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Visible sugar: salient sugar information impacts health perception of fruit juices but only when motivated to be responsible and not when motivated to enjoy

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Visible sugar:

Salient sugar information impacts health perception of fruit juices but only when motivated to be responsible and not when motivated to enjoy

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Abstract

The present study explores when consumers recognize the high sugar content of fruit juice and refrain from choosing it for themselves or their families. Fruit juice may be typically perceived as a healthy drink, despite its often high sugar content. We investigate the role of salience of sugar information and enjoyment and responsibility goals in perception and choice of fruit juices. We argue that sugar information needs to be salient to prevent this health halo effect, but that consumers also need to be in a motivational state that promotes processing of this information. In three experiments (N = 801), we manipulate the salience of the sugar content using a salient sugar label (or no explicit sugar label) as well as the activation of different goals (to enjoy versus to be responsible, in the context of choices for self versus significant others). Utilising a newly designed fictitious juice brand, salient sugar labels are effective in significantly raising awareness of sugar content in study 1. Consumers primed for responsibility consider fruit juice with salient sugar information unhealthier as compared to those primed for enjoyment in study 2. Further, in study 3, parents primed for responsibility perceive fruit juice with salient sugar information as unhealthier and less appealing in comparison to parents primed for enjoyment. The effects of responsibility and enjoyment primes on health perceptions are stronger when people think of responsibility or enjoyment of food in the context of their families rather than themselves. We discuss implications for theorizing, beverage marketing, and public policy.

Keywords: Beverage marketing; Fruit juices; Salience; Goal activation; Sugary beverage; Public health; Responsibility; Enjoyment; Self- significant other goals.

1. Introduction

Despite typical high sugar content, fruit juices are often considered healthy (Coelho, 2017; Kumar, Park, & Onufrak, 2015). Indeed, little is known on how consumers take sugar information into account when choosing fruit juices – despite warnings that excessive consumption of sugary beverages can be harmful to health (Bray & Popkin, 2014; Gill & Sattar, 2014; Lustig, 2012; Schuldt & Schwarz, 2010; Shefferly, Scharf, & Deboer, 2016; Welsh et al., 2005; Wojcicki & Heyman, 2012). Moreover, while all other sugary beverages and soft drinks are considered unhealthy and taxed by the governments in most countries, fruit juices (despite very high sugar content) are not considered under the category of sugar-sweetened beverages and have largely been untouched by policy. Additionally, there are no mandatory warnings regarding high sugar content on 100% fruit juices and milk (Donnelly, Zatz, Svirsky, & John, 2018). When choosing a fruit juice, consumers may often fall victim to a health halo surrounding fruit products. This means consumers might generalize information from one highlighted attribute, i.e. fruit, to other unclaimed attributes, such as being good for health in general (Andrews, Netemeyer, & Burton, 1998; Schuldt, Muller, & Schwarz, 2012). For example, organic labels skew the perceived calorie content of a product and perceptions of healthiness (Schuldt & Schwarz, 2010). Further, beverages like fruit juice are marketed as a healthy and natural source of vitamins. Based on the marketing information, consumers may thus often assume that juice has health benefits and may be reluctant to associate fruit juice with other sugary beverages (Bolling, Crosby, Boles, & Stark, 2009). Indeed, fruit juice is even recommended by physicians as ‘a source of vitamin C and an extra source of water’ (Heyman & Abrams, 2017). In this study, we explore whether salient information on the sugar content of juices allows consumers to overcome health halos regarding fruit juices. We suggest that the presentation of sugar information in the format of salient and easy to understand labels will influence the perception of fruit juices.

We also explore how relevant goals affect the perception of fruit juices. We argue that consumers need to be in a motivational state that promotes the processing of this information. Specifically, we suggest that the goal to enjoy will prevent usage of sugar information in people's judgment of fruit juice whereas being motivated to be responsible should promote it (cf. Inzlicht, Schmeichel, & Macrae, 2014). Additionally, we investigate whether the impact of responsibility and enjoyment goals differs depending on whether they refer to oneself or one's entire family (i.e. wanting yourself vs wanting your family to enjoy; wanting to be responsible for yourself versus for your entire family; Polman, 2010) answering calls for more research in this area (Aarts, 2007; Papies & Aarts, 2016; Papies & Hamstra, 2010; Papies, Potjes, Keesman, Schwinghammer, & Van Koningsbruggen, 2014; Van Der Laan, Papies, Hooge, & Smeets, 2017). For instance, parents might often buy fruit juices for their children. In sum, this research aims to explore how perception, appeal, and choice behaviour differ when consumers make choices in states of pursuing enjoyment versus responsibility and when they are thinking of themselves or significant others

We employ three experiments to investigate the effect of salient nutritional labelling and goal activation on the health perception and appeal of fruit juices and consequent consumer choice behaviour. A fictitious fruit juice brand "Trusty" is invented for this research based on extensive pre-testing. In Study 1 we test which of several sugar information labels is best understood by participants, to ensure that a salient sugar label is then utilised in studies 2 and 3. In study 2, we explore the role of salience and enjoyment versus responsibility goals on the health perception and appeal of fruit juices. In this study, we test whether the abstract concepts of enjoyment and responsibility referring to concepts such as fun and duty respectively are enough in impacting judgements.

In study 3, we focus on the effect of enjoyment and responsibility goals in the context of eating by oneself or one's family on perception, appeal, and choice of fruit juices.

2. Theoretical Development

2.1 Salience in the Context of Food and Beverage Perception and Choice Behaviour

This research defines salient information as information that is quick to notice, easy to comprehend, and accessible to the consumer**.** Salience directs one's attention to a specific area in a given scenario, for instance, to a food label on a food package when shopping for groceries. The information contained in that specific portion gains attention and weight in subsequent judgments (Kahneman & Thaler, 2006). For example, consumers presented with numerous stimuli typically filter out information based on what is easy to understand and accessible. Consequently, decision-makers do not consider all the information available to them but overemphasize salient pieces (Bordalo, Gennaioli, & Shleifer, 2012; Chetty, Looney, & Kroft, 2009). For example, the sales of healthy foods in a fast food restaurant increased when healthy foods were displayed visible and noticeable in the menu (Wisdom, Downs, & Loewenstein, 2010). Similarly, in cafeterias, displaying healthy food at convenient locations and eye-level shelves increases their consumption (Engell, Kramer, Malafi, Salomon, & Lesher, 1996; Thorndike, Sonnenberg, Riis, Barraclough, & Levy, 2012).

Of importance to the present study is research on nutrition labelling and the impact of such labels on consumers' decision making (Baltas, 2001; Capacci et al., 2012; Cowburn & Stockley, 2005; Drichoutis, Lazaridis, & Nayga, 2006; Grunert & Wills, 2007; Seiders & Petty, 2004). While some studies suggest that consumers are interested in nutrition labels (Grunert & Wills, 2007), other scholars suggest a wide discrepancy between reported use and actual use of the nutrition information (Cowburn & Stockley, 2005; Grunert, Wills, & Fernandez-Celemin, 2010). Consumers sometimes seem unable to comprehend and interpret the complex nutritional labelling information accurately (Cowburn & Stockley, 2005; Jones

& Richardson, 2007), while time-strapped consumers (Johar, 1995; Silayoi & Speece, 2004) are likely to skip and filter information on labels (Pieters & Warlop, 1999) and pay less attention to nutrition information (Alan, 1999; van Herpen & Trijp, 2011).

