, 2003). Additionally, in line with the theory of human motivation and goal-pursuit, different situations are capable of triggering the identities of respondents, which in turn motivate them to pursue related goals (Oyserman, 2015). More specifically, this research shows that that priming for self reduces the impact of sugar information on consumer perception of healthiness and appeal of beverage while priming for significant others increases the impact of sugar



information on consumer perception of healthiness and appeal. It can be argued that thinking for significant others is likely to trigger thoughts of responsibility, healthy eating and risk-averse behaviour.

From a practical viewpoint, this finding may be useful from a public policy perspective. Since thinking of significant others is likely to make consumers think of responsibility and pay greater attention to health information, interventions for healthy behaviours can be designed by identities related to significant others. For example, the identity of a mother, father, grandparents etc. The finding can be useful to companies selling food products high in harmful ingredients (salt/sugar fat), as they can prime concepts of self and enjoyment thereby taking attention away from the undesirable ingredients.

### **8.2.3: Goal activation – Enjoyment/responsibility– Hypotheses 3a 3b**

The results confirm that goals can be automatically activated and pursued. Moreover, results support the hypothesis that respondents primed for responsibility rate the beverage with sugar information unhealthier than respondents primed for enjoyment do. Additionally, respondents primed for responsibility rated the beverage with sugar information less appealing than respondents primed for enjoyment did. It can be argued that priming for responsibility activates healthy eating goals while priming for enjoyment directs attention towards hedonic eating and pleasure rather than healthy eating.

From a conceptual perspective, this finding is in accordance with the extant literature on goal priming and goal activation (Aarts, Gollwitzer, Hassin, 2004; Bargh *et al.*, 2001; Bargh and Gollwitzer 1994; Chartrand and Bargh, 1996; Higgins, Bargh and Lombardi, 1985, Vogt *et al.*, 2010). Research findings indicate the activation of a goal representation is likely to motivate respondents to pursue the primed goal. Furthermore, goals can be activated directly or indirectly through their association with the primed situational features. Research shows that mental representations (goals) can be activated and these activated goals can influence subsequent actions. The findings offer support to the literature by showing that participants primed for responsibility perceived the beverage with sugar information differently than participants primed for enjoyment. When primed for responsibility, the respondents rated the beverage with salient information unhealthier thereby showing that health goals were activated in the mind of the respondent. Though

the respondents primed for enjoyment also rated the beverage unhealthy, they rated it significantly healthier than participants primed for responsibility did.

From a practical perspective, this finding suggests that consumers can be primed to think of health-related goals by activating concepts like responsibility and enjoyment. Although priming consumers by means of advertisements and visual cues is prevalent in the consumer market (Chernov, 2016), this finding can be employed by companies in the food and beverage industry, wherein responsibility can be primed in association with the product, thereby leading to association of the product with health or alternatively, priming for enjoyment can divert the consumers' attention from health, towards enjoyment related concepts. However, it is essential that the product exhibits salient information regarding any one aspect of the food product. More specifically, once the consumer is primed for responsibility and related goals are activated, it is likely that the impact of salient information will be high. This finding can be of immense use from a social marketing and public policy perspective. It can be argued that respondents primed for responsibility will be more likely to be receptive to health-related information.

#### **8.2.4. Goal activation – combined effects – Hypotheses 5 to 13**

Bringing together research on salience and goal activation, the results confirm activating or priming a goal automatically activates the cognitive, affective and behavioural information associated with that goal. Additionally, the research shows that people's identities motivate them to pursue related goals. This research primed the respondents for enjoyment or responsibility in the context of self or significant others. The results have shown that perception differs in each of the situations. It is important to add here that salience played an important role in the studies, as the perceptions of other beverages did not differ significantly. It is notable that significant differences were also found in the health perception of carbonated beverage. It is likely that carbonated beverages are perceived differently based on the identity that is dominant at that moment (e.g. parent identity or individual identity).

From a conceptual perspective, the results add support to extant literature on goal activation (Bargh and Chartrand 1999) and identity-based motivation (Oyserman, 2000).

Additionally, the findings offer support to literature by confirming that relationship partners play a powerful and strong role in affecting individual's interpersonal motivations (Fitzsimons and Bargh, 2003). More specifically this research has shown that priming of two concepts at the same time is likely to activate related goals and in turn alter the perception of products related to the activated goals.

The study showed that respondents primed to think of enjoying food with significant others perceived the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others. The findings also showed that respondents primed to think of enjoying food themselves perceived the beverage (with salient sugar information) healthier than respondents primed to think of responsible eating with significant others. This finding is in line with the extant literature, that people with interdependent construal are more likely to be motivated to be responsible while people with independent construal are more likely to activate pleasure seeking goals (Cross, Hardin and Swing, 2011; Zhang and Shrum, 2009). Put simply, as enjoyment with significant others is likely to be different from the enjoyment of activities when alone (for example, enjoying food with family at a party as opposed to enjoying food at an office party). These situational cues activate different goals in the minds of consumers. As a result, the respondents primed for significant others were likely to be more responsible and rated the beverage unhealthier (thus risk averse) than respondents primed for self (risk-taking). In line with these findings, the respondents primed for enjoyment rated the beverages more appealing than respondents primed for responsibility did. Most notably, there were no significant differences in the health and appeal of juice without salient information and water. These non-significant results emphasise the importance of salience in this research. In this study, salient information ensured that the health halo was overcome and the beverage was seen as unhealthy. Additionally, significant results for the carbonated beverage confirm the findings that the salient label brought juices down from the category from healthy beverages to unhealthy beverages like cola.

From a practical perspective, the findings of the research can be employed by food and beverage companies and the government. Priming for enjoyment and self is likely to be effective to promote food and beverages that are not very healthy. Activating goals related to self and enjoyment is likely to divert the attention from the health aspect of the product and target the attention towards hedonic goals. This trend is prevalent in the current market wherein some carbonated beverages are sold emphasising the 'enjoyment'

aspect. Similarly, high sugar foods and beverages like sports drinks, energy bars and sweet yoghurts emphasize on aspects (as achievement, independence, risk-taking, self-esteem and other aspects associated with the self) that focus on priming enjoyment and self. Thus, all attention is deliberately directed away from the high sugar content of the product. Another important area in which findings can be applied is in the domain of public policy and health behaviour changes. Priming for responsibility and significant other is likely to be effective in promoting food and beverages that are healthy. Activating goals related to significant others and responsibility is likely to draw the attention towards the health aspect of the product. For instance, in government communication and advertising to prevent unhealthy food and beverages, including primes and pictures related to significant others, is likely to draw attention towards the health aspect. For example, showing a child in communication for an unhealthy drink (carbonated beverage) is likely to draw great criticism and attention.

#### **8.2.5: Impact of health consciousness**

The results showed significant effects of health consciousness on the perception of beverage with salient sugar information. Moreover, health consciousness had a significant effect on the perception of water and carbonated beverage. This finding is in line with extant literature on health consciousness that these consumers are motivated to engage in healthy behaviours (Dutta-Bergman, 2004; Jayanti and Burns, 1998, Lockie *et al.*, 2002). The non-significant finding on splitting the participants into low and high consciousness groups goes on to show that the beverage with salient sugar information was perceived as equally unhealthy by both highly health conscious and low health-conscious consumers. This finding offers support to the literature on salience (Kahneman and Tversky, 1974, Higgins, 1996). The easy and accessible information on the juice was successful in moving it to the unhealthy category notwithstanding consumer's health consciousness levels.

From a practical perspective, this finding can be used by companies and government. Food and beverage companies selling healthy products will benefit by targeting health-conscious consumers much more than by targeting all segments of the population. For example, companies selling water, milk, healthy soups etc. are likely to achieve greater sales by targeting the health-conscious consumer. Alternatively, carbonated beverages

are least likely to gain profits from health-conscious consumers. This is also evident from the declining sales of carbonated beverages across the world (BSDA, 2016; Fortune 2016; Reuters, 2017). Most of these beverage brands are diversifying into beverages that are perceived healthier e.g. water, vitamin water, sports drinks etc. From a public policy and social marketing perspective. This finding offers an achievable solution to inform consumers of the high sugar content in food and beverages. The communication in the form of salient labels is equally effective for consumers who are health conscious and others who are not.

### **8.2.6. Impact of skepticism**

The results showed that respondents with both high and low skepticism levels perceived the beverage with salient information unhealthy. This non-significant difference between consumers with low and skepticism offers supports the research proposition that salient sugar information can successfully overcome the effect of health halos, notwithstanding the levels of scepticism. Most notably, significant differences in health perception of the beverage without sugar information were recorded in sceptical and non-sceptical consumers. Respondents with higher levels of scepticism rated the beverage without salient sugar information unhealthier than respondents with lower levels of skepticism. The difference was significant for carbonated beverage too.

From a conceptual perspective, this significant finding offers support to literature on scepticism which states that a wide variety of consumers do not believe advertising claims (Calfee and Ringold, 1994) and that highly sceptical consumers are more sceptical of media and advertising than are their less sceptical counterparts (Obermiller and Spangenberg, 2000; Obermiller, Spangenberg and MacLachlan, 2005).

From a practical perspective, this finding can be useful to food and beverage companies. The salient label designed for this study was not affected by consumer scepticism. The health perception and appeal of same product without a salient label was significantly different for sceptical non-sceptical respondents. This significant difference can be attributed to the presence of salient sugar information. Companies can use this finding by making truthful information salient on their products. Although this trend is prevalent in the market (for example brands advertise phrases like ‘heart healthy’, low sugar etc.)

these claims are considered doubtful and some labels are perceived as being misleading (Chan, Patch and Williams, 2004; Hamilton *et al.*, 2000). The solution to reduce scepticism in consumers is rather simple – the answer lies in being truthful to the consumer. However, this solution might not be considered practical in the competitive FMCG (fast moving consumer goods) market. The other way around scepticism is to build trust around the brand. By means of communication messages and effective use of social media, some brands may be able to build a trustworthy image and in some cases have to undergo losses in the first few years of building trust among consumers. However, once that trust is established and scepticism levels are reduced, the brand is likely to do well based on that trustworthy image.

### **8.2.7. Impact of gender**

The research showed that male respondents (fathers) rated the beverage with salient sugar information healthier and more appealing than female respondents (mothers) did. Male respondents rated the carbonated beverage significantly healthier and significantly more appealing than female respondents did. There were no differences between the health and appeal ratings of other beverages based on gender. Since the noticeably unhealthy drinks were rated slightly healthier by men, one can conclude that women perceived the information more accurately than men did. It might be interesting to explore this difference in future research.

From a theoretical perspective, these findings offer support to a number of studies that have established gender differences when it comes to the perception of health and healthiness of food in general (Arslanagic, Pestek and Kadic-Maglajlic 2014, EK, 2013; Manippa *et al.*, 2017, Oakes and Slotterback, 2007;). Literature suggests that food label use is affected by education, gender, age and time pressure (Drichoutis, Lazaridis & Nayga, 2006). More specifically, empirical studies have shown that men and women differ in their perceptions of healthy food packaging (Arslanagic, Pestek and Kadic-Maglajlic 2014).

From a practical perspective, this finding is likely to be useful to food and beverage brands and government policy organizations. Since female respondents seemed to perceive the salient sugar label more accurately than male respondents did, perhaps it will

help government campaigns for family healthy eating behaviours to be designed with women (mothers) as the target respondent. Food brands can use this finding to design their advertising around men or women based on the attributes of the product. Most notably, this could be good news for some declining carbonated beverages market, as they can make products targeted at men as their end consumer. Further research could explore these effects in the context of other beverages.

To summarise the main results, the graphs and tables shown below depict how priming and inclusion of salient sugar information lowered the health and appeal of the beverage with teaspoon label as compared to the beverage with no sugar information.

