

The effect of the Nutri-Score on healthy food purchase intention

The influence of the Nutri-Score on purchase intention for snacks and the moderating role of financial scarcity.

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Preface

Dear reader,

After months of research, I proudly present to you my master's thesis as part of my master's degree at the Radboud University. This thesis investigates the impact of the Nutri-Score on purchase intentions and looks at the effect of financial scarcity. This topic was chosen because I was curious about the topic since I had seen Nutri-Scores on products at my work at Albert Heijn. Completing this thesis will be the final step in finishing my master's in Business Administration with a specialization in Marketing.

First, I would like to express my sincere appreciation to my supervisor Prof. Dr. Gerrit Antonides for helping me during the writing process of this thesis. His useful feedback, support and enthusiasm helped me improve the quality of my thesis and enjoy the process. Further, I would like to thank my second examiner, Herm Joosten, for the time and effort that was put into examining my Master thesis. In addition, I would like to thank master student Jamie de Beijer for the excellent collaboration during this thesis. Even though we were writing our theses separately, it was pleasant to be able to perform the data collection together and to discuss some subjects via Zoom. Moreover, it was nice to have regular contact, especially during Corona times.

Lastly, I would like to thank all respondents who participated in my research. It was nice to see so many people responded to our call to participate in our survey. Without them, it would not have been possible to provide proper insights.

I hope you will read my master thesis with joy!

Jente Frints

Nijmegen, June 2021

Abstract

The Netherlands has set many goals in order to fix societies' obesity problem. Still, half of the adults in the Netherlands is overweight. Recently, the Nutri-Score label on supermarket products is getting more attention and it might become mandatory in the European Union. This research aimed to find out if the presence of the Nutri-Score label on snacks would influence the average purchase intention for food products. It studied whether the presence of the Nutri-Score would increase the purchase intentions of healthy snacks and whether it would decrease the purchase intentions of unhealthy snacks. Moreover, it was expected that people would rather buy a product with a favorable Nutri-Score than a product with an unfavorable Nutri-Score. Furthermore, this study looked at whether the experience of financial scarcity has any influence on the effect of the Nutri-Score. Prior research already showed a positive effect of the Nutri-Score on purchase intentions. However, little research has been conducted on this topic in the Netherlands. Further, the potential influence of financial scarcity is not yet investigated.

An online survey experiment was conducted among 405 respondents. Respondents were shown four different snacks from the supermarket and were asked about their purchase intentions. Multiple statistical tests were conducted to analyze the data and to test the proposed hypotheses. The results showed that the Nutri-Score had an effect if the participants had seen the Nutri-Score label on the package. However, only significant values were found for the rice cracker snack. Furthermore, no evidence was found to support the moderating role of financial scarcity. However, more research is needed to investigate the potential moderating role of financial scarcity since the average level of financial scarcity was low within this study. To conclude, the outcomes are valuable and offer implications for consumers, manufacturers, the government, and marketers.

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Chapter 1: Introduction

1.1 Background

Selling healthier food is getting more and more attention in today's food industry. The last few decades show that consumers care about a healthy lifestyle and this is a driving force of reshaping people's food buying intentions (Petrescu, Vermeir & Petrescu-Mag, 2019). A reason for this is the global obesity problem. According to the World Health Organization (2020), obesity contributes to approximately 2.8 million deaths per year. This is also an enormous problem in the Netherlands (Schokker, Visscher, Nooyens, Van Baak, & Seidell, 2007). Currently, one out of two adults are overweight according to the Dutch Ministry of General Affairs (Ministerie van Algemene Zaken, 2020). At this time, the world is facing a global pandemic. Covid-19 has an immense impact on people's lives. Besides, obesity and severe illness because of Covid-19 go hand in hand. There is evidence linking obesity and obesity-related chronic diseases to severe outcomes of Covid-19 (Belanger et al., 2020). In the Netherlands, most of the people who end up on the intensive care units with a severe Covid-19 infection are overweight (Zorgwijzer, 2020). People can boost their immune system and get a healthier BMI by eating healthy nutritious food in order to reduce the risk of a severe Corona infection. Thus, now more than ever, wider access to healthy food should be top priority and people should easily be able to identify healthy and unhealthy food.