Salient information is likely to be noticed quickly and more frequently than less salient information. For instance, the time it takes to fix the gaze on a nutritional label is inversely proportional to visual salience (Orquin, Jeppesen, Scholderer, & Haugtvedt, 2014) and attention capture (Orquin & Mueller Loose, 2013). A way to alter the visual salience of a product is to change the colour, contrast, or orientation of the object (Itti, Koch, & Niebur, 1998). Visual salience can also be manipulated by changing the anchor lines on the product label (Goldberg, Probart, & Zak, 1999). Indeed, salient labels lead consumers towards healthier, goal-directed decisions (Enax, Krajbich, & Weber, 2015) and simple labels are effective (e.g. Taillie, Hall, Popkin, Ng, & Murukutla, 2020). To test this assumption in the present context, several labels are developed that display information sugar content in a salient and easy to understand way. This helps to identify labels that are more effective than others in signalling sugar contents. This research suggests that making sugar information salient and presenting it in an easy to understand and relatable format will lead consumers to see the actual sugar content and subsequently lower the health perception of the fruit juices, see Hypothesis 1a below. To this end, participants are asked for health perception of the drink in order to have direct measure of whether they understood and processed the information. Further, health value is an important factor in driving food choice (Lappalainen, Kearney, & Gibney, 1998; Prescott, Young, O'Neill, Yau, & Stevens, 2002) and various studies emphasize that consumers are likely to be motivated to make responsible food choices and rate healthiness as an important factor for food choice (Cavaliere, De Marchi, & Banterle, 2016; Kaya, 2016; Lappalainen et al., 1998; Prescott et al., 2002; Roininen, Lähteenmäki, & Tuorila, 1999, 2000). Because healthy diets and healthy food are appealing to consumers

(Bugge, 2015; but see Raghunathan, Naylor & Hoyer, 2006) we also suggest that sugar information will lower the appeal of fruit juices, see Hypothesis 1b below. The appeal of food is an important choice factor (Lindeman & Vaananen, 2000; Milosevic, Zezelch, Gorton, & Barjolle, 2012; Onwezen & Bartels, 2011) and has been used in previous research measuring food choices (e.g., Fishbach & Zhang, 2008).

H1a: Fruit juice with salient sugar information label is likely to be perceived unhealthier than fruit juice with no sugar label.

H1b: Fruit juice with salient sugar information label is likely to be perceived as less appealing than fruit juice with no sugar label.

2.2 The Effect of Goal Activation on Perception, Judgement and Decision Making, and Behaviour

In addition to the saliency of the presented sugar information, we argue that the current goal of the consumer will determine whether they process the information on sugar content even when it is presented in an easy to understand way. People's goals direct their thinking and behaviour (e.g., Bandura, 1986; Huang & Bargh, 2014; Latham & Locke, 1991). For instance, people usually display positive evaluations and approach behaviour towards high-caloric but tasty food, however, when dieting goals are activated, they display negative evaluations and avoidance behaviour towards such foods (see Fishbach & Ferguson, 2007; Huang & Bargh, 2014, for overviews). The current goal therefore shapes judgements and behaviour towards stimuli depending on their relevance to the goal. Importantly, consumers may choose to avoid information that is not consistent or relevant for the pursuit of their current goal (Woolley & Risen, 2018) or may become 'blind' towards information (Riccio,

Cole, & Balcetis, 2013; Vogt, De Houwer, Crombez, & Van Damme, 2013). For instance, people overlook even salient information such as threatening stimuli when these stimuli are not relevant to their present goal (Vogt et al., 2013). Thus, information that is easy to process and salient can be overlooked when it is not consistent with consumers' goals.

The impact of goals is particularly powerful when people are not consciously aware of their current motivational mindset (Strack & Hannover, 1996). Goals can be pursued with conscious intention or unintentionally (Bargh, 1990; Gollwitzer & Bargh, 1996; Kruglanski, 1996). Unintentional and unconscious goal-directed behaviour will often result from situations and cues in the environment without that consumers are consciously aware that these situations or cues motivate them to pursue specific goals ('goal priming'; Bargh & Chartrand, 1999, 2000; Custers & Aarts, 2005, 2010; Custers, Maas, Wildenbeest, & Aarts, 2008; Fishbach, Friedman, & Kruglanski, 2003; Papies, 2016; Sheeran, Klein, & Rothman, 2017). For instance, the goal to eat responsibly and healthy might be activated upon seeing a fit and healthy friend or the goal to enjoy food and beverages might get activated seeing others enjoying a delicious meal and drinks. In the present study, we will, therefore, activate goals using goal priming.

2.2.1 Enjoyment and responsibility goals.

We test the impact of two goals that are relevant when it comes to consumers' beverage shopping: the desire to enjoy food and drinks but also the goal to be responsible (Stroebe, Koningsbruggen, Papies, & Aarts, 2013). For instance, dieters alternate between the goal to control weight and to enjoy, especially palatable food and beverages (Stroebe et al., 2013). Recent models of self-regulation emphasize how consumers switch between

motivations reflecting desires and motivations reflecting duties (e.g., Finkelstein & Fishbach, 2010; Inzlicht et al., 2014). Even healthy conscious consumers will prioritize the desire to enjoy food and drinks sometimes: For instance, people feel licensed to forgo healthy choices when they perceive to have made sufficient progress towards health-related goals (Fishbach & Dhar, 2005) or when they feel they deserve a treat (Prinsen, Dohle, Evers, Ridder, & Hofmann, 2019). It is therefore important to study the effect of people's current goals in a given situation.

We suggest that activating enjoyment and responsibility goals will lead participants to make different choices in response to sugar information. Specifically, we propose that the goal to enjoy will prevent usage of sugar information in people's judgement of fruit juice whereas being motivated to be responsible should promote it (cf. (Inzlicht et al., 2014). In line with this reasoning, when consumers are primed for socializing and enjoyment, they make enjoyment congruent choices (Papies, 2013; Sheeran, Webb, & Gollwitzer, 2005). In contrast, people who are primed with responsibility goals are more likely to be motivated to be responsible and risk-averse (Cross, Hardin, & Swing, 2011; Hamilton & Biehal, 2005; Howard, Gardner, & Thompson, 2007; Mandel, 2003). Consumers that are motivated by health considerations are likely to gauge the healthfulness of various food products by carefully looking at the nutrition information on labels. In the present paper, we conceptualise enjoyment and responsibility in two different ways. First, we use the abstract concepts of 'fun' and 'duty and care' to activate enjoyment and responsibility goals respectively. In study 2, the priming words do not specifically focus on food as a source of enjoyment or responsibility. Rather, synonyms of the words responsibility and enjoyment are presented by sentence scrambling task (Chartrand & Bargh, 2002; Fitzsimons & Bargh, 2003; Fitzsimons & Shah, 2008; Legare & Souza, 2014; Srull & Wyer, 1979). The aim of the study is to see if

perception of the beverages differs when participants are primed for these goals. We acknowledge that these words are likely to activate different goals in various individuals and thus in the next study (Study 3), we prime enjoyment and responsibility in the social context of eating with significant others or by oneself using a storytelling task (Trafimow, Triandis, & Goto, 1991). In this study, priming specifically focuses on enjoying food with significant or oneself or making responsible eating choices for significant others or oneself. Specifically, participants in the *enjoyment conditions* are asked to write about experiences describing the importance of enjoying tasteful food and 'little sins' from time to time, either for themselves or for their families (see Prinsen et al., 2019). Participants in the *responsibility conditions* are asked to discuss the importance of eating responsibly such as fresh and healthy food either for themselves or when providing food for their families. This is done to simulate real-life situations where consumers may choose differently for oneself or others depending on the goals activated at that moment.

Based on these considerations, this research proposes that priming for enjoyment will reduce the impact of sugar information on consumer perception of healthiness of fruit juice while priming for responsibility will increase the impact of sugar information on consumer perception of healthiness. Consequently, our work will highlight how responsibility and enjoyment motivation impact the perceptual and cognitive processing of labelled beverages. For this reason, this will also be one of the first studies to test the effect of such motivations.

H2a: Respondents primed for responsibility will perceive the beverage with salient sugar information less healthy than respondents primed for enjoyment.