Figure 8-2a: Summary of results (health)

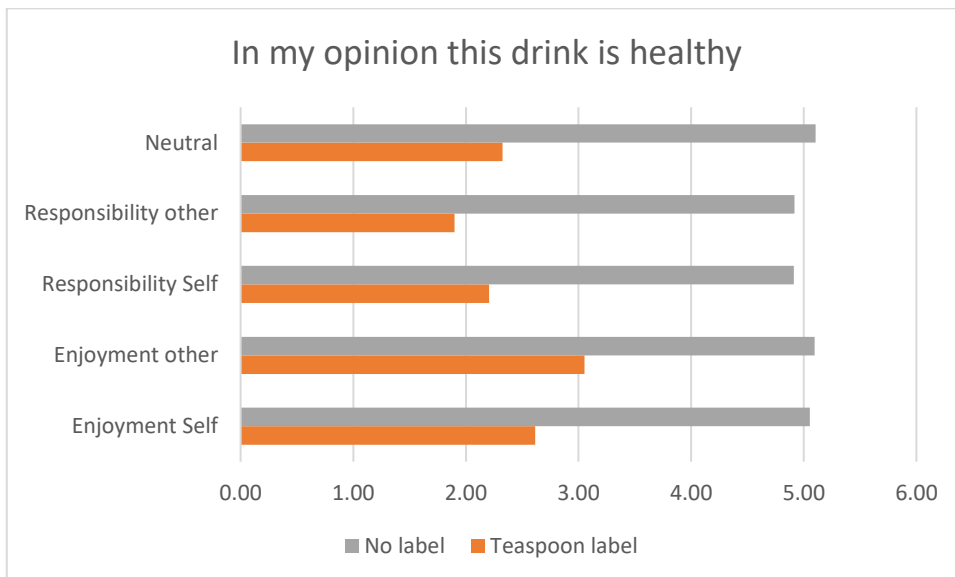
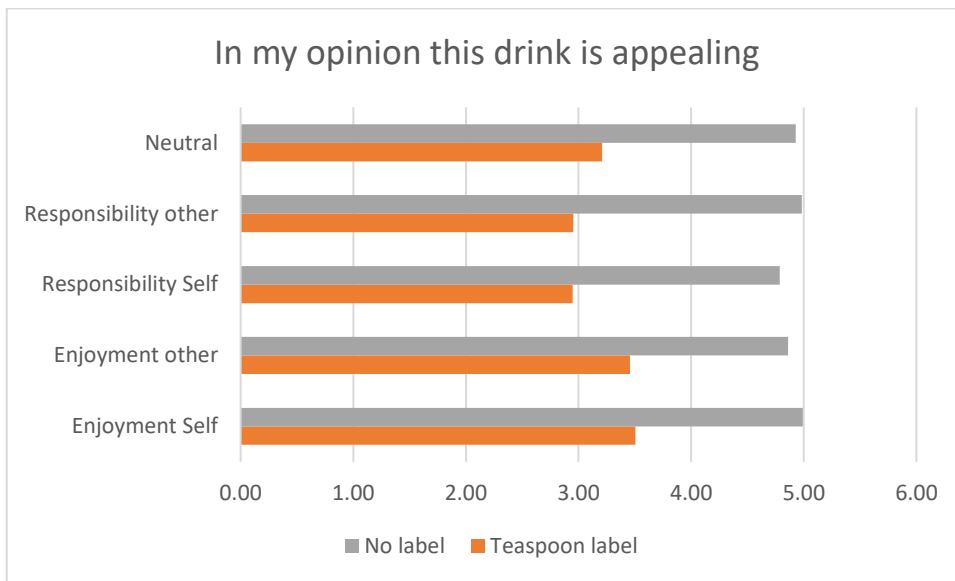


Figure 8-2b : Summary of results (appeal)



**Table 8-1. Mean scores for all conditions and all beverages (health and appeal)**

The results (mean scores) for all beverages are presented below for ease of comparison.

		Teaspoon label	No label	Water	Cola
In my opinion, this drink is healthy	Enjoyment Self	2.61	5.06	6.20	1.75
	Enjoyment other	3.05	5.10	6.02	2.01
	Responsibility Self	2.21	4.91	6.02	1.65
	Responsibility other	1.90	4.92	6.12	1.61
	Neutral	2.32	5.11	5.94	1.68



		Teaspoon label	No label	Water	Cola
In my opinion, this drink is appealing	Enjoyment Self	3.50	4.99	4.75	4.23
	Enjoyment other	3.46	4.86	4.48	4.25
	Responsibility Self	2.95	4.79	4.91	3.89
	Responsibility other	2.95	4.98	4.89	3.98
	Neutral	3.21	4.93	4.67	3.84

In summary, this section presented results related to salience and goal activation, the additional variables and the behavioural outcomes. The next section presents the research contributions.

### 8.3 Research contributions

In a series of online experiments, the research has shown that salience and goal activation can have a significant effect on the perception and appeal of sugary beverages.

The results show that significantly lower health perception and lower appeal of harmful sugary beverages can be established by manipulating both salience (easy to understand and accessible information) and goal activation (enjoyment/responsibility and self/other).

More specifically, it is suggested that manipulation of salience presents an important means to present the high sugar content in beverages, consequently directing the consumers to make informed decisions regarding consumption of these beverages. In the case of the goal activation, it is proposed that various goals (enjoyment/responsibility and self/other) activate related concepts in the mind of the consumer, thereby influencing the perception of beverages and subsequent behaviour of the respondents.

As such, two distinct approaches for encouraging informed/healthy consumption choices are identified within the research both of which, would appear to be practical and applicable by the government and the food industry.

Moreover, it is argued that the two approaches are distinct but not independent, since the effect of salience is stronger when the goal is activated (as shown in the main experiment). The identification of these two approaches provides two key interventions for healthy food choices, when applied independently (salience) or combined (salience and goal activation) to suit different contexts. For example, this labelling approach can be used for any high sugar product carrying health halos such as sweetened yoghurt, snack bars, smoothies, energy drinks etc.

The research has found support for the argument that salience and goal activation together can significantly influence the choice of beverage (behavioural outcome). Finally, health consciousness, skepticism and food restraint are found to have an effect on the health perception and appeal of some beverages. Interestingly, consumer skepticism is found to have significant effects on the health and appeal of some beverages without sugar label.

This section discusses the key findings of the online experiment. The research sets out to contribute at three important levels: conceptual (theoretical), methodological and empirical (Summers 2001). These contributions are summarised below.

1. **Theoretical contributions.** The theory building aspects of the research include a conceptual definition of salience, the development and testing of instruments for priming and measuring the combined effects of enjoyment, responsibility, self and other motivations and the development of research hypotheses with their accompanying rationale. The study contributes to literature through the integration of theory on salience and theory on goal activation. To the best of the author's knowledge, no study currently exists that explores both salience as well as goal activation in the context of sugary beverages. The theory testing aspects of the research include testing the links that exist between, first, salience and perception and second, salience and goal activation along with choices of consumers.
2. **Empirical contributions.** An important empirical contribution is the testing of linkages between constructs that have not previously been tested. This provides important insights for the empirical context in which the study is conducted. The research also looks at additional variables like health consciousness and

skepticism within the context of perception of sugary beverages and integrates consumers in the research at the stage of concept-development, definition and impact measurement. Such research has been not empirically conducted in the field of food marketing.

4. **Methodological contributions.** From a methodological perspective, the present study uses a combination of methods to prime the participants. The study contributes by developing and validating new scales to test the effect of priming. The research uses measurement approaches that do not rely solely on self-reports thus enhancing the construct validity of the research. The use of different methods of measurement reduces potential common method variance. This study can add value to methodological knowledge by outlining how a range of priming techniques may be applied by other researchers to understand how consumer perception may vary based on goal activation. As a result, this study offers insights into the usability and applicability of varied priming methodologies to the wider business context. Additionally, this research is performed within a natural environment rather than under laboratory conditions. This provides greater ecological validity to the research and thus a contribution to the methodology. The method can be applied by researchers to study the effects of goal activation within more natural environments.

## **8.4 Research implications**

Having discussed the findings in terms of key themes and in relation to the research hypotheses, this chapter continues to discuss the implications of this research. This section is structured into two subsections and outlines:

- Section 8.4.1 Conceptual implications
- Section 8.4.2 Practical implications

### **8.4.1 Conceptual implications**

First, the research supports the argument that healthy choices can be encouraged in consumers by via salience and subtle motivation. This implies that, within an

experimental context, the research applies key aspects of salience and goal activation to marketing and consumer behaviour. On one hand, in the context of health-related choices, the extant literature focuses on displaying accurate nutrition information on food products as the method to involve the consumer (FSAI, 2008; Graham and Jeffery 201; Grunert, Wills and Fernandez-Celemin, 2010; White, 2012). On the other hand, in the context of goal activation, extant literature focuses on situated intervention tools to direct consumers towards health goals (Belei *et al.*, 2012; Fishbach *et al.*, 2003; Harris, Bargh and Brownell 2009; Papies, 2016; Papies and Hamstra, 2010; Papies and Velling 2013; Papies *et al.* 2014; Stockli *et al.*, 2016; Vander Laan, 2016). It is argued that applying salience and goal priming together may be helpful in leading consumers towards healthy choices. The research provides empirical evidence on the efficiency of salience and goal priming to influence the perception of beverages leading to healthier choices.

Second, in the context of salience, the research makes a meaningful contribution, by exploring a concept within an ecologically valid context as compared to the extant literature. The extant literature focusses mainly on nutrition information, packaging or serving size suggestions (e.g. White, 2012; Reimann, 2010; Graham and Jeffery, 2011, FSAI 2008, Chandon 2013, Chandon and Wansink 2011). These studies are conducted on existing brands in the market. Research has shown that consumers have pre-existing attitudes about known brands and products (Simonin and Ruth, 1998). In this instance, however, the research presents the participants with a novel brand to rule out any pre-existing attitudes. Moreover, the extant studies are conducted mostly in a laboratory environment. In this instance, however, the research shows that salience can be influential even outside of a laboratory or field environment for instance in an online environment. Thus, the study also contributes to the emerging field of research on online grocery shopping. Additionally, the study has shown that the same beverage may be perceived differently depending on the salient presentation of sugar information or no sugar information in front of pack label.

Third, this study provides support to the dual system theory of judgement (Kahneman and Tversky, 1972). More specifically, the study adds support to the literature on heuristics and bias. These studies have shown that when making judgments, people tend to rely on heuristics or mental shortcuts, which reduce cognitive load (Tversky and Kahneman, 1974). Moreover, a novel contribution is made by showing that a product can

be perceived as healthy or unhealthy based on an easy to understand and salient health information. Furthermore, another novel contribution includes a selection of a well-perceived label to convey sugar information that is easily understood by many, not just select few.

Fourth, in the context of priming and goal activation, this research makes a contribution by extending support to research that priming can activate related goals in minds of people (Bargh and Chartrand, 2009; Custers and Aarts, 2014). More specifically the research contributes to literature on goal priming in the context of healthy food choices (Belei *et al.*, 2012; Fishbach *et al.*, 2003; Harris, Bargh and Brownell 2009; Papies, 2016; Papies and Hamstra, 2010; Papies and Velling 2013; Papies *et al.* 2014; Stockli *et al.*, 2016; Van der Laan, 2016). Moreover, a novel contribution is made by showing that priming for responsibility activates health-related goals while priming for enjoyment activates fun and unhealthy eating. In this study, respondents primed for responsibility rated the sugary beverage less healthy than respondents primed for enjoyment did. That is to say, whilst the general attitude that one should pursue healthy choices and behaviours is widely accepted, priming a related goal is effective in encouraging healthy choices.

Fifth, in the context of self/other priming in guiding behaviour, this research makes a contribution by extending support to research on identity-based motivation (Oyserman, 2008, Oyserman, 2009a, 2009b, 2015; Fitzsimons and Bargh, 2003; Shah, 2003a, 2003b). Specifically, that priming self and significant others can activate related goals in the minds of people. In this study, respondents primed to think of significant others rated the sugary beverage less healthy than respondents primed to think of themselves did.

Sixth, this research also adds support to the literature on self-construal (Markus and Kitayama, 1991; Singelis, 1994; Triandis, 1989). The literature states that priming is likely to make the one's knowledge of the self-associated with self-construal temporarily accessible (Cross *et al.*, 2011). More specifically, this study draws from research on prevention and promotion focussed goals. Research shows that people with an independent self-construal are more likely to activate pleasure-seeking goals (Zhang and Shrum, 2009) and that people with accessible independent self-view are likely to be influenced by information focused on promotion (Aaker and Lee, 2001). For example, a pleasure-seeking goal like enjoyment of food or beverages. In this study, priming for

self/other and enjoyment/responsibility had significant effects on the health perception and appeal of the beverages. Additionally, a new scale is designed for this study. The ERSO scale measures the combined effects of four constructs enjoyment, responsibility, self and other in the context of food consumption.

Finally, the study adds ecological validity to the findings. Ecological validity is an aspect of external validity that enables researchers to transfer findings from experimental situations to real work situations (Wegener and Balkenship, 2007). This research took place in an online experimental setting, applying core aspects of theories from social psychology to consumer behaviour. The product labels designed for this study are new, yet very similar to products available in the real world. Moreover, the respondents are parents from UK population. It is argued these factors add ecological validity to the findings.

From a conceptual perspective, these findings suggest that salience, goal priming and self/other choices together may be considered important predictors of health perception of products and healthy choices.

### **Conceptual implications of additional variables**

The potential distinction between these routes to health perception and healthy choices is further supported when considering the effect of health consciousness, skepticism and dietary restraint on the manipulation effects. The conceptual implications of these additional variables are discussed below.