Making healthier food choices easier can help overcome these health problems. Some people lack motivation to check the healthiness of products (Keller et al., 1997). Governments try to make consumers' healthier food choices easier at the time of purchase and overcome their lack of motivation (Newman, Howlett, & Burton, 2014; Nishida, Uauy, Kumanyika, & Shetty, 2004). Recently, there is more interest in front-of-pack (FOP) labels (Kanter, Vanderlee & Vandevijvere, 2018). These labels aim to make comparisons across products easier for consumers. Recently, a new label has been launched, which is the Nutri-Score. A Nutri-Score helps consumers compare supermarket products. Therefore, consumers will be able to make healthier purchase decisions. The Dutch government decided to implement the Nutri-Score as the food selection logo in 2021 (Ministerie van Algemene Zaken, 2020). The Dutch retailer Albert Heijn started with a Nutri-Score pilot project in 2020. Consumers of Albert Heijn could already choose dairy products based on the Nutri-Score. This pilot project focuses on both in-store and online sales (Meijssen, 2019; Albert Heijn, 2020). The Nutri-Score logo will probably be legally permitted in the Netherlands by mid-2021 (Albert Heijn, n.d.).

France developed the Nutri-Score and recently started with the full implementation of this new FOP label (Julia & Hercberg, 2017). The calculation of the Nutri-Score is based on positive and negative factors, and the total score results in one out of five different letters and colors. The score consists of a ranking from A (healthy) to E (unhealthy), with matching colors from dark green (healthy) to red (unhealthy). The Nutri-Score takes into account the nutrients that fit a balanced diet (Albert Heijn, n.d.). Previous studies found support for the Nutri-Score influencing people's purchase intentions for (un)healthy products (De Temmerman et al., 2020). The Nutri-Score helped consumers make better nutritional quality purchases (Nikolova & Inman, 2015; Julia & Hercberg, 2017). Further, De Temmerman et al. (2020) concludes to embrace the Nutri-Score as the standard front-of pack label in order to help fighting the obesity problem.

Previous research has shown that the cost of food has a strong influence on food purchases (Rongen, Verkooijen & Vet, 2019). Furthermore, consumers with low-income are less likely to use food labels compared to consumers with a higher income (Nayga, Lipinski & Savur, 1998; Kim, Nayga & Capps, 2001; Wang, Fletcher & Carley, 1995). Consumers with a low-income have more limited budgets to buy groceries; therefore, financial matters may play a large role in their choice of food (Giskes et al., 2002). The limited budgets of consumers with low-income can cause them to experience financial scarcity. The impact of financial scarcity on eating behavior is one of the reasons for an unhealthy diet (Mullainathan & Shafir, 2013). Literature on financial scarcity suggests that scarcity shifts the consumer's attention and is a threat to the consumer's ability to meet his or her needs and desires due to a lack of money (Mullainathan & Shafir, 2013; Hamilton et al., 2018). The feeling of financial scarcity can influence how people make decisions and allocate their resources (Shah et al., 2012). Furthermore, high-income consumers are found to be more sensitive to green (Nutri-Score A) and yellow (Nutri-Score C) while low-income consumers are more sensitive to red (Nutri-Score E) (Sánchez-García, Rodríguez-Insuasti, Martí-Parreño & Sánchez-Mena, 2019). Therefore, financial scarcity could be a potential moderator of the relationship between product offerings, and provision of (different) Nutri-Scores on one hand, and purchase intention on the other hand.

1.2 Research problem

The Nutri-Score is relatively new, and therefore little research has been conducted on this label. A few researchers have investigated the effect of a front-of-pack label on purchase intention and perceived healthiness. The Nutri-Score could help consumers make healthier purchases (Nikolova & Inman, 2015; Julia & Hercberg, 2017). Therefore, the Nutri-Score could help fight

the obesity problem (De Temmerman et al., 2020). Moreover, little research has been done in the Netherlands on this topic. The Dutch government decided to implement the Nutri-Score in the Netherlands based on their own research in which they concluded the Nutri-Score is the best option out of three different FOP labels (Ministerie van Volksgezondheid, Welzijn en Sport, 2020). In 2020, Albert Heijn also conducted research on the Nutri-Score. No research has been conducted on the Nutri-Score, purchase intention and the potential effect of financial scarcity on the relationship between these concepts in the Netherlands.