H2b: Respondents primed for responsibility will perceive the beverage with salient sugar information less appealing than respondents primed for enjoyment.

2.2.2 Self and significant other goals.

We will also test whether the effect of responsibility and enjoyment goals differs depending on whether they refer to oneself or one's entire family. For instance, parents might often pursue fruit juice for their children. Self versus other perspectives causes people 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, 2009a). As a consequence, different aspects of identity may become salient at any moment in time (Hillenbrand & Money, 2015). We, therefore, ask whether it makes a difference whether someone is in a mindset to enjoy or to be responsible for themselves or their family.

Research suggests that goals related to the self and goals related to others vary in their content (Aaker & Lee, 2001; Cross, Hardin, & Gercek-Swing, 2010; Markus & Kitayama, 1991; Singelis, 1994; Triandis, 1989). People's identities or self-concepts motivate them to act toward different goals (Oyserman, 2009a, 2009b, 2015). Individuals primed to think of significant others are more 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 (Fitzsimons & Bargh, 2003; Kraus & Chen, 2009; Shah, 2003; Zhang & Shrum, 2009). For instance, in a study among undergraduate students (Fitzsimons & Bargh, 2003) priming the participants with their parents' names triggered the motivation for achievement, and priming with names of close friends primed helpful behaviour.

Based on these considerations, we suggest that goals for self and significant others are likely to affect enjoyment and responsibility motivations. We therefore prime participants for enjoyment and responsibility goals in the context of self and significant others. More

specifically, we suggest that enjoyment primes are stronger in the context of oneself and responsibility motivations are stronger in the context of others. In study 3, we investigate the effects of responsibility and enjoyment in the context of eating, this means, enjoying food or eating responsibly. This is done because we want to simulate motivations that consumers might experience when buying such drinks.

H3a: Respondents primed to think of enjoying food by themselves are likely to perceive the fruit juice with sugar information healthier than respondents primed to think of responsible eating with significant others or by themselves, or respondents primed to think of enjoying food with others.

H3b: Respondents primed to think of responsible eating food with significant others are likely to perceive the fruit juice with sugar information less healthy than respondents primed to think of enjoying food with others or by themselves, or respondents primed to think of responsibly eating by themselves.

H3c: Respondents primed to think of enjoying food by themselves are likely to perceive the fruit juice with sugar information more appealing than respondents primed to think of responsible eating with significant others or by themselves, or respondents primed to think of enjoying food with others.

H3d: Respondents primed to think of responsible eating food with significant others are likely to perceive the fruit juice with sugar information less appealing than respondents primed to think of enjoying food with others or by themselves, or respondents primed to think of responsibly eating by themselves.

Choice (Behavioural outcome)

We administered a behavioural task to measure choice. To this end, we asked participants to choose a sandwich and a drink for their lunch box and their child's lunch box.

H3e: Respondents primed to think of responsibly eating food with significant others are less likely to choose a sugary beverage than respondents primed to think of enjoying food with others or by themselves, or respondents primed to think of responsibly eating by themselves.

3. Empirical Studies

We conducted three studies to test our hypotheses. In study one, we designed and tested several different sugar information labels for a fictitious fruit juice brand called "Trusty". Specifically, we tested whether presenting juice with or without these labels changes appeal and health perception of the juices. As such, study 1 tested our hypothesis that salient sugar information causes consumers to identify juice as unhealthy and consider it less appealing. Further, this study also allowed us to identify a sugar information label that is perceived as most salient by participants. This label was then used in the subsequent studies. Next, we studied the role of salience and enjoyment versus responsibility goals on the appeal and perception of fruit juice with a sugar label (Study 2). Finally, we researched the effects of enjoyment and responsibility more directly applied to food and in the context of self and significant others with a sample of parents (Study 3).

3.1 Study 1

3.1.1 Method.

3.1.1.1 Participants.

162 participants took part in the research survey. The study was approved by the ethics committee of Henley Business School as all other studies. 139 participants (41 men) completed the survey.

The participants described themselves as health-conscious (M = 5.12, SD = 1.23). 8.1% of the participants were between 18 and 25 years old, 58.8% were between 26 and 45 years old, and the remaining participants were above 45 years old. 69.9% of the sample were of White ethnic background, 19.1% of Asian background, the remaining participants were of Black, Arab, mixed, or unspecified background. 87.5% of the sample had at least one university degree. 64.4% of the sample were employed and 24.4% were students. 73.6% of employed participants were employed in the public sector. 64.5% were married or living with a partner. 58.5% of the sample had children.

This study employed a between-subject design, with 5 different sugar information labels (No salient sugar information; Teaspoon label; Cookies label; Candies label; Sugar cubes label) that varied between participants. We measured the appeal and perception of healthiness towards the juices in all participants.

3.1.1.2 Materials.

3.1.1.2.1 Fruit juice brand.

A fictitious brand of orange juice was developed in this experiment (see Figure 1). A fictitious brand ensured that respondents do not have prior attitudes towards the product. Continuing with the market trend of naming brands after a virtue like innocent, honest, the brand name ‘Trusty’ was selected for this fictitious brand. The brand and bottle were designed to be similar to products available in the UK market. 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, 2016;

BSDA, 2015). The label 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.

3.1.1.2.2 Sugar labels.

It was essential that sugar information was presented in salient, that is, simple, easily understood formats. Formats were designed to stand out on the package so that respondents could understand and decide whether the drink was healthy. Based on the principle of reducing cognitive load and making communication simple (Tversky & Kahneman, 1974) and the principles deferred from research on attention (Itti et al., 1998) everyday relatable items such as cookies, candies, and sugar cubes were selected as the means to convey sugar information in easy to understand ways that also stands out visually on a package. Each label conveyed the same sugar information in different formats. For example, the sugar content of 21 mini cookies and 60 candies is equivalent to 12 sugar cubes or 12 teaspoons of sugar. The sugar information was placed at the bottom of the front in large font. Figure 1 shows the fictitious brand and label developed for this research.

Figure 1. Images of the juice bottles with different sugar labels or no label.

3.1.1.3 Procedure.

Data was collected online via QualtricsTM software. Participants were randomly assigned to conditions. Participants were presented with the image of a juice as part of a questionnaire that was presented as a Marketing Study that aimed to understand consumers' attitudes towards everyday products. Ten questions were to be answered by each respondent. Eight of these were filler questions. The other two questions showed a juice carton and the juice bottle with varying sugar information. We included the juice carton to try different formats of containers but decided to not use it further. It is however important to note that results for the juice cartons yielded the same conclusions as for the bottle. The filler questions comprised of a picture of random everyday products like a 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 items and questions

were presented in a random order to each participant. The picture of the beverage was shown together with two questions 'In my opinion this drink is healthy' and 'In my opinion, this drink is appealing'. Both questions were answered on a seven-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

In the concluding section, the participants answered some demographic questions on age, gender, employment status, income, ethnicity, marital status, health consciousness, and the number of children. The participants were then thanked for their participation and the survey ended.