#### **Skepticism**

This research offers support to the extant literature on consumer skepticism in advertising (Obermiller and Spangenberg, 1998; Obermiller and Spangenberg, 2000). Skepticism is defined as the disbelief in advertising claims. The research argues that consumers with high skepticism will be sceptical of all advertising than consumers with low skepticism. This research provides empirical evidence to extant literature by suggesting that that skepticism affects advertising. Moreover, this study adds to the research by showing that

scepticism plays a role in determining the health, appeal and choice of beverage. Most notably, the effects of skepticism are significantly different when the respondents are asked to choose a drink for the child. This could be linked to the theory that when individuals tend to behave responsibly when making decisions for significant others. These individuals are more likely to be motivated to fulfil their roles within important relationships such as being responsible (Cross *et al.*, 2011; Howard, Gardner and Thompson 2007). These results also add to the extant research on skepticism that has shown that consumers are more sceptical toward a hedonic label than towards a health label (Fenko, Kersten and Bialvoka, 2016).

### Health consciousness

The second variable studied in this research is health consciousness. Health consciousness is defined as the readiness to undertake health actions (Becker *et al.* 1977). Health conscious consumers are conscious of their wellness and are motivated to maintain their health, by engaging in healthy behaviours (Newsom *et al.* 2005; Kraft and Goodell, 1993; Plank and Gould, 1990; Gould, 1988). This study provides support to extant literature on health consciousness, which states that health consciousness predicts health attitudes and behaviours (Furnham & Forey, 1994; Gould, 1988, 1990; Iversen & Kraft, 2006; Jayanti & Burns, 1998; Michaelidou & Hassan, 2008; Schafer, Schafer, Bultena, & Hoiberg, 1993). More specifically, this research contributes to the literature on studies regarding the correlation between the level of health consciousness and response to health information (Basu & Dutta, 2008; Dutta-Bergman, 2004; Dutta, 2007; Dutta & Feng, 2007; Iversen & Kraft, 2006; Kaskutas & Greenfield, 1997). This research has shown that health consciousness significantly determines the perception, appeal and choice of some beverages. Most notably, there are significant differences in health and appeal of water (healthy) and carbonated beverages (unhealthy) based on the health consciousness levels of respondents. In this study, health consciousness is shown to be indirectly proportional to the perceived health and appeal of the carbonated beverage while it is directly proportional to water – a healthy drink. All respondents (low/ high health consciousness) rated the beverage with salient sugar information as unhealthy.

This effect was not observed in the same beverage without salient sugar information, which was rated much healthier than its counterpart was. This finding offers support to the argument that salient sugar information helps to overcome the health halo of beverages notwithstanding the health consciousness levels of the consumer.

#### Dietary restraint

This research offers support to the extant literature on dietary restraint (Herman and Polivy, 1975). ‘The intention to restrict food intake in order to control body weight is known as dietary restraint’ (Herman & Mack, 1975). Research has shown that presence of attractive food cues may trigger eating in subjects with high dietary restraint. The reason for this has been attributed to being in states of constant deprivation (Herman & Mack, 1975). This research has shown that dietary restraint levels significantly determine the perception, appeal and choice of some beverages. Most notably, there are significant differences in health and appeal of water and carbonated beverages based on the restraint levels of respondents. The respondents with high scores of restraint rated the carbonated beverage unhealthier and water healthier than respondents with low scores of restraint.

**In summary, this research has applied concepts of salience and goal activation to show that health halos of sugary beverages can be overcome through manipulations of salience and goal activation. The research has also shown that activation of various goals may invoke distinct motivations in the minds of the consumers thus influencing the perception and behavioural outcomes. In addition, the research has shown that health consciousness, skepticism and food restraint levels of the consumer may also determine the perception of some beverages.**

#### **8.4.2 Practical implications**

The research findings have a number of practical implications. These implications can be adopted by government and the food industry for the well-being of consumers.

First, one of the most important findings is that health halos of beverages can be overcome. More specifically, the health perceptions and appeal of sugary beverages can be altered by exhibiting an easy to understand the salient label, which in turn ultimately leads to



behavioural outcomes. This is rather useful from a practical perspective when one considers consumer perception of a food product as the primary driver of consumer choice and behaviour. The basic assumption in this research is contrary to the vast majority of public policy assumptions in the domain of food decision making. Most of these approaches assume that consumers understand the complex nutrition information and labels. Moreover, consumers are likely to draw their own inferences, as they believe that the advertised information is lawfully truthful (Johar 1995). The effect of these misconceptions can be overcome by exhibiting simple, truthful, salient and specific nutrition information. This research aims to make the nutrition information as simple and relatable as possible so that it is understood by the vast majority of the population. This change can be brought about by strategic use of three tools- education, marketing and law (Rothschild, 1999). Consequently, this research contributes a pragmatic and achievable approach to behaviour change that is led by policy.

Second, the literature on brand names has shown that names can provide the customer with a symbolic meaning. The brand names can help customers to identify a product, and make purchase decisions (Herbig and Milewicz, 1993, Turley and Moore, 1995). More specifically, consumers rate the brands on attributes consistent with the semantic associations (Wanke, Herrman and Schaffner, 2007). For example, food products named after values like honesty, truthfulness and other virtues draw the attention away from the unhealthy ingredients while monetising on the semantic associations of such misleading brand names. In this research, a similar fictional brand name – Trusty – was tested. When accompanied by salient sugar information, the health perception and appeal of the product was significantly lower. It is worth noting that the same product without salient sugar information was rated as being healthy while it rated very unhealthy with salient sugar information.

Third, the approach identified within the research - goal activation of enjoyment/responsibility - seems to be distinct in terms of the responses of the consumer. Respondents primed for enjoyment scored higher in enjoyment related questions and respondents primed for responsibility scored higher in responsibility related questions. These experiments offer support to existing studies that related goals could be activated in the minds of the consumers by the method of priming. Moreover, the findings of this research imply that priming for enjoyment makes respondents think of fast food or junk

food. Another notable finding is that consumers motivated for enjoyment do not perceive the sugary beverage as unhealthy as respondents primed for responsibility do. This is a valuable contribution to public policy and food marketers as related goals can be primed in the minds of consumers thereby directing them towards the desired behaviour. For example, from a food marketer's perspective, showing a write up or an advertisement that displays pictures or ideas related to enjoyment may prime the consumers to feel a state of enjoyment by activating related memories of enjoyment. These results offer an opportunity for marketers to promote their products by focussing all attention towards enjoyment of the food products and (in some cases) completely overlooking the vital nutrition information. This trend seems to be prevalent in the current market wherein all sorts of sugary beverages are being promoted by emphasizing enjoyment, pleasure and enjoyable moments. For example, some brands have gone so far as to include the word 'enjoy' with the brand name. For example, some leading carbonated beverages with very high sugar content are advertised with the word 'enjoy ..... (Brand name)'. In a way, the aspect of enjoyment makes the consumer overlook or draws the attention away from unhealthy content (salt/sugar/fat) in that particular food product. While this concept can be used to promote unhealthy products, the same concept of priming can be applied from the aspect of social marketing or public policy by priming the consumer for responsibility.

This research has shown that consumers primed for responsibility score high on responsibility related questions. Moreover, respondents under this condition rate the sugary beverage as unhealthier than respondents in the enjoyment or neutral conditions. Most importantly, this research shows that priming the consumer for responsibility leads to activation of concepts related to healthy food consumption. This is a valuable contribution to public policy and food marketers, as related goals can be primed in the minds of consumers thereby directing them towards the desired behaviour. Food marketers can use this finding to promote healthy food and beverages by presenting responsibility as a concept in advertising and marketing materials for their product. This trend seems to be prevalent in the current food industry wherein responsibility in the form of sensible and balanced diet concepts are used to promote healthy and unhealthy products. From a policy perspective, this finding offers an opportunity to provide situational cues as a method of priming. Presenting cues and priming the consumers for responsibility before the purchase occurs could be a way to nudge consumers towards

healthier choices. For example, presenting responsibility related cues in the store environment may lead to better food choices.

Fourth, the study has shown how perception of consumers can differ when they are thinking of themselves or significant others. By drawing from research on identity and motivation, this research has shown that the concept of enjoyment with family and enjoyment oneself may activate different goals in the minds of consumers. For example, marketing communication for energy drinks and sports drinks can focus on individual enjoyment goals by priming concepts like partying and pleasure. Most brands also sponsor events like music festivals and parties thus creating an association between the product and the concept of enjoyment in the mind of the consumer. As mentioned earlier, the enjoyment aspect takes away the focus from health information thereby providing an opportunity for marketers to sell the unhealthy product wrapped in the concept of enjoyment. This trend is prevalent in the advertising and marketing industries wherein mood boards and storyboards are designed around the product to sell a concept that in turn leads to the sale of that specific product. However, herein also lies an opportunity from a social marketing perspective, to design communication of healthy products (like seasonal fruits and vegetables, unsweetened natural food like milk, yoghurt etc.) around enjoyment with significant others and responsibility with significant others. It is this domain of advertising for healthy food that requires a boost as is evident from the latest statistics depicting that only 5% of the UK's £296.6 million marketing budget is spent on fruit and vegetables (Food foundation, 2018). For example, a communication strategy can be created to advertise the entire extended family enjoying a meal (happiness, laughter and conversation) with a snapshot of the product on the table. Thus, enjoyment or happiness with significant others is primed and the product is promoted as an inherent part of that happy family scenario.

Fifth, the research has shown that health consciousness plays a role in determining the health and perception of some drinks. However, from a public policy perspective, it is not very practical to design interventions only for health-conscious segment of the population. This research has provided an effective solution in the form of salient sugar information. Respondents with low or high levels of health consciousness identified the beverage with salient sugar information as unhealthy. While the government has provided some guidelines in their National Health Service (NHS) website, the question remains

regarding how many consumers are actually making the effort to go to visit the website, read, understand and apply that information. Research has shown that a general ‘law of least effort’ applies to cognitive as well as physical exertion. The ‘law asserts that if there are several ways of achieving the same goal, people will eventually gravitate to the least demanding course of action...In the economy of action, effort is a cost’ (Kahneman, 2011). By making the information available and accessible, there is a greater chance of reaching more number of consumers notwithstanding their levels of health consciousness. Table 8-4 in the next page presents a summary of the key research findings and implications.

<b>Table 8-4. Summary of key research findings and implications</b>		
<b>Key finding</b>	<b>Conceptual implications</b>	<b>Practical implications</b>
Increase in salient and easy to understand information leads to decrease in perceived healthiness and appeal of sugary beverage.	The results provide empirical data to support the role of salience in the perception of beverages. The results provide additional support to the existing literature on heuristics and visual salience (Tversky and Kahneman, 1973).	Consumer perception depends to a significant extent on whether or not the consumer understands the nutrition information. Health halos of sugary beverages can be overcome by salient information.
Priming for enjoyment leads to leads to increase in the perceived healthiness of sugary beverage while priming for responsibility leads to leads to decrease in perceived healthiness of sugary beverage.	The results provide new evidence regarding the role of enjoyment/responsibility priming on the perception of sugary beverages. The results also provide additional support to extant studies on self-other priming and goal activation (Zhang and Shrum, 2009; Aaker and Lee, 2001; Markus and Kitayama, 1991, Bargh, 1999).	Priming states of enjoyment can be applied to promote beverages high in sugar. Priming states of responsibility states of responsibility can be applied to nudge consumers to make healthy choices.
Priming for enjoyment of food with significant others leads to increase in the perceived healthiness of sugary beverage than priming for enjoyment of food oneself.	The results provide new evidence regarding self/other/enjoyment/responsibility priming in the context of beverage choices. The results also provide additional support to extant studies on priming and self/other choices. The two major contribution of this research are (1) modification of a method of priming and combining methods (storytelling, picture prime and goal contagion) to prime the participants and (2) development of a new scale to measure priming of enjoyment and responsibility in the context of food consumption (Fitzsimons and Bargh, 2003; Kraus and Chen, 2009; Kraus and Chen, 2014; Shah, 2003, Papies, 2016; Fishbach <i>et al.</i> , 2003).	Consumers are likely to pay more attention to health information on food products when they are in states of responsibility. Consumers are likely to overlook health information on food products when they are in states of enjoyment. Responsibility and significant other motivations can be applied to nudge consumers to make healthy choices. E.g. making parent identities salient. Enjoyment and significant other motivations can be applied to promote beverages high in sugar
Priming for responsible consumption of food with significant others leads to decrease in perceived healthiness of sugary beverage than priming for responsible consumption oneself.		
Respondents primed for enjoyment in the context or self or other will perceive the beverage more appealing than respondents primed for responsibility in the context of self/other.		
Respondents primed for enjoyment are more likely to select sugary beverages than respondents primed for enjoyment. Respondents primed for enjoyment are more likely to rate sugary beverage healthier than respondents primed for responsibility.	The results provide new evidence regarding the role of salience in the perception of beverage from a behavioural perspective. (Wansink and Chandon, 2006) The results provide new evidence regarding priming in the context of healthy choices and contribute to the field of health goal priming (Papies, 2016)	The behavioural outcome shows that consumers are more likely to choose sugary beverages in states of enjoyment than consumers in states of responsibility.