The purpose of this research is to investigate what the effect of Nutri-Scores on purchase intentions is in the Netherlands. Furthermore, the moderating role of financial scarcity will be investigated since this could influence the relationship of Nutri-Scored products and purchase intention (Campos et al., 2011). The following research question will be addressed:

In which way does financial scarcity moderate the effect of the Nutri-Score on the consumer's purchase intention?

1.3 Research relevance

It is scientifically relevant to investigate the relationship between Nutri-Scores and purchase intention. Previous research has neglected the moderating effect of financial scarcity on the above proposed relationship. On top of that, little research has been conducted on this subject in the Netherlands (De Temmerman et al., 2020). The study will contribute to existing literature on the Nutri-Score and purchase intention, which could also be extended (De Temmerman et al., 2020; Julia & Hercberg, 2017; Nikolova & Inman, 2015). Besides, this research extends the research on financial scarcity in combination with a front-of-pack label.

Moreover, research on the Nutri-Score is relevant for practice. This research may offer insights for marketers on the effect of products provided with a Nutri-Score on purchase intention of customers. Marketers can use this knowledge to influence people's buying behavior. Furthermore, manufacturers of unhealthy products that will get a low Nutri-Score might want to know what happens with the purchase intention of their products. Further, this research is socially relevant, because implementing the Nutri-Score on a large scale could help in the fight against obesity. It could also stimulate people to purchase healthier products, which could affect consumers' overall health. In addition, this study is relevant for governments and regulators. More research that shows a positive effect on the healthiness of purchase intentions could result in a stronger call for the use of the Nutri-Score in the Netherlands and Europe (World Obesity Federation, n.d.). Lastly, if this research shows that financial scarcity has a moderating effect, it might be necessary to further help financially scarce consumers picking

food that is best for them. All in all, conducting research on this subject is both scientifically and societally relevant.

1.4 Preview

To give a complete answer on the research question, this thesis is divided into five parts. Chapter 1 introduced the current research problem and relevance. The second chapter provides a literature review of the theory about the most important concepts of this thesis. Hypotheses will be formulated, and the chapter ends with the conceptual model. Chapter 3 covers the research methodology of the quantitative study. Chapter 4 presents the analysis and results of this study. Finally, the fifth chapter offers a conclusion and discussion, which also includes theoretical and practical implications, limitations, and suggestions for further research.

Chapter 2: Theoretical background

This chapter contains the theoretical background that forms the basis of this research. The important concepts are defined and explained. First, the front-of-pack label will be introduced. This leads us to the Nutri-Score, which is the central theme of this research, followed by the purchase intention, promotions, and nudging. Next, the relationship between Nutri-Score and purchase intention will be addressed, and hypotheses will be formulated. Lastly, the concept of financial scarcity will be defined, and the potential moderating effect will be discussed, followed by the hypothesis. This chapter ends with a visual representation of the concepts and their relationships, which is the conceptual model.

2.1 Front-of-pack labels

As from December 2016, it is required that the majority of pre-packed foods offered in the European Union show a nutrition declaration (European Commission, 2020). This nutritional information is often provided on the back of the food packaging (BOP), allowing consumers to make more informed and healthier choices. BOP labels consist of nutrition tables or nutrition facts as well as the ingredient list. These nutrition tables show different nutrients (such as fat or salt) per 100 gram and/or serving (Rønnow, 2020). Research confirms that the use of BOP labels may result in a healthier diet (Campos et al., 2011). However, many consumers lack motivation to read the back of pack labels, since it contains a lot of information (Van Kleef, Van Trijp, Paeps, & Fernández-Celemín, 2008).

In order to overcome this lack of motivation, front-of-pack labels were introduced. It has been suggested that FOP labels are more noticeable than BOP labels (Becker, Bello, Sundar, Peltier & Bix, 2015). These FOP labels are defined as simple and graphical labels that provide nutrition information on the front of the package (Jones, Neal, Reeve, Ni Mhurchu & Thow, 2019). It is complementary to the detailed mandatory nutrition information on the back side of the package (Dubois et al., 2020). Consumers tend to process the information on the package better if they are exposed to the combination of a FOP label and full nutritional information on the BOP label (Wansink, 2003).