3.1.2 Results.

3.1.2.1 Health perception.

A one-way analysis of variance was conducted to explore the impact of salience on the perception of the fruit juice bottle with a label as a between-subjects factor (No label; Teaspoon label; Cookies label; Candies label; Sugar cubes label). See also Figure 2 for means and standard deviations. There was a significant effect of type of label on the health perception of fruit juice for the five groups, $F(4,134) = 8.56$, $p < .001$, $\eta^2p = 0.204$. Post hoc comparisons using Bonferroni corrections 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 ($M = 2.20$, $SD = 1.56$). The different labels did not differ from each other. **Consequently, H1a is supported.**

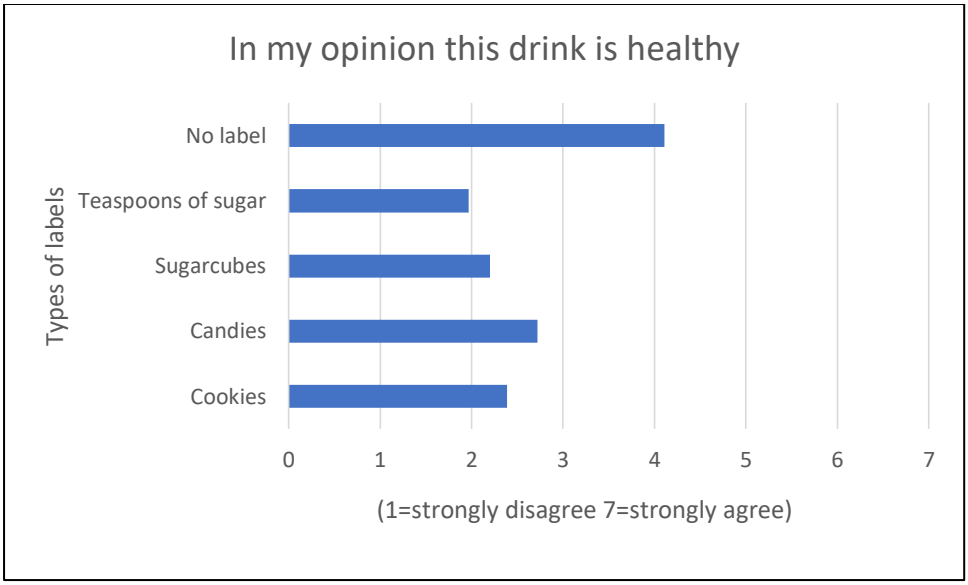

Figure 2. Mean values for "In my opinion this drink is healthy"

3.1.2.1 Appeal.

A one-way between-groups analysis of variance was conducted to explore the impact of salience on the appeal of the juice bottles with the label as a between-subjects factor (No label; Teaspoon label; Cookies label; Candies label; Sugar cubes label). See also Figure 3 for means and standard deviations. There was a statistically significant effect of label on the appeal of the beverage, $F(4,134) = 4.02$, $p = .004$, η^2 p = 0.107. Posthoc comparisons using Bonferroni corrections showed that the mean score for the beverage without sugar information ($M = 4.56$, $SD = 1.65$) was significantly different from the teaspoon label ($M = 2.86$, $SD = 1.68$) and sugar cubes label ($M = 3.20$, $SD = 1.82$). Cookies label ($M = 3.32$, $SD = 1.76$) and candies label ($M = 3.32$, $SD = 1.70$) did not differ significantly from the juice without sugar information. The different drinks did not differ from each other. **Consequently, H1b is supported.**

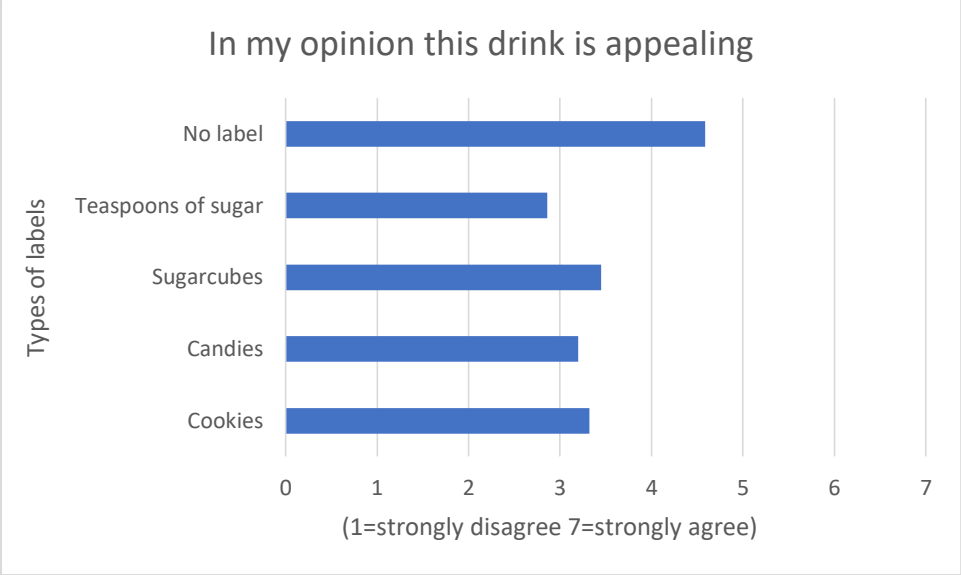

Figure 3. Mean values for "In my opinion, this drink is appealing".

3.1.2.3 Discussion study 1.

The data provided evidence to support Hypothesis 1a and b that fruit juice without sugar information was perceived to be healthier and more appealing than the fruit juice with sugar information. Though the difference in ratings to the other sugar labels was not significant, the fruit juice with teaspoon label was perceived to be unhealthier and less appealing than all other fruit juices as it scored lowest on healthiness and appeal. The participants spent an average of 27.22 seconds in viewing each label and answering the health/appeal questions. The least time was spent on the sugar teaspoon label (24.3 seconds), thus underlining the effectiveness of this label. Based on these findings, we selected the teaspoon label for the remaining studies because the teaspoon is also likely to be relatable and easily understood by a wide population.

3.2 Study 2

3.2.1 Method.

3.2.1.1 Participants and design.

105 participants took part in the study. The experiment was completed by 103 participants (34 male; 61% between 18 and 25 years, 28.6% between 26 and 44 years, and the remaining participants above 45 years old). We only analysed data of those 103 participants.

Study 2 employs a between-subject design, with three goal conditions (Enjoyment; Responsibility; Control). Outcome variables were health perception and appeal.

3.2.1.2 Materials.

3.2.1.2.1 Priming task.

A scrambled sentence task (Srull & Wyer, 1979) was employed to prime the participants for responsibility or enjoyment. In the scrambled sentence task, participants were presented with a sentence with a string of 4 or 5 words in random order. The participants had to form a correct sentence with the given words. The sentence completion task for each task consisted of 15 relevant sentences and 13 filler sentences and was developed in pretests. 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 University of Reading students. The control group had neutral words like sky, road, cat, leaf, etc.

3.2.1.3 Procedure.

Data was collected online via QualtricsTM software. Participants were randomly assigned to conditions. The survey was presented to participants as three independent studies on English grammar, personal opinions and food advertising. After completing the priming task, the participants answered the following questions as manipulation check, “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.”, and “I

am feeling more motivated to have fun than to be responsible". They were answered on a 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

In the next step, the participants were shown pictures of the beverages. For the beverages, we asked their opinion on 'In my opinion this drink is healthy' and 'In my opinion, this drink is appealing' that were answered on a 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). We presented two beverages, that is, the juice bottle with the sugar information label and a bottle of water as a distractor. Hereafter, they were asked for their gender and age. The participants were then thanked for their participation and the survey ended.

3.2.1 Results.

We calculated the average of the four manipulation check questions after reversing the answer to the two questions that measured motivation to enjoy (Cronbach's $\alpha = 0.582$). Higher scores thus indicate a higher motivation to be responsible. A one-way ANOVA on this score with the condition (enjoyment, responsibility, control) did not reveal a significant effect of condition, $F < 1.01$. However, as expected, the score for the responsibility condition ($M = 4.86$, $SD = 1.06$) was visually higher than the score for the enjoyment ($M = 4.61$, $SD = 0.76$) or the control condition ($M = 4.53$, $SD = 1.00$).

3.2.1.1 Health perception.

A one-way analysis of variance was conducted to explore the impact of priming on healthiness perception of the beverage with salient sugar information. Priming was used as a between-groups factor (Enjoyment; Responsibility; Control group). See Table 1 for means and standard variations. There was a significant effect of condition on health scores for the three groups, $F(2,100) = 7.15$, $p = .001$, η^2 p = 0.125. Posthoc tests using Bonferroni corrections revealed that the mean score for the enjoyment group ($M = 3.31$, $SD = 1.26$) was

significantly different from the responsibility group (M = 2.16, SD = 1.06). **Consequently, H2a is supported.**

The control group (M = 2.72, SD = 1.34) did not differ significantly from the other groups (ps > .143).