## 8.5 Limitations and suggestions for future research.

This chapter continues by discussing the limitations and outlines suggestions for future research. The limitations are discussed in three sections:

8.5.1 Contextual limitations.

8.5.2 Empirical limitations

8.5.3 Methodological limitations

### **8.5.1 Contextual limitations.**

In this study, a fictitious brand is designed so that any preconceptions about the brand can be ruled out. However, it is acknowledged that there is a possibility that participants paid more attention to the new brand than they would have to a known brand in a more natural environment. It is also acknowledged that using one brand in all research may have limited the generalisability of this research.

The brand name used in this research is called ‘Trusty’. There is a possibility that this name might have generated semantic associations in the respondents’ minds. It is therefore acknowledged that the brand name used in this research – Trusty- might have led participants to rate them differently than they would have rated a neutral brand name.

It will be useful if future research can test the proposed concepts in other contexts. For example, it would be useful to repeat the study within the food and beverage industry but with different foods and beverages that carry health halos (e.g. food like flavoured yoghurt, energy bars and drinks like sports drinks, flavoured milk etc.). Further research could also be carried out to test a neutral brand name. As the measures in the research have been validated, future replications of this study in other contexts are likely to be less challenging.

### **8.5.2 Empirical limitations**

This research is based on critical elements from judgement and decision-making (Kahneman and Tversky, 1974) and goal activation (Bargh and Chartrand, 1999) theories. The study includes four diverse types of motivation (enjoyment/responsibility and self/significant others) that influence the perception of beverages by consumers. One

might want to extend this research to the inclusion of other possible motivations regarding how consumers perceive beverages.

For example, some consumers may be motivated by specific primes based on their age group. For instance, teenagers may be motivated by peer group influence or young adults may be motivated by aspects like love and vanity. Another possible research area that can be explored here is presenting the primes as situational primes in the real-world context. Thus, if researchers want to expand the present research to include other motivations, the new motivations must be validated before integrating them into this research.

Furthermore, including other motivations may provide novel findings. This may contribute not only to the goal pursuit literature (Bargh and Chartrand, 1999; Papies 2013) but also to the theory of identity-based motivation (Oyserman, 2003). The proposed motivations may help to gauge why consumers who may perceive the product differently and in turn exhibit different behavioural outcomes.

Future researchers may be interested in testing these concepts, which are based on goal activation and salience, within restaurants and cafes (that sell the product without any explicit labels). For example, coffee chains on high streets and restaurants. The categorization of consumers based on their motivations can help to determine why individuals perceive products differently and possibly act in various different ways in a real-world setting of a coffee shop or restaurant.

The next limitation is regarding the behaviour of respondents. The behaviour was performed online (online questionnaire). Researchers might want to extend the results to the physical world in order to find how consumers perceive and choose the products. For example, conducting the research in a real-world setting and observing the participants from a distance. This may require designing the new experiment accordingly.

Finally, there is also a set of limitations related to the perception of beverage. As such, the research explored two aspects of the beverage (health and appeal). Future research might explore other aspects like the perception of quality, the price of the product and purchase intention as the perception of beverages is not limited to health perception and

appeal of beverages. Future studies might incorporate these additional variables and explore the impact on decisions and behavioural outcomes.

### **8.5.3 Methodological limitations**

In this research, additional variables like health consciousness and skepticism are measured after the experiment. Considering the basic assumptions of research on priming and goal activation, that the participants are not consciously aware of the goal being primed, it is not possible to measure these variables before the study. This is acknowledged as a limitation as there is a possibility that priming may affect these variables. Future research may want to replicate this study on health conscious individuals or a set of people for whom health consciousness skepticism levels are known (either based on their shopping basket selection or demographic data).

Furthermore, in this research, the summated scales of health consciousness, skepticism and dietary restraint were converted into dichotomised (high and low) variables. While dichotomisation allows for testing of the interaction effects, such a transformation may lead to loss of statistical power.

A further limitation is the method for measurement of behavioural outcome. Within this survey design, the main concern is that attempting to measure behavioural outcomes in more than one ways will lengthen the survey and may result in participant fatigue. Although the ‘fill a food tray’ experiment helps to measure the behavioural outcome, it is acknowledged the limitation does exist. Capturing actual displays of behaviour might be much useful and credible. Future studies might want to conduct similar experiments in real-world settings like cafeterias and restaurants where behaviour can be observed.

It is acknowledged that using an online survey design may represent a limitation due to issues like self-selection bias (Stanton, 1998; Thompson *et al.*, 2003; Wittmer *et al.*, 1999). In this study, data was gathered through Prolific Academic. This website sends out invitations and directs the participants to the online questionnaire. In most internet communities, some individuals are more likely to complete surveys. Consequently, some individuals participate in online surveys repeatedly, while others do not. This might lead



to systematic bias. Future studies might want to replicate this study to compare this sample with general population data to see if the results differ.

Another limitation is the inclusion of pictures in the online questionnaire. Different colourful pictures were shown in the filler questions and the relevant questions to make the questionnaire interesting and to prevent respondent fatigue. However, based on the internet speed of the participants, sometimes the pictures took long to load leading to dropouts and half-filled questionnaires. Future studies based on online questionnaires might want to optimize the byte size of the images.

Finally, with regard to the method of priming in the main study is storytelling task. Future research may replicate this study using other methods of priming. For example, a subtle message on the website in case of online shopping or messages at the entrance or the aisles of the supermarkets. This may shed light on how people perceive food products as well as their behavioural outcomes.

## **8.6 Conclusion**

This thesis provided a unique perspective on the effects of salience and goal activation, on the perception of beverages and related behavioural outcomes. More specifically, the study was designed to explore the possible ways in which health halos of unhealthy (sugary) beverages can be overcome so that consumers are nudged towards making healthier choices. It was the opinion of the researcher that in the field of healthy beverage consumption, the existing method (displaying nutrition information) is extremely complex and involves cognitive effort on consumers' behalf. Moreover, the information is understood only by a select few and not by many. These methods may often result in misinformed choices by the consumers. The study has explored if a balance of conscious and automatic processes can subtly lead the consumer towards healthier choices.

This research was based on critical elements from judgement and decision-making (Kahneman and Tversky, 1974), goal activation (Bargh and Chartrand, 1999) theories. The study offered new insights into 1) how salience affects consumer perception of beverages, 2) how goal activation (self/significant other goals) affects consumer perception of beverages, 3) how priming enjoyment and responsibility goals impacts

perception of beverages and 4) how thinking of self / significant-others in context of enjoyment/responsibility situations, affects the perception and choice of beverages. Additionally, the study explored the effects of health consciousness, scepticism and dietary restraint on the perception of beverages and related behavioural outcomes.

This thesis provided a number of important contributions. First, it provided a well-understood label to convey sugar information. Second, a brand was conceptualised and designed to convey this information. Third, a scale was developed to measure the impact of priming (ERSO scale). Fourth, the effects of goal activation (enjoyment/ responsibility goals and thinking of self/significant others) on the perception of beverages and behavioural outcomes were explored. Finally, the roles of health consciousness, skepticism and dietary restraint on perception were explored.

The research findings provided a set of important implications for both scholars and practitioners. This study may be relevant to scholars who are interested in understanding and exploring goal activation, priming and behaviour change. Practitioners may find this research useful from a social marketing and public policy perspective. For example, marketers and policymakers who are involved in directing consumers towards healthy food choices. Moreover, the findings of this research can be useful for food companies that can design their brand communication based on the self/other and enjoyment/responsibility concepts.

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## **APPENDICES**

### **APPENDICES**

- Appendix 1: Questionnaire for pilot study 1**
- Appendix 2: Questionnaire for pilot study 2**
- Appendix 3: Questionnaire for pilot study 3**
- Appendix 4: Questionnaire for main study**
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- Appendix 12: ANOVA results for the main experiment**
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- Appendix 14: Independent samples t-test results for the ES, EO, RS, RO groups**
- Appendix 15: Results for carbonated beverages**
- Appendix 16: Behavioural outcomes**

**Questionnaire for pilot study 1**

**Welcome!**  
**Thank you for participating in this survey!**

This is a marketing survey being conducted for academic research at Henley Business School, UK. The purpose of this survey is to learn about **your personal opinions** regarding some everyday products.

Participation will involve seeing 10 pictures of everyday products and then answering questions about them. The survey will take approximately 3 minutes of your time.

Please wait for the images to load before answering the questions.

Participation in the survey indicates that you have read and agree to the terms of participation.

**Image of beverage designed for the study**



	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
In my opinion this drink is healthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In my opinion, this drink is appealing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Example of a filler question**



	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
In my opinion, I like backpacks with multiple pockets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In my opinion, this backpack would look better in another colour	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Images of beverages used in pilot study 1**





This drink contains **12** sugar cubes



This drink contains **12** tsp sugar



Sugar content = **60** candies



Sugar content = **21** mini cookies



Visuals from online experiment



**Questionnaire for pilot study 2**

**Welcome!**

**Thank you for participating in this short 6 minute survey.**

You will be asked to participate in **three independent studies** being conducted for doctoral research at different schools at the University of Reading. These three studies are presented in one survey to economize on time and resources.  
 The purpose of the first study is to research English language and memory. The second study is regarding your personal opinions. The third study is regarding food and beverage advertising.  
 This entire survey will take approximately 6 minutes to complete. Participation in the survey indicates that you have read and agree to the terms of participation.

**Example of sentence unscrambling task**

Please form a meaningful sentence from four of the five given words

her, daughter, likes, like, flowers

Please form a meaningful sentence from four of the five given words

sister, him, his, is, tall

**Examples of sentences used in sentence unscrambling task**

<p><b>Self</b></p>	<ol style="list-style-type: none"> <li>1. It is my decision</li> <li>2. Personality of an individual</li> <li>3. These are my thoughts</li> <li>4. This is my choice</li> <li>5. The freedom to choose</li> <li>6. Identity of a person</li> <li>7. Each Individual is different</li> <li>8. Let me introduce myself</li> <li>9. His nature is independent</li> <li>10. I have told myself</li> <li>11. To better help oneself</li> <li>12. I will do it</li> <li>13. My decision is right</li> <li>14. I take my decisions</li> <li>15. I am always right</li> </ol>
<p><b>Significant other</b></p>	<ol style="list-style-type: none"> <li>16. The child sang well</li> <li>17. My family is here</li> <li>18. His mother is visiting</li> <li>19. I have three dependents</li> <li>20. The couple walked in</li> <li>21. He has two daughters</li> <li>22. Let others do it</li> <li>23. Her parents are well</li> <li>24. My son plays football</li> <li>25. His sister is tall</li> <li>26. Some children are naughty</li> <li>27. My child is healthy</li> </ol>

	<p>28. My spouse is kind  29. We are a family  30. On a family trip  31.</p>
Control	<p>32. The cat jumped off  33. We crossed the road  34. He has black eyes  35. The computer is faulty  36. The boy is tall  37. He lit the fire  38. The grass is green  39. The school is closed  40. The bird flew away  41. The door is open  42. The carpet is clean  43. The mug is white  44. The hat is black  45. The light is bright  46. The chair is broken</p>

### Post test questions

Questions from the Self construal scale (Singelis, 1991)

### Beverages used in pilot study 2



**Questionnaire for pilot study 3**

**Welcome!**

**Thank you for participating in this short 4 minute survey.**

You will be asked to participate in **three independent studies** being conducted for doctoral research at different schools at the University of Reading. These three studies are presented in one survey to economize on time and resources.

The purpose of the first study is to research English language and memory. The purpose of the second study regarding your personal opinions. The third study is regarding food and beverage advertising.

This entire survey will take approximately 4 minutes to complete. Participation in the survey indicates that you have read and agree to the terms of participation.

**Example of sentence unscrambling task**

Please form a meaningful sentence from four of the five given words

laughter, joyous, shouts, and, with

Please form a meaningful sentence from four of the five given words

have, an, pleasant, a, holiday

**Examples of sentences used in sentence unscrambling task**

<p><b>Enjoyment</b></p>	<ol style="list-style-type: none"> <li>1. They partied with friends</li> <li>2. It was great fun</li> <li>3. The prank was funny</li> <li>4. She laughed in amusement</li> <li>5. His mood is jolly</li> <li>6. I am so happy</li> <li>7. Sang a joyous song</li> <li>8. Great time with friends</li> <li>9. In my leisure time</li> <li>10. Laughter and joyous shouts</li> <li>11. Have a pleasant holiday</li> <li>12. Leisure and entertainment pass</li> <li>13. Sound of merry laughter</li> <li>14. The holiday was fun</li> </ol>
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	<b>15. A very cheerful tune</b>
<b>Responsibility</b>	<b>1. It is my responsibility</b> <b>2. It is his duty</b> <b>3. Role of a parent</b> <b>4. She is accountable here</b> <b>5. Task to be accomplished</b> <b>6. My concern for them</b> <b>7. She cares for him</b> <b>8. I am very reliable</b> <b>9. A responsible human being</b> <b>10. Follow the sensible path</b> <b>11. A very reasonable opinion</b> <b>12. To be held accountable</b> <b>13. Your duty and role</b> <b>14. It is an obligation</b> <b>15. Our duty as parents</b>
<b>Control</b>	<b>47. The cat jumped off</b> <b>48. We crossed the road</b> <b>49. He has black eyes</b> <b>50. The computer is faulty</b> <b>51. The boy is tall</b> <b>52. He lit the fire</b> <b>53. The grass is green</b> <b>54. The school is closed</b> <b>55. The bird flew away</b> <b>56. The door is open</b> <b>57. The carpet is clean</b> <b>58. The mug is white</b> <b>59. The hat is black</b> <b>60. The light is bright</b> <b>61. The chair is broken</b>

**Post test questions**

It is very important for me to be responsible.