The objectives of FOP labels are threefold, according to Van Kleef and Dagevos (2015). First, the label should help consumers understand the nutritional quality of food products at the supermarket and therefore improve their purchase decisions and health. Second, the label drives food manufactures to develop healthier products. Last, these labels allow governments to influence public health by providing nutritional information in a non-enforcing way (Van Kleef

& Dagevos, 2015; Cowburn & Stockley, 2015). All in all, the most important objective and outcome is that FOP labels may influence consumers to purchase healthier products (Hersey, Wohlgenant, Arsenault, Kosa, & Muth, 2013). Furthermore, Kozup, Creyer and Burton (2003) indicate that when favorable nutritional information is presented, consumers have higher purchase intentions after the exposure.

Over the years, different FOP labels have been introduced. Ikonen, Sotgiu, Aydinli, and Verlegh (2019) have provided an overview of different FOP labels. According to them, FOP labels can be defined in two different categories. The first is reductive labels, which reduce the amount of nutrition information provided without offering any interpretation of this information. An example of a reductive FOP is the black and white calorie label. The other kind of FOP labels can be seen as interpretative, which means that it provides a greater evaluation of information. These interpretative labels can be further categorized into two types depending on the degree of information given. The first type, interpretive nutrient-specific labels, adds an evaluation/ interpretation of healthiness. For example, the Multi Traffic Light. The second type is an interpretative summary indicator label, which provides a summary of the overall nutritional information and an evaluation (Ikonen et al., 2019). The summary also helps interpreting the overall healthfulness (Hersey et al., 2013). These labels are health logos and rating labels. The labels are helpful for consumers who want to compare different alternatives and choose the healthiest one (Newman, Burton, Andrews, Netemeyer, & Kees, 2017). A newly developed rating label is the Nutri-Score, which will be further explained in the next section.

2.2 Nutri-Score

This study focuses on one specific FOP label, namely the Nutri-Score. As indicated above, the Nutri-Score is an interpretative summary indicator label (Ikonen et al., 2019). The Nutri-Score is a color-coded, graded FOP label that consist of a scale with five colors. The colors range from dark green to red (Grunert & Wills, 2007; De Temmerman et al., 2020). The colors are combined with the letters A–E in order to improve the readability of the label (Julia & Hochberg, 2017). The entire scale appears on the front of the pack, with the letters and combined colors corresponding to the product's nutritional quality. The final score of the product is enlarged and therefore clearly visible (Julia & Hochberg, 2017). A score with the letter A stands for the highest nutritional quality, therefore being the healthiest score. The letter E stands for the lowest nutritional quality and is therefore the unhealthiest score a product can get. An example of the Nutri-Score is shown in Figure 1, this Nutri-Score represents an A-score. The Nutri-Score can be added to all processed products. A few exceptions are products

like herbs, tea, coffee and alcohol (Santé Publique France, 2018). The Nutri-Score is not a substitute for the BOP labels, which remains legally required. Instead, the Nutri-Score gives a summary to help consumers understand the complex nutrition tables and help them make better food choices (Nikolova & Inman, 2015). The same objectives mentioned for the FOP labels apply for the Nutri-Score (Van Kleef and Dagevos, 2015; Julia & Hercberg, 2017).



Figure 1. Nutri-Score

2.2.1 Nutri-Score calculation

The Nutri-Score combines positive characteristics of the food with negative characteristics (De Temmerman et al., 2020). The calculation is based on the nutritional composition for 100 grams of food or 100 milliliters of beverage. The calculation takes into account a negative “N” component and a positive “P” component for each food product. The “N” component takes into account the nutritional elements that should be limited. These are calories, saturated fatty acids, the amount of sugar and salt (Santé Publique France, 2018). This score has a range of 0 to 40, where 40 stands for least healthy (Julia & Hercberg, 2017). The “P” component stands for the positive nutrients. This component is based on the amounts of fruits, vegetables, legumes and nuts. This component considers the vitamins, proteins, and fibers. The component score has a range of 0 to 15, where 15 stands for most healthy (Santé Publique France, 2018; Julia & Hercberg, 2017). The total Nutri-Score is calculated as follows: $\text{Nutri-Score} = \text{Total N points} - \text{total P points}$. As a result, a total score ranging from -15 to +40 can be calculated, where -15 stands for most healthy and +40 for least healthy (Santé Publique France, 2018). Different thresholds can be applied to assign a Nutri-Score to a product. The thresholds differ for food and beverages (Dréano-Trécant et al., 2020). An overview of the score ranges (A–E) for food and beverages is shown in Figure 2 (Colruyt Group, n.d.). Further information about the Nutri-Score can be found in the Santé Publique France paper (2018, p.19).