Table 1. *Mean ratings and standard deviations for perceived healthiness and appeal of the fruit juice with sugar label in the different conditions in Study 2.Higher scores indicate agreement with the statements that the drink is healthy and appealing. Lower scores indicate disagreement with the statements that the drink is healthy and appealing,*

	Health Perception		**Appeal**	
Condition	*M*	*SD*	*M*	*SD*
Responsibility	2.16	1.06	3.16	1.81
Control	2.72	1.34	3.69	1.51
Enjoyment	3.31	1.26	3.42	1.52

3.2.1.1 Appeal.

A one-way analysis of variance was conducted to explore the impact of priming condition on the appeal of the beverage with salient sugar information. Priming condition was a between-group factor (Enjoyment; Responsibility; Control group). The results did not reveal a statistically significant effect of condition, $F < 1$. **Consequently, H2b is not supported.**

3.2.1.1 Discussion.

The data provides evidence to support Hypothesis 2a that respondents primed for responsibility are likely to perceive the fruit juice with salient sugar information less healthy than respondents in the enjoyment group. Priming for responsibility did not change the appeal of drinks. The subsequent study will prime responsibility and enjoyment in parents the context of self and their families. It will also aim to improve and strengthen the priming manipulations. To this end, we extended the priming manipulation using a variety of techniques such as storytelling and suggestive questions. We also directly primed enjoyment and responsibility in the context of food (e.g. being motivated to eat responsibly versus enjoying food).

3.3 Study 3

3.3.1 Method.

3.3.1.1 Participants and design.

580 British participants sourced from Prolific completed the online questionnaire. Each respondent was paid £1. Study 3 employs a between-subject design with five goals (Goal: enjoyment-self; enjoyment- other; responsibility- self; responsibility- other; control) and three outcome variables (Perception, Appeal, Choice Behaviour).

After data cleaning to identify survey speeders (Callegaro, Villar, Yeager, & Krosnick, 2014), straight-liners (Hair, Black, Babin, & Anderson, 2014), and outliers using univariate and multivariate methods (Tabachnik & Fidell, 2007) and Mahalanobis distance (Hair et al., 2014), the data comprised of 559 parents (114 fathers and 445 mothers). 82.3% of participants were married or living with a partner. For 279 participants (49.9 %), the youngest child was in the infant and early years' stage, 119 (21.3%) participants' youngest child was in the primary school age and for 60 participants (10.7%) youngest child was in the secondary school age. For 101 participants (18%), the youngest child was over 18 years old.

50.1% of the sample had a total yearly tax income of under £30,000 (before taxes), 32.5% had an income between £30,000 and £50,000. 70.5% of the sample were employed or self-employed. 39.4% had a least one university degree. Most participants (93.6%) were from a white ethnic background.

Participants were moderately hungry (M = 4.81, SD = 2.51) and thirsty (M = 5.23, SD = 2.20). The participants also completed the health consciousness scale (Gould, 1990) (M = 46.8, SD = 9.21), the scepticism towards advertising scale (Obermiller and Spangenberg, 1998) (M = 31.87, SD = 11.54) and the revised restraint scale (Herman and Polivy, 1980) (M = 26.97, SD = 7.17).

3.3.1.1 Materials.

3.3.1.1.1 Priming task.

The priming task had three different parts. First, we used the storytelling technique (Trafimow et al., 1991) to prime the participants. Specifically, participants in the *enjoyment conditions* were encouraged to report about experiences describing the importance of enjoying tasteful food and 'little sins' from time to time, either for themselves or for their families. The *responsibility conditions* were asked to discuss the importance of eating responsibly either for themselves or when providing food for their families. In their answers, participants had to spend three minutes on explaining three relevant reasons or occasions relating to responsible or joyful eating. The control condition talked about reasons to go to supermarkets.

Following this, they either saw two pictures of unhealthy food (enjoyment conditions) or healthy food (responsibility conditions) together with questions asking how likely they would chose such food for themselves or their families 'when relishing and enjoying tasteful food' (enjoyment conditions) or 'when making sensible food choices' (responsibility conditions). Questions were answered on a 7-point Likert scale ranging from 1 (*extremely*

unlikely) to 7 (*extremely likely*). This was included to further enhance the priming and present the respective motivational tendency as normal. We were not interested in their actual responses. The control condition was shown images of supermarkets and asked to indicate how likely they would visit each store.

Third, participants proceeded to respond to three questions that were answered on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). They were designed to further motivate the participants. We were again not interested in their actual responses. For instance, the *other-enjoyment condition* answered questions such as 'It is important that my family members relish delicious food from time to time without worrying about calories.' or 'My family enjoys being rewarded with yummy food or drinks occasionally whether this food is healthy or not.'. The *self-responsibility condition* answered questions such as 'It is important for me to take care of myself by eating a balanced diet.' or 'I try to make sensible food choices and eat fresh meals whenever I can.'. The *other-responsibility condition* replied to items such as '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.' The *self-enjoyment* condition replied to questions such as 'I find it important to relish delicious food from time to time without worrying about calories.' or 'I enjoy rewarding myself with yummy food or drinks occasionally whether this food is healthy or not.' The control condition answered questions such as 'I think supermarkets must provide pharmacy and optician services.'.

3.3.1.1.2 Manipulation check.

We used a scale as a manipulation check. We designed the scale based on previous experiments and an extensive literature review. It included 10 items such as '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 a 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.', or 'I am feeling motivated to make very healthy food choices for my family members.' These questions were answered on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

The 10 items of the scale were subjected to principal components analysis (PCA) using SPSS version 21. Before 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 scree test (Cattell, 1966), it was decided to retain two components for further investigation. The two-component solution explained a total of 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.

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. The mean inter-item correlation value was .25 which is in the recommended optimum range of .2 to .4 (Briggs & Cheek, 1986) for short scales.

3.3.1.2 Procedure.

The study was presented as two short studies being conducted for academic research at two different schools (School of Psychology and Henley Business School) at the University of Reading with the first researching personal opinions regarding food habits and preferences and the second study about personal opinions on marketing and advertising of everyday products in the supermarkets. Participants were first asked to report how hungry and thirsty they are on a scale from 1 (*not at all*) to 10 (*extremely*). Participants were then randomly assigned to one of the five conditions in the priming task.

After the priming task and manipulation check, 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 respondents were then led to the second study. Here, the respondents were shown pictures of everyday products and asked two questions about each product. To make the questionnaire more interesting and to cover the purpose of the study, the questions about the beverages were asked in random order and interspersed with 12 other everyday objects like mobile phones, tissue rolls etc. The survey was kept short and the questions were not difficult to answer. The beverages used in this study included the prototype developed in experiment 1 without a sugar label, the prototype with a sugar label, a bottle of water and a carbonated

beverage as distractors. This product was made similar to brands present in the market for face validity. The two questions asked about these beverages were “In my opinion this drink is healthy” and “In my opinion, this drink is appealing” that were answered on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Following this task, the participants were presented with a choice task. They were told to imagine preparing a lunch box for themselves and asked to choose a sandwich and a drink for the lunch box. They were the asked choose between orange juices (with and without sugar label), a carbonated beverage, and water. They were the asked to rate the healthiness of the two orange juices (with and without sugar label) on a scale ranging from 1 (*not at all healthy*) to 10 (*extremely healthy*). The results of these questions replicated the data of the questions on healthiness before.

In the next step, the participants answered questions on demographics. Specifically, they were asked to report their age, gender, ethnicity, marital status, income, education level, employment status, and the age of their youngest child. 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.