I am feeling more motivated to fulfil my responsibilities than to have fun.

It is very important for me to enjoy and have fun.

I am feeling more motivated to have fun than to be responsible.

### Beverages used in pilot study 3



### **Questionnaire for the main experiment**

Welcome!

Thank you for taking part in this research. We are very grateful for your support and time. You will be asked to participate in two short studies being conducted for academic research at two different schools (**School of Psychology and Henley Business School**) at the University of Reading. These two studies are presented in one survey to economize on time and resources. The survey will conclude with a few questions about you.

Let us tell you about the studies.

The purpose of the first study is to research your **personal opinions** regarding your **food habits and preferences**. The second study is regarding your personal opinions on **marketing and advertising** of everyday products in the supermarkets. Please answer based on your personal tastes and preferences in both the studies.

This entire survey will take approximately 9 minutes to complete. You will be able to see how far along are you by looking at the progress bar on top of the screen.

And remember, as this is regarding your personal preferences, there are no wrong answers!

### **Enjoyment Self condition**

#### **Task 1**

Welcome to this study being conducted by the School of Psychology at the University of Reading, UK.

In what follows, we would like to find out more about your food habits. Please note that there are no wrong answers, we are interested in knowing your personal opinions and experiences. Please read the following paragraph carefully as it will give you important information on how to respond to this study.

From our previous research we know that most people like to relish and enjoy tasteful food, at least from time to time. In this survey, we would like to find out more about when and why people like to eat enjoyable, tasty food. For instance, some people have told us that enjoying yummy food and beverages is a way of finishing and appreciating the end of a busy work day and to relax, others have told us that a birthday without a birthday cake would be no real birthday, and that birthdays are perfect occasions "to indulge my sweet tooth", and some participants have told us that 'little sins' and little treats help them through stressful times.

**Please tell us in a few sentences three reasons or occasions when and why you personally consider it beneficial or important to indulge in food and just enjoy.** You can also tell us about your favorite tasty treats and when you enjoy eating them the most. Your reasons can be similar or different to the description above. Please feel free to write what comes to your mind and is most true for you. Please take 3 minutes to write your thoughts. The survey will proceed after 3 minutes. **Please use the time provided to elaborate on your opinions and explain your reasons in a few sentences.** Kindly make sure you write in all three boxes provided below.

#### **Task 2**

Please take a look at the picture below. Based on your personal tastes and preferences, how likely are you to choose this when enjoying food.



Extremely unlikely      Moderately unlikely      Slightly unlikely      Neither likely nor unlikely      Slightly likely      Moderately likely      Extremely likely

Please take a look at the picture below. Based on your personal tastes and preferences, how likely are you to choose this when enjoying food.



Extremely unlikely      Moderately unlikely      Slightly unlikely      Neither likely nor unlikely      Slightly likely      Moderately likely      Extremely likely

### Task 3

Here are some statements and comments we collected from previous research studies. These statements were collected during interviews and similar surveys like this one.

Please let us know to what extent you disagree or agree with the statements given below.

**Please answer based on your personal preferences and opinions.**

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I find it important to relish delicious food from time to time without worrying about calories.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy rewarding myself with yummy food or drinks occasionally whether this food is healthy or not.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think it takes too much effort to read detailed nutritional labels on food products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Enjoyment Other condition

### Task 1

Welcome to this study being conducted by the School of Psychology at the University of Reading, UK.

In what follows, we would like to find out more about your food habits. Please note that there are no wrong answers, we are interested in knowing your personal opinions and experiences. Please read the following paragraph carefully as it will give you important information on how to respond to this study.

From our previous research we know that most families like to relish and enjoy tasteful food, at least from time to time. In this survey, we would like to find out more about when and why your family members like to eat and serve enjoyable, tasteful food. For instance, some families have told us that enjoying tasteful food and beverages is a way of finishing and appreciating the end of a busy work day and to relax, others have told us that a birthday without a birthday cake would be no real birthday and that birthdays are perfect occasions "to indulge the sweet tooth", and some participants have told us that 'little sins' and little treats help all family members through stressful times.

**Please tell us in a few sentences three reasons or occasions when and why you consider it beneficial or important for your family members to enjoy food.** You can also tell us about your family's favorite tasty treats and when you all enjoy eating them the most. Your reasons can be similar or different to the description above. Please feel free to write what comes to your mind and is most true for you. Please take 3 minutes to write your thoughts. The survey will proceed after 3 minutes. **Please use the time provided to elaborate on your opinions and explain your reasons in a few sentences.** Kindly make sure you write in all three boxes provided below.

### Task 2

Please take a look at the picture below. Based on your personal tastes and preferences, how likely are you (and your family) to eat this, when relishing and enjoying tasteful food with your family?



Extremely unlikely      Moderately unlikely      Slightly unlikely      Neither likely nor unlikely      Slightly likely      Moderately likely      Extremely likely

Please take a look at the picture below. Based on your personal tastes and preferences, how likely are you (and your family) to eat this when relishing and enjoying tasteful food with your family?



Extremely unlikely      Moderately unlikely      Slightly unlikely      Neither likely nor unlikely      Slightly likely      Moderately likely      Extremely likely



### Task 3

Here are some statements and comments we collected from previous research studies. These statements were collected during interviews and similar surveys like this one.

Please let us know to what extent you disagree or agree with the statements given below.

**Please answer based on your personal preferences and opinions.**

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
It is important that my family members relish delicious food from time to time without worrying about calories.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My family enjoys being rewarded with yummy food or drinks occasionally whether this food is healthy or not.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think it takes too much effort to read detailed nutritional labels on food products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### **Responsibility Self condition**

#### Task 1

Welcome to this study being conducted by the School of Psychology at the University of Reading, UK.

In what follows, we would like to find out more about your food habits. Please note that there are no wrong answers, we are interested in knowing your personal opinions and experiences. Please read the following paragraph carefully as it will give you important information on how to respond to this study.

From our previous research we know that many people nowadays are mindful and responsible about what they eat and how much they eat. In this survey, we would like to find out more about when and why people like to make sensible food choices for themselves. Please tell us a bit more about why you think it is important to think carefully about your food choices. For instance, some people have told us that it is very important and just "feels the right thing to do" to cook food themselves instead of buying or ordering ready-made food, others have told us that it makes them feel much better to eat healthy, wholesome meals, and some participants have told us that making nutritious food choices for themselves and choosing food carefully is an important and rewarding part of their life because it keeps them fit.

**Please tell us in a few sentences, three reasons or occasions when and why you personally consider it beneficial or important to make healthy, sensible and reasonable food choices.** You can also tell us about your favorite healthy foods and when you enjoy eating them the most. Your reasons can be similar or different to the description above. Please feel free to write what comes to your mind and is most true for you. Please take 3 minutes to write your thoughts. The survey will proceed after 3 minutes. **Please use the time provided to elaborate on your opinions and explain your reasons in a few sentences.** Kindly make sure you write in all three boxes provided below.

## Task 2

Please take a look at the picture below. Based on your personal tastes and preferences, how likely are you to choose this when making sensible food choices for yourself?



Extremely unlikely    Moderately unlikely    Slightly unlikely    Neither likely nor unlikely    Slightly likely    Moderately likely    Extremely likely

Please take a look at the picture below. Based on your personal tastes and preferences, how likely are you to choose this when making sensible food choices for yourself?



Extremely unlikely    Moderately unlikely    Slightly unlikely    Neither likely nor unlikely    Slightly likely    Moderately likely    Extremely likely

## Task 3

Here are some statements and comments we collected from previous research studies. These statements were collected during interviews and similar surveys like this one.

Please let us know to what extent you disagree or agree with the statements given below.

**Please answer based on your personal preferences and opinions.**

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
It is important for me to take care of myself by eating a balanced diet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to make sensible food choices and eat fresh meals whenever I can.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think it takes too much effort to read detailed nutritional labels on food products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## **Responsibility other condition**

### **Task 1**

Welcome to this study being conducted by the School of Psychology at the University of Reading, UK.

In what follows, we would like to find out more about people's food habits. Please note that there are no wrong answers, we are interested in your personal opinions and experiences. Please read the following paragraph carefully as it will give you important information on how to respond to this study.

From our previous research we know that most people are mindful and responsible about what their family eats and how much they eat. In this survey, we would like to find out more about when and why people like to make sensible food choices for their family members. Please tell us a bit more about why you think it is important to think carefully about your family's food choices. For instance, some people have told us that it is very important and just 'feels the right thing to do' to cook food for their family instead of buying or ordering ready-made food, others have told us that it makes them feel much better to serve wholesome meals, and some participants have told us that making nutritious food choices for their family members is an important and rewarding part of their life because it helps keep their family fit.

**Please tell us in a few sentences three reasons or occasions when and why you consider it beneficial or important to make healthy, sensible and reasonable food choices for your family.** You can also tell us about your family's favorite healthy foods and when you enjoy eating them the most. Your reasons can be similar or different to the description above. Please feel free to write what comes to your mind and is most true for you. Please take 3 minutes to write your thoughts. The survey will proceed after 3 minutes. **Please use the time provided to elaborate on your opinions and explain your reasons in a few sentences.** Kindly make sure you write in all three boxes provided below.

### **Task 2**

Please take a look at the picture below. Based on your and your family's personal tastes and preferences, how likely are you to choose this when making sensible food choices for your family members?



Extremely unlikely

Moderately unlikely

Slightly unlikely

Neither likely nor unlikely

Slightly likely

Moderately likely

Extremely likely

---

Please take a look at the picture below. Based on your and your family's personal tastes and preferences, how likely are you to choose this when making sensible food choices for your family members?



### Task 3

Here are some statements and comments we collected from previous research studies. These statements were collected during interviews and similar surveys like this one.

Please let us know to what extent you disagree or agree with the statements given below.

**Please answer based on your personal preferences and opinions.**

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
It is important for me to take care of my family by making sure they eat a balanced diet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try my best to make sensible food choices and provide fresh meals to my family whenever I can.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think it takes too much effort to read detailed nutritional labels on food products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Behavioural task

‘Let us look at the products in a typical lunch box. Imagine that you have to prepare a lunch box with your choice of sandwich and drink.’

From the give four drinks, please choose one drink for the kunch box . Drag and drop your chosen drink into lunch box on the right.’

#### Pictures of drinks



Lunch box



#### Beverages used in this study



## **EROS (Enjoyment Responsibility Self Other) Scale**

Please read the statements below and answer based on what is most true to you now

Strongly disagree to strongly agree (7-point scale)

1. I am feeling motivated to eat a balanced diet.
2. I am feeling motivated to enjoy and indulge in delicious treats.
3. I am feeling motivated to eat quick and convenient food.
4. I am likely to choose salad or veggies at my next meal.
5. I am likely to choose fast food at my next meal.
6. I am feeling motivated to provide wholesome balanced dinner to my family tonight.
7. I am feeling motivated to delight my family with delicious little treats tonight.
8. I am feeling motivated to make very healthy food choices.
9. I am feeling motivated to really enjoy my food without worrying about calories.
10. I am feeling motivated to make very healthy food choices for my family members.

## **Post test questions (funnel questions)**

Before we end this survey, we would like to ask you three questions about the studies you participated in. Please answer these questions based on your **memory** and **thoughts**.

---

What was the first study regarding?

Marketing

Advertising

Food habits and preferences

Other (please mention)

---

What was the second study regarding?

Marketing

Marketing and advertising

Food habits and preferences

Other (please mention)

---

Please could you describe the purpose of both studies in your own words?

In my understanding the purpose of study 1 was ...

In my understanding the purpose of study 2 was ...

---

Please write a few sentences about your impressions of what it was like to participate in this survey. We welcome any comments or suggestions for us.

Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Q46 - In my opinion, this drink is healthy - TSP	.260	559	.000	.829	559	.000
Q46 - In my opinion, this drink is appealing - TSP	.173	559	.000	.916	559	.000
Q53 - In my opinion this drink is healthy - water	.242	559	.000	.808	559	.000
Q53 - In my opinion, this drink is appealing - water	.156	559	.000	.921	559	.000
Q59 - In my opinion this drink is healthy - Plain	.214	559	.000	.889	559	.000
Q59 - In my opinion, this drink is appealing - Plain	.210	559	.000	.907	559	.000
Q62 - In my opinion this drink is healthy - Cola	.284	559	.000	.697	559	.000
Q62 - In my opinion, this drink is appealing - Cola	.195	559	.000	.908	559	.000

a. Lilliefors Significance Correction

Harman's single factor test

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.157	26.964	26.964	1.431	17.891	17.891
2	1.668	20.852	47.815			
3	1.142	14.280	62.095			
4	.954	11.922	74.017			
5	.822	10.269	84.286			
6	.583	7.287	91.573			
7	.438	5.473	97.046			
8	.236	2.954	100.000			

Extraction Method: Principal Axis Factoring.