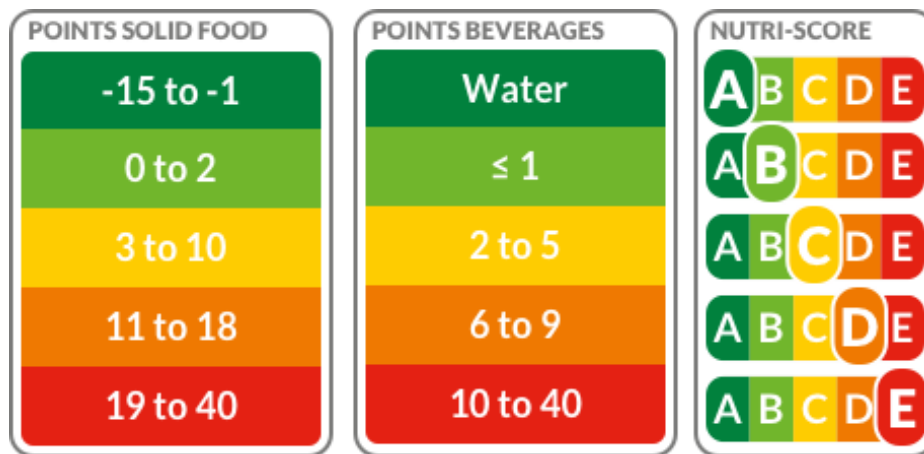


Figure 2. Nutri-Score classification. Adapted from: *About the Nutri-Score*, by Colruyt Group (n.d.). Retrieved from <https://nutriscor.colruytgroup.com/colruytgroup/en/about-nutri-score/>. Copyright 2020 by Colruyt group.

2.2.2 Nutri-Score as the standard

As stated in the introduction, France was the first country which developed the Nutri-Score and already started with full implementation (Julia & Hercberg, 2017). The Dutch government decided to implement the Nutri-Score as the food selection logo in 2021 (Ministerie van Algemene Zaken, 2020). Spain, Belgium, Switzerland, Luxembourg, and Germany already adopted this label as the standard FOP label (Ministerie van Volksgezondheid, Welzijn en Sport, 2019). Currently, the World Obesity Federation started a petition to make the Nutri-Score mandatory in the European Union (World Obesity Federation, n.d.). In short, the Nutri-Score has been introduced in several countries and is getting more attention of governments and the European Union. However, it is still not obligatory within the European Union.

2.3 Purchase intention

Purchase intention is the likelihood that the customer will buy a particular product in the purchase process (Dodds, Monroe & Grewal, 1991). Intention has been defined as “indicators of how hard people are willing to try, of how much an effort they are planning to exert, in order to perform the behavior” (Ajzen, 1991, p. 181). Consequently, purchase intention is related to the reasons of the consumer to buy a product (Shah et al., 2012). According to Morinez et al. (2007), purchase intention is when a consumer tends to buy a certain product under a certain condition. In brief, purchase intention usually is about the behavior, perceptions, and attitudes of the consumer (Mirabi, Akbariyeh, & Tahmasebifard, 2015). Purchase intention is a reliable predictor of future sales (Morwitz, Steckel & Gupta, 2007). In this study, purchase intention is

defined as the likelihood that a consumer buys a certain product at the supermarket. This definition is based on previous definitions. It is about the intention to perform a certain behavior (purchasing) (Ajzen, 1991; Dodds et al., 1991). To conclude, this study investigates the purchase intention of a given food product, either or not provided with a Nutri-Score.