We used three additional scales to be able to portray the sample. The *Health Consciousness Scale* (Gould, 1990) is a 10-item scale to measure health self-consciousness, health alertness, health self-monitoring, and health involvement with items such as ‘I’m alert to changes in my health.’ or ‘I’m very self-conscious about my health.’.

The *Skepticism Towards Advertising Scale* (SKEP scale) is a 9-item scale to measure the general tendency toward disbelief of advertising claims (Obermiller & Spangenberg, 1998). Example statements in the SKEP scale are ‘We can depend on getting the truth in most advertising’ or ‘Most advertising provides consumers with essential information’.

Finally, the *Revised Restrained Scale* (RRS) is a ten-item measure used for identifying restrained eaters (Herman and Polivy, 1980). Dietary restraint is defined as the intention to restrict food intake in order to control body weight. The RRS consists of two subscales (a) weight fluctuation (WF) with four items for assessing the history of weight fluctuation such as 'What is the maximum amount of weight gain within a week?' and (b) concern with dieting (CD) with six items for assessing the attitudes towards dieting such as 'How often are you dieting?'. The questionnaires were included for exploratory research and can be accessed with the supplementary information submitted with this paper.

3.3.1 Results

3.3.1.1 Manipulation check[i]

We calculated average scores for the responsibility and enjoyment scales for the manipulation check. An one-way ANOVAs on the responsibility score with condition (enjoyment, responsibility, control) did reveal a significant effect of condition, $F(2,557) = 9.27$, $p < 0.001$, η^2 p = 0.032. As expected, the score on the responsibility scale for the responsibility conditions ($M = 6.86$, $SD = 1.32$) was higher than the score for the enjoyment conditions ($M = 6.30$, $SD = 1.53$). An one-way ANOVA on the enjoyment score with condition (enjoyment, responsibility, control) did reveal a significant effect of condition, $F(2,557) = 11.09$, $p < 0.001$, η^2 p = 0.038. As expected, the score on the enjoyment scale for the responsibility conditions ($M = 4.96$, $SD = 1.20$) was lower than the score for the enjoyment conditions ($M = 5.50$, $SD = 1.34$). As expected, the self and other conditions for both enjoyment and responsibility did not differ from each other on both scales.

3.3.1.3 Health perception.

We conducted a univariate analysis of variance[ii] with condition (responsibility self, responsibility other, enjoyment self, enjoyment other) on the health perception ratings of the fruit juice with the salient sugar label. We also tested whether the single four conditions

differed from the control group using two-tailed *t*-tests. See Figure 4 for means and standard deviations. There was a significant main effect of condition, $F(1,441) = 13.14$, $p < .001$, η^2 p = 0.082. Post hoc tests using Bonferroni corrections indicated that the enjoyment-other group (M = 3.05, SD = 1.79) rated the beverage healthier than both responsibility conditions (responsibility-self group (M = 2.21, SD = 1.23), responsibility-other group (M = 1.90, SD = 1.05)). The difference to the enjoyment-self group (M = 2.61, SD = 1.63) was approaching significance (p = 0.058), with, surprisingly, the enjoyment-other group rating the drink as healthier than the enjoyment-self group. Further supporting the finding that the enjoyment-other condition had the strongest effect, the enjoyment-other (M =3.05, SD =1.79) rated the juice healthier than the control group (M = 2.32, SD =1.54), $t(226) = 3.29$, $p < .001$. The enjoyment-self group did differ from the responsibility conditions but not from the control group.

As expected, the responsibility priming had been strongest in the context of others. Specifically, the responsibility other group rated the juice almost less healthy than the responsibility-self condition (p = .050). Importantly, they judged the juice to be less healthy than the control group, M = 2.32, SD =1.54; $t(222) = 2.4$, p =.017. **Thus, hypothesis 3a is not supported while hypothesis 3b is supported.** The priming conditions did not impact the health perceptions or appeal of the juice bottle without any sugar information, Fs < 1.34.

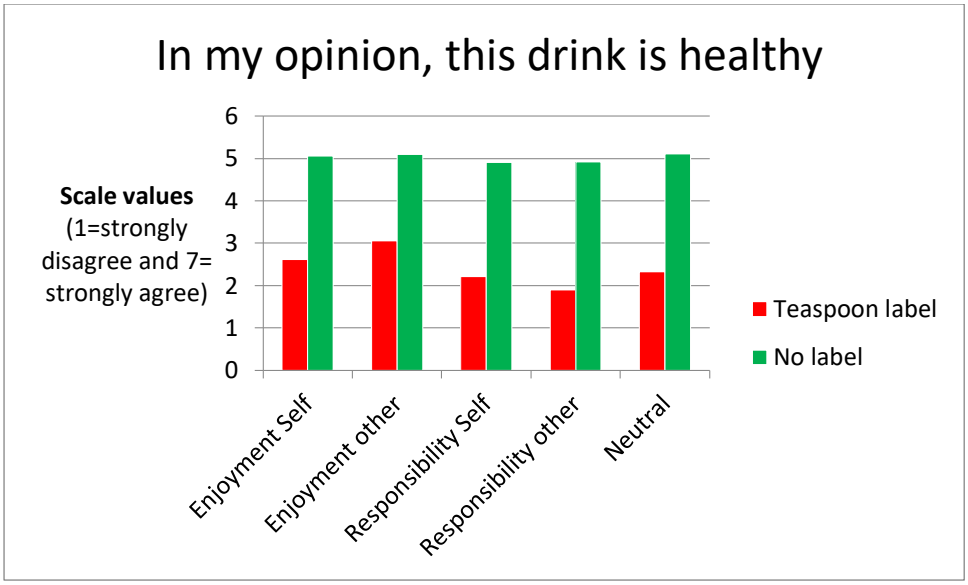

Figure 4. Health perception per drink and condition in study 3.

3.3.1.4 Appeal

We conducted a univariate analysis[iii] of variance with condition (responsibility self, responsibility other, enjoyment self, enjoyment other) on the appeal ratings of the fruit juice with the salient sugar label. We also tested whether the single four conditions differed from the control group using two-tailed *t*-tests. See Figure 5 for means and standard deviations. There was a significant main effect of condition, $F(1,441) = 3.68$, $p < .02$, η^2 p = 0.024. Post hoc comparisons using Bonferroni corrections did not reveal any significant results, $p > 0.084$. However, further post hoc comparisons using Bonferroni corrections indicated that the combined enjoyment groups (M = 3.48, SD = 1.74) rated the beverage as more appealing than the combined responsibility groups (M = 2.95, SD = 1.61). The control group (M = 3.20, SD = 1.83) did not differ significantly from the other groups. **Consequently, H3c is not supported but H3d is partially supported. However, the results support H2b.**

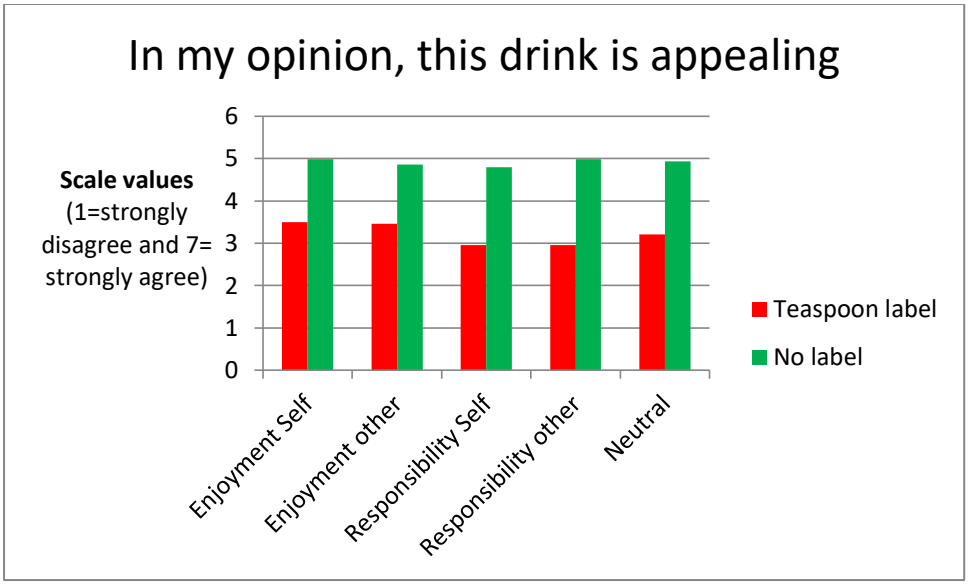

Figure 5: Appeal ratings per drink and condition study 3.