## Demographics

What is your gender?

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	114	20.4	20.4	20.4
Valid Female	445	79.6	79.6	100.0
Total	559	100.0	100.0	

How old are you?

	Frequency	Percent	Valid Percent	Cumulative Percent
18-25	42	7.5	7.5	7.5
26-34	191	34.2	34.2	41.7
35-44	161	28.8	28.8	70.5
Valid 55-64	53	9.5	9.5	80.0
above 65	5	.9	.9	80.9
45-54	107	19.1	19.1	100.0
Total	559	100.0	100.0	

Please state your ethnic background - Selected Choice

	Frequency	Percent	Valid Percent	Cumulative Percent
White	523	93.6	93.6	93.6
Mixed/ Multiple ethnic groups	5	.9	.9	94.5
Asian/ Asian British	15	2.7	2.7	97.1
Valid Black/Black British	10	1.8	1.8	98.9
Other ethnic group (please specify)	4	.7	.7	99.6
Prefer not to answer	2	.4	.4	100.0
Total	559	100.0	100.0	



What is the highest level of education you have completed? - Selected Choice

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b> Less than High School	9	1.6	1.6	1.6
High School / GCSE	156	27.9	27.9	29.5
A Levels	159	28.4	28.4	58.0
Bachelor's degree	161	28.8	28.8	86.8
Master's degree	54	9.7	9.7	96.4
Doctoral Degree	5	.9	.9	97.3
Other (please specify)	15	2.7	2.7	100.0
<b>Total</b>	<b>559</b>	<b>100.0</b>	<b>100.0</b>	

What is your marital status?

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b> Single	63	11.3	11.3	11.3
Married	321	57.4	57.4	68.7
Divorced	24	4.3	4.3	73.0
Separated	8	1.4	1.4	74.4
Widowed	4	.7	.7	75.1
Living with partner	139	24.9	24.9	100.0
<b>Total</b>	<b>559</b>	<b>100.0</b>	<b>100.0</b>	

What is your marital status?

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b> Single	63	11.3	11.3	11.3
Married	321	57.4	57.4	68.7
Divorced	24	4.3	4.3	73.0
Separated	8	1.4	1.4	74.4
Widowed	4	.7	.7	75.1
Living with partner	139	24.9	24.9	100.0
<b>Total</b>	<b>559</b>	<b>100.0</b>	<b>100.0</b>	

What is your marital status?

	Frequency	Percent	Valid Percent	Cumulative Percent
Single	63	11.3	11.3	11.3
Married	321	57.4	57.4	68.7
Divorced	24	4.3	4.3	73.0
Valid Separated	8	1.4	1.4	74.4
Widowed	4	.7	.7	75.1
Living with partner	139	24.9	24.9	100.0
<b>Total</b>	<b>559</b>	<b>100.0</b>	<b>100.0</b>	

What is the age of your youngest child?

	Frequency	Percent	Valid Percent	Cumulative Percent
0 to 5 years old	279	49.9	49.9	49.9
6 to 11 years old	119	21.3	21.3	71.2
Valid 12 to 17 years old	60	10.7	10.7	81.9
Over 18 years old	101	18.1	18.1	100.0
<b>Total</b>	<b>559</b>	<b>100.0</b>	<b>100.0</b>	

**Factor Analysis**Correlation Matrix<sup>a</sup>

		RS1	ES1	ES2	RS2	ES3	RS1	EO1	RS3	ES4	RO2
Correlation	RS1	1.000	-.326	-.458	.504	-.441	.560	-.089	.653	-.330	.566
	ES1	-.326	1.000	.377	-.237	.400	-.214	.478	-.280	.370	-.215
	ES2	-.458	.377	1.000	-.347	.517	-.424	.174	-.413	.248	-.401
	RS2	.504	-.237	-.347	1.000	-.368	.473	-.127	.543	-.250	.453
	ES3	-.441	.400	.517	-.368	1.000	-.465	.279	-.385	.270	-.410
	RS1	.560	-.214	-.424	.473	-.465	1.000	.005	.606	-.238	.608
	EO1	-.089	.478	.174	-.127	.279	.005	1.000	-.019	.266	-.020
	RS3	.653	-.280	-.413	.543	-.385	.606	-.019	1.000	-.325	.679
	EO4	-.330	.370	.248	-.250	.270	-.238	.266	-.325	1.000	-.244
	RO2	.566	-.215	-.401	.453	-.410	.608	-.020	.679	-.244	1.000

a. ES\_EO\_RS\_RO\_N = Enjoyment Self

Item	code
<b>I am feeling motivated to eat a balanced diet.</b>	<b>RS1</b>
<b>I am feeling motivated to enjoy and indulge in delicious treats.</b>	<b>ES1</b>
<b>I am feeling motivated to eat quick and convenient food.</b>	<b>ES2</b>
<b>I am likely to choose salad or veggies at my next meal.</b>	<b>RS2</b>
<b>I am likely to choose fast food at my next meal.</b>	<b>ES3</b>
<b>I am feeling motivated to provide wholesome balanced dinner to my family tonight.</b>	<b>RS1</b>
<b>I am feeling motivated to delight my family with delicious little treats tonight.</b>	<b>EO1</b>
<b>I am feeling motivated to make very healthy food choices.</b>	<b>RS3</b>
<b>I am feeling motivated to really enjoy my food without worrying about calories.</b>	<b>EO4</b>
<b>I am feeling motivated to make very healthy food choices for my family members.</b>	<b>RO2</b>

KMO and Bartlett's Test

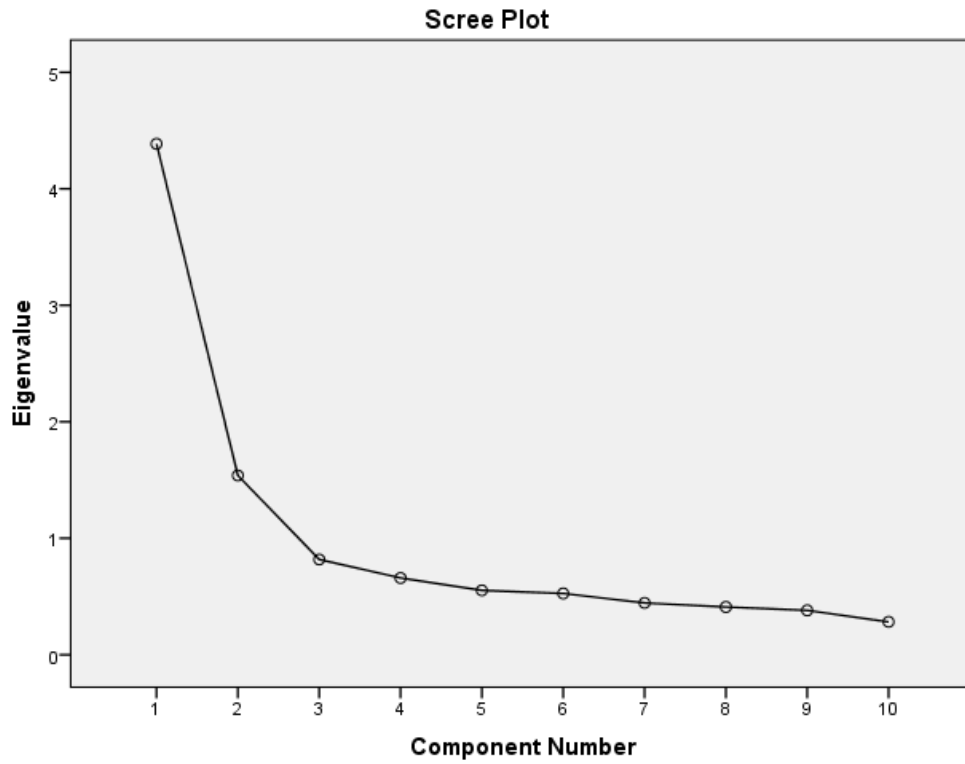
<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</b>	<b>.881</b>
<b>Approx. Chi-Square</b>	<b>2145.007</b>
<b>Bartlett's Test of Sphericity df</b>	<b>45</b>
<b>Sig.</b>	<b>.000</b>

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4.386	43.857	43.857	4.386	43.857	43.857	4.172
2	1.539	15.393	59.250	1.539	15.393	59.250	2.435
3	.818	8.181	67.431				
4	.659	6.594	74.025				
5	.553	5.527	79.553				
6	.526	5.265	84.817				
7	.445	4.448	89.265				
8	.410	4.099	93.365				
9	.381	3.812	97.177				
10	.282	2.823	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.



Component Matrix<sup>a</sup>

	Component	
	1	2
RS1	.801	
ES1	.793	
ES2	.753	.324
RS2	.752	.314
ES3	-.689	
RS1	.680	
EO1	-.672	
RS3	-.494	.355
EO4		.795
RO2	-.532	.623

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Pattern Matrix<sup>a</sup>

	Component
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	1	2
RS1	.870	
ES1	.848	
ES2	.840	
RS2	.784	
ES3	.678	
RS1	-.516	.314
EO1	-.476	.412
RS3		.880
EO4		.784
RO2		.502

**Extraction Method: Principal Component Analysis.**

**Rotation Method: Oblimin with Kaiser Normalization.**

**a. Rotation converged in 5 iterations.**

Structure Matrix

	Component	
	1	2
RS1	.850	
ES1	.813	
ES2	.809	
RS2	.806	-.314
ES3	.693	
RS1	-.614	.475
EO1	-.605	.561
RS3	-.341	.814
EO4		.804
RO2	-.378	.571

**Extraction Method: Principal Component Analysis.**

**Rotation Method: Oblimin with Kaiser Normalization.**

Component Correlation Matrix

Component	1	2
1	1.000	-.313
2	-.313	1.000

**Extraction Method: Principal**

**Component Analysis.**

**Rotation Method: Oblimin with**

**Kaiser Normalization.**

**ANOVA results for pilot study 1**

**Descriptives**

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					no label	27		
tsp	29	1.97	1.180	.219	1.52	2.41	1	5
cookies	28	2.39	1.370	.259	1.86	2.92	1	5
candies	25	2.72	1.542	.308	2.08	3.36	1	5
cubes	30	2.20	1.562	.285	1.62	2.78	1	7
Total	139	2.65	1.680	.142	2.37	2.94	1	7
no label	27	4.59	1.647	.317	3.94	5.24	1	7
tsp	29	2.86	1.684	.313	2.22	3.50	1	6
cookies	28	3.32	1.765	.334	2.64	4.01	1	6
candies	25	3.32	1.701	.340	2.62	4.02	1	6
cubes	30	3.20	1.827	.334	2.52	3.88	1	6
Total	139	3.45	1.802	.153	3.14	3.75	1	7

**ANOVA**

		Sum of Squares	df	Mean Square	F	Sig.
scores brought together in one column	Between Groups	79.274	4	19.818	8.563	.000
	Within Groups	310.151	134	2.315		
	Total	389.424	138			
appeal score bottle	Between Groups	48.031	4	12.008	4.019	.004
	Within Groups	400.314	134	2.987		
	Total	448.345	138			

**Multiple Comparisons**

Bonferroni

Dependent Variable	(I) label on bottle	(J) label on bottle	Std. Error	Sig.	95% Confidence Interval
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			Mean Difference (I-J)			Lower Bound	Upper Bound
Health score	no label	tsp	2.146 <sup>†</sup>	.407	.000	.98	3.31
		cookies	1.718 <sup>†</sup>	.410	.001	.55	2.89
		candies	1.391 <sup>†</sup>	.422	.013	.19	2.60
		cubes	1.911 <sup>†</sup>	.404	.000	.76	3.06
	tsp	no label	-2.146 <sup>†</sup>	.407	.000	-3.31	-.98
		cookies	-.427	.403	1.000	-1.58	.72
		candies	-.754	.415	.714	-1.94	.43
		cubes	-.234	.396	1.000	-1.37	.90
	cookies	no label	-1.718 <sup>†</sup>	.410	.001	-2.89	-.55
		tsp	.427	.403	1.000	-.72	1.58
		candies	-.327	.419	1.000	-1.52	.87
		cubes	.193	.400	1.000	-.95	1.33
	candies	no label	-1.391 <sup>†</sup>	.422	.013	-2.60	-.19
		tsp	.754	.415	.714	-.43	1.94
		cookies	.327	.419	1.000	-.87	1.52
		cubes	.520	.412	1.000	-.66	1.70
	cubes	no label	-1.911 <sup>†</sup>	.404	.000	-3.06	-.76
		tsp	.234	.396	1.000	-.90	1.37
		cookies	-.193	.400	1.000	-1.33	.95
		candies	-.520	.412	1.000	-1.70	.66
	appeal score bottle	no label	tsp	1.731 <sup>†</sup>	.462	.003	.41
cookies			1.271	.466	.073	-.06	2.60
candies			1.273	.480	.089	-.10	2.64
cubes			1.393 <sup>†</sup>	.459	.029	.08	2.70
tsp		no label	-1.731 <sup>†</sup>	.462	.003	-3.05	-.41
		cookies	-.459	.458	1.000	-1.77	.85
		candies	-.458	.472	1.000	-1.80	.89
cookies	cubes	-.338	.450	1.000	-1.62	.95	
	no label	-1.271	.466	.073	-2.60	.06	
	tsp	.459	.458	1.000	-.85	1.77	
	candies	.001	.476	1.000	-1.36	1.36	
	cubes	.121	.454	1.000	-1.17	1.42	
	no label	-1.273	.480	.089	-2.64	.10	
	candies	tsp	.458	.472	1.000	-.89	1.80
	cookies	-.001	.476	1.000	-1.36	1.36	

	cubes	.120	.468	1.000	-1.22	1.46
	no label	-1.393*	.459	.029	-2.70	-.08
cubes	tsp	.338	.450	1.000	-.95	1.62
	cookies	-.121	.454	1.000	-1.42	1.17
	candies	-.120	.468	1.000	-1.46	1.22

\*. The mean difference is significant at the 0.05 level.