2.4 Promotions

Promotions are part of the marketing mix and are a useful tool that can help retailers and manufacturers to maximize sales (Nikolova & Inman, 2015). Hence, promotions are used in order to change the behavior of the consumer (Keller & Swaminathan, 2019). All definitions of promotions have in common that promotions are mainly temporary strategic marketing decisions that are being used to influence the behavior of the consumer (Hoyer, MacInnis & Pieters, 2018). Chandon, Wansink and Laurent (2000) define the benefits of sales promotions as the perceived value attached to that sales promotion experience, which can be both seeing a promotion and buying a promoted product. All in all, promotions can be defined as a marketing strategy that is being used to influence the behavior of a consumer (Hoyer et al., 2018; Keller & Swaminathan, 2019). When comparing the purpose of promotions with the purpose of the Nutri-Score, it becomes clear that both are used to influence the behavior of consumers. Especially regarding the purchase intentions, both influence the decision-making process. Therefore, the Nutri-Score can be seen as some sort of promotion tool with the purpose of making healthy food choices easier. In particular, the use of this promotion tool can be seen as a social marketing tool. Social marketing can be defined as the application of commercial marketing principles to influence behavior for the benefit of individuals or wider society (Kotler & Lee, 2008). According to De Temmerman et al. (2020), the Nutri-Score is helpful by making the nutritional information easier accessible. Hence, customers can get influenced to purchase healthy products that are provided with a favorable Nutri-Score. Therefore, the Nutri-Score serves a social marketing purpose since it influences behavior for the benefit of people's health.

2.5 Nudging

Consumers sometimes lack motivation to check the nutritional information of products (Keller et al., 1997). Even consumers that are motivated to buy healthy foods can be unsuccessful in accurately assessing the healthiness of a product. Moreover, consumers make their food purchases based on feelings and emotions (Gardner, Wansink, Kim & Park, 2014). Therefore, a FOP label, such as the Nutri-Score, could help make consumers purchase healthy food and thereby overcome the lack of motivation and emotion-based decisions (Newman et al., 2014).

The Nutri-Score is clearly visible at the front of a package and therefore costs less cognitive effort than reading the BOP nutrient label (Scott & Worsley, 1994). The Nutri-Score can be seen as a nudge. A nudge is: “any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives.” (Thaler & Sunstein, 2008, p. 6.). The Nutri-Score uses nudging through the letters and colors and can be seen as an evaluative nutritional labeling nudge (Cadario & Chandon, 2020). Therefore, the Nutri-Score should be considered an effective nudge in stimulating the consumer to buy healthier products.

2.6 Relationship of Nutri-Score and purchase intention

Making healthier food choices easier can help overcome obesity and health-related problems. Therefore, governments intend to make consumers’ healthier food choices easier at the time of purchase with use of back-of-pack (BOP) labels and front-of-pack (FOP) labels on pre-packed food (Becker et al., 2015; Kanter et al., 2018). The newly developed Nutri-Score helps consumers to compare products at the supermarket. Therefore, it gets easier for consumers to purchase healthier food (Julia & Hercberg, 2017). Previous studies already found support for different FOP labels to influence people’s purchase intentions (Ares et al., 2018; Feunekes et al., 2008). Ares et al. (2018) found a small significant effect ($\eta^2 = 0.004$) on purchase intention when a FOP label was used. Recent research of De Temmerman et al. (2020) showed a significant effect of the Nutri-Score on purchase intentions, however the effect size was relatively small. Further, Crosetto, Lacroix, Muller and Ruffieux (2018) concluded that Nutri-Score in comparison with no-FOP label helped consumers to purchase healthier food. Therefore, it is expected that consumers have a higher purchase intention for products with a favorable Nutri-score than when such a score is absent. This effect is expected to be stronger for healthier products (Nutri-Score A). Furthermore, it is expected that for unhealthy products (Nutri-Score E) purchase intention is lower compared to when no Nutri-Score is used, because consumers are made aware of the fact that the product is unhealthy (Feunekes et al., 2008). Products with a Nutri-Score A have a higher expected purchase intention than products with a Nutri-Score E (Crosetto et al., 2018). These expectations result in the following hypotheses:

H1: Consumers have a higher (lower) purchase intention for products provided with a high (low) Nutri-Score compared to products without a Nutri-Score.

H2: Consumers have a higher purchase intention for products provided with a more favorable Nutri-Score compared to products provided with a less favorable Nutri-Score.