We also tested whether the priming of responsibility and enjoyment in the context of self and others impact the ratings of healthiness and appeal of the juice drink without a label. As expected, there was no effect of the primes on the ratings of healthiness, *F*s < 1.27, *ns*, or appeal, *F*s < 1.34, *ns.*

3.3.1.5 Choice

In the choice task, participants were asked to choose a sandwich and drink for their lunch box. 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%). (See Table 2). To explore the relationship between priming and choice of beverage, 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.

	Condition				
	Enjoyment Self	Enjoyment other	Responsibility Self	Responsibility other	Neutral
Juice with teaspoon label	5	5	0	1	5
Water	63	66	66	73	59
Juice without label	21	29	28	27	32
Carbonated beverage	20	14	18	9	18

Table 2. *Beverage choices per condition in Study 3.*

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, χ 2 (1, N = 559) = .009, *phi* = .023. This implies that the proportion of respondents primed for responsibility who chose teaspoon 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 the carbonated beverage for the lunch box (p = .047, 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 sugary beverage for the lunch box. **Consequently, Hypothesis 3e is supported.**

Fisher's exact test indicated an almost significant association between priming for responsibility-self and selecting teaspoon label beverage for the lunch box (p = .052, two-tailed Fisher's exact test, Cramer's V = 0.086).

	Condition				
	Enjoyment Self	Enjoyment other	Responsibility Self	Responsibility other	Neutral
Juice with teaspoon label	4	3	1	1	0
Water	55	61	59	64	56
Juice without label	31	26	30	27	38
Carbonated beverage	1	0	1	0	0

Table 3. *Beverage choices per condition (child's lunch box) in Study 3.*

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 %). (See Table 3). A Chi-square test for independence (with Yates Continuity Correction) did not indicate an association between priming and selection of beverages for the child's lunch box, χ 2 (1, N = 458) = .1.

4. General Discussion

In three experiments, we found that the salience of sugar information and activation of relevant goals impact the health perception, appeal, and choice of fruit juices. Study 1 showed that presenting sugar information with salient sugar labels lead to a decrease in health perception and appeal of fruit juice. The results of study 2 further demonstrated that priming for enjoyment lead to increases in the perceived healthiness of the fruit juice while priming for responsibility lead to a decrease in perceived healthiness of the fruit juice. Priming for responsibility or enjoyment did not impact the appeal of fruit juices in this study. Using a stronger and food-related priming manipulation, study 3 found that the pursuit of responsibility applied to eating leads to lower health perception and appeal of fruit juice. Priming for enjoyment heightened the health value and appeal of fruit juice with sugar information. We found the strongest effects on health perception for the pursuit of responsibility and enjoyment in the context of others. In sum, our research adds to the scant literature on the perception of fruit juices providing insights and implications for both scholars and practitioners. The findings highlight the important role of simple and easy communication such as salient labels and the impact of consumers' current goals in order to prevent health halos regarding fruit juices.

4.1 Theoretical contribution

Our research contributes to the literature on beverage choice, labelling, and goal pursuit by integrating insights on salience and nutrition labelling with the study of goal activation in the context of fruit juice perception, appeal, and choice. It thus combines insights from two prominent but separate fields of research and experimentally tests their joint impact on consumer behaviour incorporating close imitations of existing real-life products in the market to provide a practical context to the research. In real life conditions, consumers have a

plethora of drinks to choose from. Therefore, we hope that this task may have mimicked real life choices. Importantly, our study confirms recent developments emphasizing the effectiveness of simple and salient ways to design nutrition labels (Taillie et al., 2020). We also extend these approaches by highlighting the important role of the consumer's motivational state in promoting but also preventing the processing of nutrition labels and, subsequently, healthy choices.

Specifically, our research extends the literature on visual salience (e.g., Gabaix, 2014; Gennaioli & Shleifer, 2010; Mullainathan, 2002; Woodford, 2012). In all three studies, salient information gained more attention and weight in the different judgments which confirms suggestions that salient information serves as a heuristic (Kahneman & Thaler, 2006). Effects were consistent for ratings of health perception and less consistent for ratings of appeal. This is likely to suggest that the information in the label impacted perceptions of the drink's characteristics and, to a lesser degree, the affective component of attitudes. This may reflect that consumers like the juice despite knowing it is not healthy. Importantly, as the results of study 1 show, most of our salient labels evoked the expected effects on the health perception and appeal of the fruit juice. This means saliency in labels can be achieved with a variety of designs. We hope that future research and practitioners draw inspiration for the design of nutrition labels from our designs and data.

Our data do not allow us to decide whether the labels reminded or educated consumers of the high sugar content of fruit juices (cf. Urminsky & Goswami, 2019). Future research could differentiate between these two explanations by measuring pre-existing consumers' knowledge of fruit juices and their sugar content in advance. If sugar labels can educate consumers this would further emphasize their effectiveness.

Interestingly, the teaspoon label was successful in shaping judgements and behaviour in all three studies though the label was not the most salient one in terms in term of contrast and

colours (cf. Itti et al., 1998). The teaspoon label might have been easiest to understand, for instance, because people are familiar with it. It might also activate associations of sugar being added to the beverage and thus suggest a transformation of the product. Importantly, consumers perceive food that has been transformed as less healthy (e.g. Connell, Finkelstein, Scott, & Vallen, 2018). We hope that future research will further explore the effects and underlying mechanisms of different nutrition labels.

Our results also highlight the downstream effects of goal activation. Consumer's current goal appears to bias consumer judgements of health value and, to a certain degree, the appeal by causing consumers to only perceive information that is relevant to their current goal while overlooking all other information. Therefore our research extends various studies showing that current goals can facilitate but also hinder healthy choices without the consumer being aware of these goals impacting their behaviour (Belei, et al., 2012; Fishbach et al., 2003; Harris, Bargh, & Brownell, 2009; Papies, 2016; Papies & Hamstra, 2010; Papies et al., 2014; Stöckli et al., 2016; Van Der Laan et al., 2017). Notably, goals even seem to bias the processing of simple and easy to understand information that might appear difficult to overlook (cf. Vogt, Koster, & De Houwer, 2017; Vogt et al., 2013). This means nutrition labels will not always be processed even when they are salient and easy to understand. Future research could explore whether investigating the role of current motivations allows researchers to explain the mixed findings regarding the effectiveness of food labels (e.g. Taillie et al., 2020). For instance, future research could manipulate or measure consumers' motivation while they are presented with food and beverages displaying nutrition labels. Ideally, such research would also add more objective measures of attention and perception such as eye-tracking to fully understand the impact of motivation on the processing of nutrition labels. Motivations might cause consumers to overlook labels in a literal sense or they could cause them to disregard them in their judgements and behaviours while still

perceiving them. For instance, consumers sometimes strategically choose to avoid information (Thunström et al., 2016; Woolley & Risen, 2018).