ANOVA results for pilot study 2

## Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
tsphealth	self	36	2.4444	1.57561	.26260	1.9113	2.9776	1.00	6.00
	other	34	1.9706	1.16737	.20020	1.5633	2.3779	1.00	5.00
	neutral	39	2.9744	1.70891	.27364	2.4204	3.5283	1.00	7.00
	Total	109	2.4862	1.55525	.14897	2.1910	2.7815	1.00	7.00
plainhealth	self	36	4.5278	1.50211	.25035	4.0195	5.0360	1.00	6.00
	other	34	4.9412	1.25387	.21504	4.5037	5.3787	1.00	7.00
	neutral	39	4.7949	1.43599	.22994	4.3294	5.2604	1.00	7.00
	Total	109	4.7523	1.40209	.13430	4.4861	5.0185	1.00	7.00

## ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
tsphealth	Between Groups	18.396	2	9.198	4.015	.021
	Within Groups	242.834	106	2.291		
	Total	261.229	108			
plainhealth	Between Groups	3.098	2	1.549	.785	.459
	Within Groups	209.214	106	1.974		
	Total	212.312	108			

## Bonferroni

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
tsphealth	self	other	.47386	.36196	.580	-.4066	1.3543
		neutral	-.52991	.34982	.398	-1.3809	.3211
	other	self	-.47386	.36196	.580	-1.3543	.4066
		neutral	-1.00377*	.35513	.017	-1.8677	-.1399
	neutral	self	.52991	.34982	.398	-.3211	1.3809
		other	1.00377*	.35513	.017	.1399	1.8677

\*. The mean difference is significant at the 0.05 level.

**ANOVA results for pilot study 3**

## Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
<b>TSPHEALTH</b>	Enjoyment	36	3.3056	1.26083	.21014	2.8790	3.7322	1.00	5.00
	Responsibility	31	2.1613	1.06761	.19175	1.7697	2.5529	1.00	4.00
	Neutral	36	2.7222	1.34400	.22400	2.2675	3.1770	1.00	5.00
	Total	103	2.7573	1.30959	.12904	2.5013	3.0132	1.00	5.00
<b>TSPAPPEAL</b>	Enjoyment	36	3.4167	1.51893	.25315	2.9027	3.9306	1.00	7.00
	Responsibility	31	3.1613	1.80918	.32494	2.4977	3.8249	1.00	7.00
	Neutral	36	3.6944	1.50844	.25141	3.1841	4.2048	1.00	6.00
	Total	103	3.4369	1.60679	.15832	3.1229	3.7509	1.00	7.00

## ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
<b>Between Groups</b>	21.877	2	10.939	7.147	.001
<b>TSPHEALTH Within Groups</b>	153.055	100	1.531		
<b>Total</b>	174.932	102			
<b>Between Groups</b>	4.757	2	2.379	.920	.402
<b>TSPAPPEAL Within Groups</b>	258.582	100	2.586		
<b>Total</b>	263.340	102			

Multiple Comparisons

**Bonferroni**

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
TSPHEALTH	Enjoyment	Responsibility	1.14427*	.30313	.001	.4062	1.8824
		Neutral	.58333	.29160	.144	-.1267	1.2934
	Responsibility	Enjoyment	-1.14427*	.30313	.001	-1.8824	-.4062
		Neutral	-.56093	.30313	.202	-1.2990	.1772
	Neutral	Enjoyment	-.58333	.29160	.144	-1.2934	.1267
		Responsibility	.56093	.30313	.202	-.1772	1.2990

\*. The mean difference is significant at the 0.05 level.

**ANOVA results for main experiment**

Enjoyment/Responsibility/Neutral – effect on health perception and appeal of beverage

Descriptives							
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Q46 - In my opinion, this drink is healthy - TSP	Enjoyment	223	2.84	1.727	.116	2.61	3.07
	Responsibility	222	2.05	1.160	.078	1.90	2.21
	Neutral	114	2.32	1.537	.144	2.04	2.61
	Total	559	2.42	1.524	.064	2.30	2.55
Q46 - In my opinion, this drink is appealing - TSP	Enjoyment	223	3.48	1.745	.117	3.25	3.71
	Responsibility	222	2.95	1.615	.108	2.74	3.16
	Neutral	114	3.21	1.696	.159	2.90	3.53
	Total	559	3.21	1.698	.072	3.07	3.36

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Q46 - In my opinion, this drink is healthy - TSP	Between Groups	69.834	2	34.917	15.828	.000
	Within Groups	1226.531	556	2.206		
	Total	1296.365	558			
Q46 - In my opinion, this drink is appealing - TSP	Between Groups	31.178	2	15.589	5.496	.004
	Within Groups	1577.062	556	2.836		
	Total	1608.240	558			

Multiple Comparisons

**Bonferroni**

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Q46 - In my opinion, this drink is healthy - TSP	E	R	.785*	.141	.000	.45	1.12
		N	.514*	.171	.008	.10	.92
	R	E	-.785*	.141	.000	-1.12	-.45

<b>Q46 - In my opinion, this drink is appealing - TSP</b>	N	-.271	.171	.344	-.68	.14
	N E	-.514*	.171	.008	-.92	-.10
	R	.271	.171	.344	-.14	.68
	E R	.529*	.160	.003	.15	.91
	N	.269	.194	.496	-.20	.73
	R E	-.529*	.160	.003	-.91	-.15
	N	-.260	.194	.542	-.73	.21
	N E	-.269	.194	.496	-.73	.20
	R	.260	.194	.542	-.21	.73

\*. The mean difference is significant at the 0.05 level.

Interaction effect

Tests of Between-Subjects Effects (ERN and SON conditions)

Dependent Variable: Q46 - In my opinion, this drink is healthy - TSP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	85.696 <sup>a</sup>	4	21.424	9.804	.000	.066
Intercept	3086.891	1	3086.891	1412.556	.000	.718
PRIME_ERN	67.834	1	67.834	31.041	.000	.053
PRIME_SON	.489	1	.489	.224	.636	.000
PRIME_ERN * PRIME_SON	15.362	1	15.362	7.030	.008	.013
Error	1210.669	554	2.185			
Total	4576.000	559				
Corrected Total	1296.365	558				

a. R Squared = .066 (Adjusted R Squared = .059)

Tests of Between-Subjects Effects

Dependent Variable: Q46 - In my opinion, this drink is appealing - TSP

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	31.313 <sup>a</sup>	4	7.828	2.750	.028	.019
Intercept	5497.861	1	5497.861	1931.488	.000	.777
PRIME_ERN	31.226	1	31.226	10.970	.001	.019
PRIME_SON	.045	1	.045	.016	.900	.000
PRIME_ERN * PRIME_SON	.089	1	.089	.031	.860	.000
Error	1576.927	554	2.846			
Total	7385.000	559				
Corrected Total	1608.240	558				

a. R Squared = .019 (Adjusted R Squared = .012)

ES and EO conditions

Group Statistics

	ES_EO_RS_RO_N	N	Mean	Std. Deviation	Std. Error Mean
Enjoyment Self		109	2.61	1.632	.156



Q46 - In my opinion, this drink is healthy - TSP	Enjoyment other	114	3.05	1.794	.168
Q46 - In my opinion, this drink is appealing - TSP	Enjoyment Self	109	3.50	1.725	.165
	Enjoyment other	114	3.46	1.771	.166

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q46 - In my opinion, this drink is healthy - TSP	Equal variances assumed	1.709	.192	-1.904	221	.058	-.438	.230	-.891	.015
	Equal variances not assumed			-1.908	220.466	.058	-.438	.230	-.890	.014
Q46 - In my opinion, this drink is appealing - TSP	Equal variances assumed	.411	.522	.207	221	.836	.048	.234	-.413	.510
	Equal variances not assumed			.207	220.922	.836	.048	.234	-.413	.510

Descriptives

Q46 - In my opinion, this drink is healthy - TSP

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		

Enjoyment Self	109	2.61	1.632	.156	2.30	2.92	1	7
Enjoyment other	114	3.05	1.794	.168	2.72	3.39	1	7
Responsibility Self	112	2.21	1.239	.117	1.97	2.44	1	6
Responsibility other	110	1.90	1.058	.101	1.70	2.10	1	5
Neutral	114	2.32	1.537	.144	2.04	2.61	1	7
Total	559	2.42	1.524	.064	2.30	2.55	1	7

### ANOVA

Q46 - In my opinion, this drink is healthy - TSP

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	85.696	4	21.424	9.804	.000
Within Groups	1210.669	554	2.185		
Total	1296.365	558			

### Multiple Comparisons

Dependent Variable: Q46 - In my opinion, this drink is healthy - TSP

Bonferroni

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Enjoyment Self	Enjoyment other	-.438	.198	.274	-1.00	.12
	Responsibility Self	.409	.199	.401	-.15	.97
	Responsibility other	.715*	.200	.004	.15	1.28
	Neutral	.290	.198	1.000	-.27	.85
Enjoyment other	Enjoyment Self	.438	.198	.274	-.12	1.00
	Responsibility Self	.847*	.197	.000	.29	1.40
	Responsibility other	1.153*	.198	.000	.60	1.71
Responsibility Self	Neutral	.728*	.196	.002	.18	1.28
	Enjoyment Self	-.409	.199	.401	-.97	.15
	Enjoyment other	-.847*	.197	.000	-1.40	-.29
Responsibility other	Responsibility other	.305	.198	1.000	-.25	.86
	Neutral	-.119	.197	1.000	-.67	.44
	Enjoyment Self	-.715*	.200	.004	-1.28	-.15
other	Enjoyment other	-1.153*	.198	.000	-1.71	-.60

	Responsibility Self	-.305	.198	1.000	-.86	.25
	Neutral	-.425	.198	.321	-.98	.13
	Enjoyment Self	-.290	.198	1.000	-.85	.27
Neutral	Enjoyment other	-.728*	.196	.002	-1.28	-.18
	Responsibility Self	.119	.197	1.000	-.44	.67
	Responsibility other	.425	.198	.321	-.13	.98

\*. The mean difference is significant at the 0.05 level.