Our research shows that responsibility primes promote healthy choices whereas enjoyment primes prevent them, especially in the context of families. This means, health-relevant behaviours and judgements can be hampered by goals to enjoy or reward oneself and significant others, whereas the motivation to be responsible promotes such behaviours and cognitions (cf. Inzlicht et al., 2014). Our studies show that both motivations can shape the behaviour of the very same individual depending on the context. This means, even health-conscious consumers will act in accordance with enjoyment motivations, at least from time to time (cf. Fishbach & Dhar, 2005; Huang & Bargh, 2014). Our findings, therefore, highlight the importance of considering consumer's motivational state at the moment and to not just account for consumer's general commitment to a goal such as living healthily. By this, they are also one of the first studies to highlight how conscious enjoyment goals might underlie decisions to choose unhealthy food. Crucially, our data illustrate how such goals taint the way people see the world, this means, how they bias the perception of healthiness.

We operationalised enjoyment and responsibility differently in studies 2 and 3. The main differences between these studies are: 1) the use of different priming techniques and 2) different sample sizes. We acknowledge that priming showed stronger effects in study 3. Nevertheless, we suspect that study 3 was more effective than study 2, as the primed content was more applicable to the rating and choice tasks (cf. (Loersch & Payne, 2012; Higgins, Rholes, & Jones, 1977). This might be particularly relevant to the changed ratings of appeal because consumers might still like a juice even if they knowit is not healthy (cf. Tibboel, De Houwer, & Van Bockstaele, 2015). Future research may want to look at studying in more detail the conditions under which these concepts impact choice and behaviour. For instance, it would be useful to measure participants' success with health-related goals as consumers

that are successful in pursuing these goals show reduced affective reactions toward unhealthy food when health-related goals are activated (e.g. Fishbach et al., 2003). There is also a need for further research on the role of goal activation and health goal priming in directing consumers towards healthier choices (Aarts, 2007; Papies, 2016; Papies and Hamstra, 2010; Papies et al., 2014; Van der Laan et al., 2017).

Partially in contrast to our hypotheses, priming both responsibility and enjoyment in the context of families seemed to enhance both goals for the perception of healthiness. This highlights a possible important avenue for future research, especially in the context of families and parents. Whereas the result for responsibility was expected, it was not hypothesised for enjoyment. However, it is important to note that our enjoyment condition used wordings such as giving a reward to loved ones after a stressful day. We believe that this could have evoked a strong licensing effect. Indeed, the wording is similar to ones found in recent licensing studies (see Prinsen et al., 2019). In sum, people might be more motivated to care for their family's health as in the responsibility priming or their emotional well-being as in the enjoyment prime, especially considering that we tested parents' motivation in response to their children. Our research therefore suggests an interesting extension of research on identity-based motivation (Fitzsimons & Bargh, 2003; Oyserman, 2009a, 2015).

4.2 Practical contributions

Additionally, the current research offers important policy implications and marketers. First, our research shows that health halos of fruit juice can be overcome. We identify which sugar information labels are best understood by the consumer (i.e. the teaspoon label), which provides easy to implement actions for policymakers. This means we propose a pragmatic and achievable approach to behaviour change by demonstrating that consumers understand and respond to salient, that is, easy to understand and relatable sugar content information. In contrast to the vast majority of public policy assumptions, simple labels might thus be a way

forward instead of complex nutrition information and labels. Moreover, consumers are likely to draw their own inferences, as they believe that the advertised information is lawfully truthful. The effect of these misconceptions can be overcome by exhibiting simple and salient but also truthful and specific nutrition information.

Second, we demonstrate that consumers perceive the same sugar information differently, according to the activated goals at a given moment. 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 the enjoyment of the food products and, at least 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. Our data suggest that the aspect of enjoyment makes the consumer overlook or draws the attention away from unhealthy content (salt/sugar/fat) in that product.

While this concept can be used to promote unhealthy products, priming for responsibility can also be applied in social marketing or public policy in order to nudge consumers towards healthier choices. For instance, priming consumers for responsibility appears to lead to the activation of concepts related to healthy food consumption. Food marketers could 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, presenting situational cues related to responsibility, for example,

before the purchase occurs in the store environment, could be a way to nudge consumers towards healthier choices.

The study has also shown how perception of consumers can differ when they are thinking of themselves or significant others. Herein 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.

4.3 Limitations and Suggestions for Future Research

In this study, a fictitious brand is designed so that any preconceptions about the brand can be ruled out. However, participants might have paid more attention to the new brand than they would have to a known brand in a more natural environment. Future research should, therefore, replicate the results using known products and using different products such as different foods and beverages that carry health halos (e.g. food like flavoured yoghurt, gummy fruit snacks, energy bars and drinks like sports drinks, flavoured milk etc.). Additionally, future research could vary the design, measurement instruments, sample size and/or provide a different set of tests and questions for refined results. For instance, researchers could further explore the conditions under which the appeal of fruit juices varies as well as the role of moderators in affecting any appeal ratings. Furthermore, we hope future research will test the perception of fruit juices in a between subjects design. In the current design, seeing the same juice with and without a label might have limited the effects. We also hope that future research will extend the results to the physical world in order to find how consumers perceive and choose the products.

4.4 Conclusion

This interdisciplinary research provides several important contributions. First, this study tests a number of labels to convey sugar information and identifies the label that is best

understood by participants. As such, we make a contribution to practice as well as future empirical work.

Second, this study contributes to theory development by illustrating that specific goals, i.e., enjoyment and responsibility, affect the perception of beverages, as well as behavioural outcomes differently.

Third, this study contributes to the debate on policy development in a number of ways, for example our findings imply that in a state of enjoyment people tend to be more carefree and are likely to undermine certain information.

In summary, this research provides a unique perspective on the effects of salience and goal activation on the appeal, perception, and choice of fruit juice. More specifically, we aimed to investigate how health halos of fruit juices can be overcome so that consumers are nudged towards making healthier choices. In the field of beverage consumption, existing labels displaying complex nutrition information, often in small fonts, are difficult to understand for consumers and require much cognitive effort. By exhibiting the sugar information in easy to understand and relatable formats, we altered perceptions and appeal of fruit juices and nudged consumers towards more informed decisions. Moreover, our finding that the same sugar information is understood differently depending on the goals activated at a given moment can be used to subtly lead the consumer towards healthier choices.

The studies and findings provide a set of important implications and research materials for both scholars and practitioners. This study may be relevant to scholars who are interested in understanding and exploring salience and goal activation in the domain of food and beverage marketing. Practitioners may find this research useful from a social marketing and public policy perspective to promote healthier choices using principles of salience and relevant motivations. We hope this research encourages further research to understand the importance of salience and goal activation in nudging consumers towards healthier choices.

5. Contributions

AS, CH, and JV designed this research. AS conducted the studies and analysed the results.

AS, CH, and JV wrote the manuscript. “Trusty” is a registered trademark of AS.

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[i] The mean score for the control group was significantly different from the responsibility group but did not differ significantly from the enjoyment group in the two manipulation check scales. A possible reason for this result could be attributed to social desirability bias in the enjoyment group.

[ii] We also conducted a univariate analysis of variance with 2 factors (responsibility versus enjoyment and self/ others) on the health perception ratings of the fruit juice with the salient sugar label. There was no significant main effect of self/ other condition, $F(1,555) < 1$. There was a significant main effect of enjoyment/responsibility condition, $F(1,555) = 31.05$, $p < .001$, $\eta^2p = 0.053$. This was qualified by an interaction between the two priming factors, $F(1,555) = 7.03$, $p = .008$, $\eta^2p = 0.013$.

[iii] We performed a second univariate analysis of variance with 2 factors (responsibility versus enjoyment and self/ others) on the appeal judgements of the fruit juice with the salient sugar label. No main effect of self-other or a significant interaction between prime concepts was found, Fs < 1. However, a statistically significant main effect was found for enjoyment/ responsibility condition in the appeal of beverage, $F(1,555) = 10.99$, $p = .001$, $\eta^2p = 0.019$.