Group Statistics

	ES_EO_RS_RO_N	N	Mean	Std. Deviation	Std. Error Mean
Q46 - In my opinion, this drink is healthy - TSP	Enjoyment Self	109	2.61	1.632	.156
	Responsibility Self	112	2.21	1.239	.117
Q46 - In my opinion, this drink is appealing - TSP	Enjoyment Self	109	3.50	1.725	.165
	Responsibility Self	112	2.95	1.564	.148

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
Q46 - In my opinion, this drink is healthy - TSP	Equal variances assumed	8.628	.004	2.103	219	.037	.409	.195	.026	.793
	Equal variances not assumed			2.096	201.401	.037	.409	.195	.024	.794

Q46 - In my opinion, this drink is appealing - TSP	Equal variances assumed	1.592	.208	2.521	219	.012	.558	.221	.122	.994
	Equal variances not assumed			2.518	215.666	.013	.558	.222	.121	.995

Independent samples t-test results for the ES, EO, RS, RO groups

Group Statistics

	ES_EO_RS_RO_N	N	Mean	Std. Deviation	Std. Error Mean
Q46 - In my opinion, this drink is healthy - TSP	Enjoyment Self	109	2.61	1.632	.156
	Responsibility other	110	1.90	1.058	.101
Q46 - In my opinion, this drink is appealing - TSP	Enjoyment Self	109	3.50	1.725	.165
	Responsibility other	110	2.95	1.672	.159

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q46 - In my opinion, this drink is healthy - TSP	Equal variances assumed	16.924	.000	3.848	217	.000	.715	.186	.349	1.081
	Equal variances not assumed			3.841	184.828	.000	.715	.186	.348	1.082
Q46 - In my opinion, this drink is appealing - TSP	Equal variances assumed	.040	.841	2.396	217	.017	.550	.230	.098	1.002
	Equal variances not assumed			2.396	216.652	.017	.550	.230	.098	1.003

**Enjoyment other and responsibility self group**

Group Statistics

	ES_EO_RS_RO_N	N	Mean	Std. Deviation	Std. Error Mean
Q46 - In my opinion, this drink is healthy - TSP	Enjoyment other	114	3.05	1.794	.168
	Responsibility Self	112	2.21	1.239	.117
Q46 - In my opinion, this drink is appealing - TSP	Enjoyment other	114	3.46	1.771	.166
	Responsibility Self	112	2.95	1.564	.148

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q46 - In my opinion, this drink is healthy - TSP	Equal variances assumed	18.903	.000	4.125	224	.000	.847	.205	.442	1.252
	Equal variances not assumed			4.138	201.063	.000	.847	.205	.444	1.251
Q46 - In my opinion, this drink is appealing - TSP	Equal variances assumed	3.908	.049	2.292	224	.023	.510	.222	.071	.948
	Equal variances not assumed			2.294	221.533	.023	.510	.222	.072	.948

**Enjoyment other and responsibility other group**

Group Statistics

	ES_EO_RS_RO_N	N	Mean	Std. Deviation	Std. Error Mean
Q46 - In my opinion, this drink is healthy - TSP	Enjoyment other	114	3.05	1.794	.168
	Responsibility other	110	1.90	1.058	.101
Q46 - In my opinion, this drink is appealing - TSP	Enjoyment other	114	3.46	1.771	.166
	Responsibility other	110	2.95	1.672	.159

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q46 - In my opinion, this drink is healthy - TSP	Equal variances assumed	31.223	.000	5.831	222	.000	1.153	.198	.763	1.542
	Equal variances not assumed			5.882	184.267	.000	1.153	.196	.766	1.539
Q46 - In my opinion, this drink is appealing - TSP	Equal variances assumed	.765	.383	2.178	222	.030	.502	.230	.048	.955
	Equal variances not assumed			2.180	221.899	.030	.502	.230	.048	.955

**Responsibility self and responsibility other group**

Group Statistics

	ES_EO_RS_RO_N	N	Mean	Std. Deviation	Std. Error Mean
Q46 - In my opinion, this drink is healthy - TSP	Responsibility Self	112	2.21	1.239	.117
	Responsibility other	110	1.90	1.058	.101
Q46 - In my opinion, this drink is appealing - TSP	Responsibility Self	112	2.95	1.564	.148
	Responsibility other	110	2.95	1.672	.159

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q46 - In my opinion, this drink is healthy - TSP	Equal variances assumed	1.214	.272	1.974	220	.050	.305	.155	.000	.610
	Equal variances not assumed			1.977	215.840	.049	.305	.154	.001	.610
Q46 - In my opinion, this drink is appealing - TSP	Equal variances assumed	1.219	.271	-.037	220	.970	-.008	.217	-.436	.420
	Equal variances not assumed			-.037	218.439	.970	-.008	.217	-.437	.420



**Enjoyment other and neutral/control group**

Group Statistics

	ES_EO_RS_RO_N	N	Mean	Std. Deviation	Std. Error Mean
Q46 - In my opinion, this drink is healthy - TSP	Enjoyment other	114	3.05	1.794	.168
	Neutral	114	2.32	1.537	.144
Q46 - In my opinion, this drink is appealing - TSP	Enjoyment other	114	3.46	1.771	.166
	Neutral	114	3.21	1.696	.159

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q46 - In my opinion, this drink is healthy - TSP	Equal variances assumed	6.023	.015	3.291	226	.001	.728	.221	.292	1.164
	Equal variances not assumed			3.291	220.810	.001	.728	.221	.292	1.164
Q46 - In my opinion, this drink is appealing - TSP	Equal variances assumed	.460	.498	1.070	226	.286	.246	.230	-.207	.698
	Equal variances not assumed			1.070	225.579	.286	.246	.230	-.207	.698

**Responsibility other and neutral/control group**

Group Statistics

	ES_EO_RS_RO_N	N	Mean	Std. Deviation	Std. Error Mean
Q46 - In my opinion, this drink is healthy - TSP	Responsibility other	110	1.90	1.058	.101
	Neutral	114	2.32	1.537	.144
Q46 - In my opinion, this drink is appealing - TSP	Responsibility other	110	2.95	1.672	.159
	Neutral	114	3.21	1.696	.159

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q46 - In my opinion, this drink is healthy - TSP	Equal variances assumed	6.827	.010	-2.400	222	.017	-.425	.177	-.773	-.076
	Equal variances not assumed			-2.416	200.929	.017	-.425	.176	-.771	-.078
Q46 - In my opinion, this drink is appealing - TSP	Equal variances assumed	.041	.841	1.137	222	.257	-.256	.225	-.700	.188
	Equal variances not assumed			1.137	221.894	.257	-.256	.225	-.699	.188

Results for carbonated beverage

## Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Q62 - In my opinion this drink is healthy - Cola								
Enjoyment Self	109	1.75	1.081	.104	1.55	1.96	1	7
Enjoyment other	114	2.01	1.314	.123	1.77	2.25	1	7
Responsibility Self	112	1.65	.898	.085	1.48	1.82	1	4
Responsibility other	110	1.61	.858	.082	1.45	1.77	1	4
Neutral	114	1.68	1.000	.094	1.49	1.86	1	6
Total	559	1.74	1.050	.044	1.65	1.83	1	7
Q62 - In my opinion, this drink is appealing - Cola								
Enjoyment Self	109	4.23	1.854	.178	3.88	4.58	1	7
Enjoyment other	114	4.25	1.907	.179	3.89	4.60	1	7
Responsibility Self	112	3.89	1.837	.174	3.55	4.24	1	7
Responsibility other	110	3.98	1.949	.186	3.61	4.35	1	7
Neutral	114	3.84	1.917	.180	3.49	4.20	1	7
Total	559	4.04	1.894	.080	3.88	4.19	1	7

## ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Q62 - In my opinion this drink is healthy - Cola	Between Groups	11.483	4	2.871	2.634	.033
	Within Groups	603.905	554	1.090		

Q62 - In my opinion, this drink is appealing - Cola	Total	615.388	558			
	Between Groups	15.986	4	3.997	1.115	.349
	Within Groups	1986.225	554	3.585		
	Total	2002.211	558			

Group Statistics

	ES_EO_RS_RO_N	N	Mean	Std. Deviation	Std. Error Mean
Q62 - In my opinion this drink is healthy - Cola	Responsibility Self	112	1.65	.898	.085
	Responsibility other	110	1.61	.858	.082
Q62 - In my opinion, this drink is appealing - Cola	Responsibility Self	112	3.89	1.837	.174
	Responsibility other	110	3.98	1.949	.186

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q62 - In my opinion this drink is healthy - Cola	Equal variances assumed	.339	.561	.362	220	.718	.043	.118	-.190	.275
	Equal variances not assumed			.362	219.837	.717	.043	.118	-.190	.275
Q62 - In my opinion, this drink	Equal variances assumed	.499	.481	-.350	220	.727	-.089	.254	-.590	.412

is	Equal			-.350	218.707	.727	-.089	.254	-.590	.412
appealing - Cola	variances not assumed									

Enjoyment other – Responsibility other

Group Statistics

	ES_EO_RS_RO_N	N	Mean	Std. Deviation	Std. Error Mean
Q62 - In my opinion this drink is healthy - Cola	Enjoyment other	114	2.01	1.314	.123
	Responsibility other	110	1.61	.858	.082
Q62 - In my opinion, this drink is appealing - Cola	Enjoyment other	114	4.25	1.907	.179
	Responsibility other	110	3.98	1.949	.186

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Q62 - In my opinion this drink is healthy - Cola	Equal variances assumed	.903	.343	2.686	222	.008	.400	.149	.106	.693
	Equal variances not assumed			2.705	195.376	.007	.400	.148	.108	.691
Q62 - In my opinion,	Equal variances assumed	.031	.860	1.024	222	.307	.264	.258	-.244	.772

<b>this drink</b>	<b>Equal</b>		<b>1.023</b>	<b>221.273</b>	<b>.307</b>	<b>.264</b>	<b>.258</b>	<b>-.244</b>	<b>.772</b>
<b>is</b>	<b>variances</b>								
<b>appealing -</b>	<b>not</b>								
<b>Cola</b>	<b>assumed</b>								

**Behavioural outcomes**

From the given four drinks, please choose one drink for your lunch box

	Frequency	Percent	Valid Percent	Cumulative Percent
tsp label	16	2.9	2.9	2.9
water	327	58.5	58.5	61.4
Valid Plain	137	24.5	24.5	85.9
Carbonated beverage	79	14.1	14.1	100.0
Total	559	100.0	100.0	

From the given four drinks, please choose one drink for your child's lunch box.

	Frequency	Percent	Valid Percent	Cumulative Percent
tsp label	9	1.6	2.0	2.0
water	295	52.8	64.4	66.4
Valid Plain	152	27.2	33.2	99.6
Carbonated beverage	2	.4	.4	100.0
Total	458	81.9	100.0	
Missing System	101	18.1		
Total	559	100.0		

From the given four drinks, please choose one drink for your lunch box \*

PRIMEERN\_BINARY\_RESPONSIBILITY Crosstabulation

		PRIMEERN_BINARY_RESPONSIBILITY		Total
		.00	1.00	
From the given four drinks, please choose one drink for your lunch box	Count	15	1	16
	% within From the given four drinks, please choose one drink for your lunch box	93.8%	6.3%	100.0%
	tsp label % within PRIMEERN_BINARY_RESPONSIBILITY	4.5%	0.5%	2.9%
	% of Total	2.7%	0.2%	2.9%
water	Count	188	139	327

e one drink for your lunch box	% within From the given four drinks, please choose one drink for your lunch box	57.5%	42.5%	100.0 %
	% within PRIMEERN_BINARY_RESPONSI BILITY	55.8%	62.6%	58.5 %
	% of Total	33.6%	24.9%	58.5 %
Plain	Count	82	55	137
	% within From the given four drinks, please choose one drink for your lunch box	59.9%	40.1%	100.0 %
	% within PRIMEERN_BINARY_RESPONSI BILITY	24.3%	24.8%	24.5 %
Carbonat ed beverage	% of Total	14.7%	9.8%	24.5 %
	Count	52	27	79
	% within From the given four drinks, please choose one drink for your lunch box	65.8%	34.2%	100.0 %
Total	% within PRIMEERN_BINARY_RESPONSI BILITY	15.4%	12.2%	14.1 %
	% of Total	9.3%	4.8%	14.1 %
	Count	337	222	559
Total	% within From the given four drinks, please choose one drink for your lunch box	60.3%	39.7%	100.0 %
	% within PRIMEERN_BINARY_RESPONSI BILITY	100.0%	100.0%	100.0 %
	% of Total	60.3%	39.7%	100.0 %

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2- sided)
Pearson Chi-Square	9.572 <sup>a</sup>	3	.023



Likelihood Ratio	11.647	3	.009
Linear-by-Linear Association	.338	1	.561
N of Valid Cases	559		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.35.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.131	.023
	Cramer's V	.131	.023
N of Valid Cases		559	

DRINKSELFBINARYtsp \* PRIME\_RS\_DUMMY

Crosstab

		PRIME_RS_DUMM		Total	
		Y			
		.00	1.00		
DRINKSELFBINARYts p	other drinks	Count	431	112	543
		% within DRINKSELFBINARYtsp	79.4%	20.6%	100.0%
	tsp label	Count	16	0	16
		% within DRINKSELFBINARYtsp	100.0%	0.0%	100.0%
	Total	Count	447	112	559
		% within DRINKSELFBINARYtsp	80.0%	20.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
<b>Pearson Chi-Square</b>	<b>4.127<sup>a</sup></b>	<b>1</b>	<b>.042</b>		
<b>Continuity Correction<sup>b</sup></b>	<b>2.940</b>	<b>1</b>	<b>.086</b>		
<b>Likelihood Ratio</b>	<b>7.272</b>	<b>1</b>	<b>.007</b>		
<b>Fisher's Exact Test</b>				<b>.052</b>	<b>.026</b>
<b>Linear-by-Linear Association</b>	<b>4.120</b>	<b>1</b>	<b>.042</b>		
<b>N of Valid Cases</b>	<b>559</b>				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.21.

b. Computed only for a 2x2 table

Symmetric Measures

	Value	Approx. Sig.
<b>Nominal by Nominal</b>		
<b>Phi</b>	<b>-.086</b>	<b>.042</b>
<b>Cramer's V</b>	<b>.086</b>	<b>.042</b>
<b>N of Valid Cases</b>	<b>559</b>	

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