2.7 Financial scarcity

Hamilton et al. (2018) define scarcity as: “a real or perceived threat to the consumer’s ability to meet his or her needs and desires due to a lack of, or a lack of access to, goods, services or resources” (p. 533). According to them, a distinction should be made between scarcity of access to goods and services for purchase (product scarcity), and scarcity of resources necessary to purchase a good or service, which is resource scarcity (Hamilton et al., 2018). Here, we focus on resource scarcity. Mullainathan and Shafir (2013) define scarcity as the feeling of having less than is needed. This feeling negatively affects cognitive capacity that shifts the consumer’s attention, which will result in behaviors that are in odds with the long-term interests of people. According to Mani, Mullainathan, Shafir and Zhao (2013), scarcity of money seems to cost so much cognitive capacity that scant cognitive resources remain available for other tasks, for instance choosing healthy food. All these definitions of scarcity have in common that people have less of something than needed. Dealing with scarcity costs a lot of cognitive capacity. Perceptions of scarcity shift attention to the most pressing problems while causing people to neglect other issues (Cook & Sadehnein, 2018).

This research focuses on financial scarcity, which is not only restricted to low-income consumers. However, a lot of people dealing with low-incomes suffer from financial scarcity. Financial scarcity greatly affects people’s lives, and its impact is not only economic. Suffering from financial scarcity has been related to, for instance, imbedded cognitive functions, and negative psychological well-being outcomes, such as depression and anxiety (Mullainathan & Shafir, 2013; Fitch, Hamilton, Bassett & Davey, 2011). Hence, financial scarcity concerns consumers’ economic circumstances, as well as cognitive and psychosocial consequences of the scarcity (Van Dijk, Van der Werf & Van Dillen, 2020). Van Dijk et al. (2020) conceptualize the experience of financial scarcity as a state in which pressing financial concerns exceed available resources and may endanger well-being. The authors developed a measurement scale, namely the Psychological Inventory of Financial Scarcity (PIFS). The PIFS captures appraisals of insufficient resources and lack of control, in addition to rumination, worry, and short-term focus with regards to one’s financial situation (Van Dijk et al., 2020).

2.8 Effects of financial scarcity

Researchers have shown that financial scarcity shifts the consumer's attention (Mullainathan & Shafir, 2013) and changes the way consumers allocate their scarce resources (Shah et al., 2012). Previous studies found that lower household income and perceived inability to cope financially are associated with buying and eating unhealthy food (Ricciuto & Tarasuk, 2007). Furthermore, the cost of food influences the intention to buy food (Rongen et al., 2019). Having a lower income and a low ability to cope financially results in financial scarcity. Consumers who experience financial scarcity have a more limited budget to buy groceries, therefore financial matters may play a large role in their choice of food (Giskes et al., 2002). Experiencing financial scarcity negatively affects cognitive capacity. Shiv and Fedorikhin (1999) have shown that unhealthy eating behaviors can result from situationally decreased cognitive capacity.

Consumers' perceptions of financial scarcity can influence their food choices, since they could be focused on the money rather than the front-of-pack labels, such as the traffic-light label which highlights the nutritional quality of a product (Campos et al., 2011). In addition, consumers with low-income are less likely to use food labels (Nayga et al., 1998; Kim et al., 2001; Wang et al., 1995). Machín et al. (2017) found that low-income consumers rated the healthfulness of products higher than middle- and high income consumers regardless of the kind of FOP label used. Moreover, consumers with low financial resources have a higher FSA-NPS dietary index. This dietary index measures overall quality of diet and a high score stands for an unhealthier diet (Julia & Hocberg 2017). Consumers that experience financial scarcity are more likely driven by economic factors in their food choices as compared to consumers with a high income (Campos et al., 2011). Nikolova and Inman (2015) presume that the task of examining the newly available nutrition scores requires additional cognitive effort, which financial scarce consumers might not have since they rely more on the choice tactic to focus on price in order to simplify their decision process. However, Blitstein, Guthrie and Rains (2020) revealed that low-income consumers pick healthier products when a FOP label was used compared to low-income consumers that are not offered a FOP label. Therefore, financial scarcity could be a potential moderator of the relationship between Nutri-Scored products and the purchase intention (Sánchez-García et al., 2019). Sánchez-García et al. (2019) show that the colors of a food label significantly influence consumers' purchase intentions and income has a moderating effect on this relationship. Further, they found that high-income consumers are more sensitive to green (Nutri-Score A) and yellow (Nutri-Score C) while low-income consumers are more sensitive to red (Nutri-Score E). They became excessively concerned and their purchase intentions dropped when the color was red. It has also been found that high-

income consumers are more likely to seek nutritional information than low-income consumers (Kim et al., 2001). Based on the above, the following hypothesis is formulated:

H3: Consumers who score relatively high (low) on financial scarcity have a lower (higher) purchase intention for unhealthy (healthy) products provided with a Nutri-Score, compared to consumers who score relatively low (high) on financial scarcity.

2.9 Control variables

Other variables could also influence the purchase intention of consumers. These variables should be taken into account during this research. Therefore, gender, age, educational level, nutritional knowledge, and overall diet are included as control variables. Some studies found an effect of gender, where women reported more reading and use of nutritional labels than men (Grunert & Wills, 2007). Moreover, women were better at interpreting the Nutri-Score correctly (Ducrot et al., 2015). Further, more educated consumers and older consumers reported higher label use (Grunert & Wills, 2007).

2.10 Conceptual model

This study focuses on purchase intention for products with and without a Nutri-Score. The concepts of the research model are translated into a conceptual model. The conceptual model in Figure 3 visualizes the earlier mentioned hypotheses. It shows the expected effect that Nutri-Scores will have on purchase intention. Further, the moderating role of financial scarcity is presented.

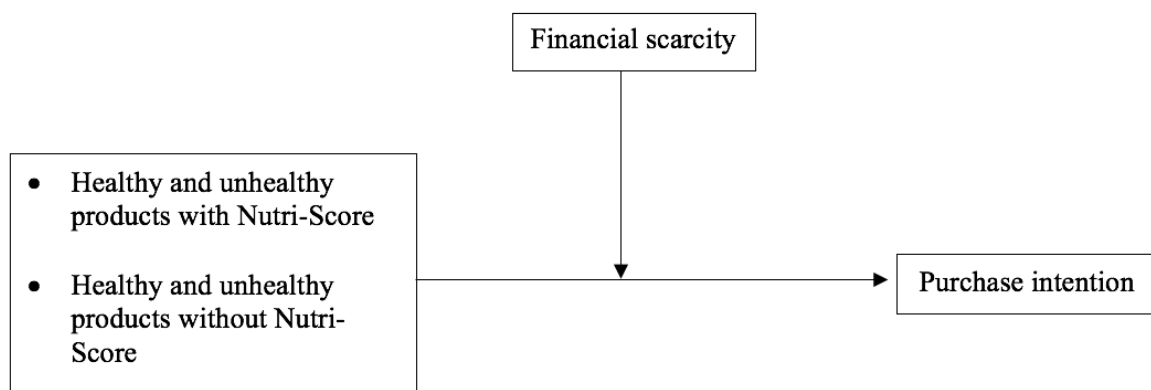


Figure 3. Conceptual model

Chapter 3: Method

This study was designed to generate insights into the effects of the Nutri-Score on purchase intention of consumers while accounting for the possible moderating effect of financial scarcity. This chapter explains the research methods to test the proposed hypotheses. First, the research design is explained, followed by the sample, procedure, and operationalization. Thereafter, the data analysis method and research ethics are covered.

3.1 Research design

This research aimed at testing theory and might extend knowledge about this subject. Therefore, the research was conducted from a deductive approach. Within this study, a quantitative research method was used. A quantitative method allows for much larger samples, which will increase the generalizability. In contrast, a qualitative research method based on, for example, interviews or observations needs a large sample to generate generalizable results, which is very time consuming (Vennix, 2016). This research is cross-sectional since it looks at one specific moment in time to collect data from the population due to time limits. The goal of cross-sectional research is to identify variation between cases (Field, 2013).

When conducting a quantitative study, different data collecting methods can be used. The most commonly used method to collect data is a survey (Field, 2013). A survey is a good research design when measuring emotions, feelings, and perceptions of customers. Furthermore, it facilitates gathering much response in a limited time period. Another advantage of a survey is the ease of analyzing differences between groups (Vennix, 2016), which is very useful to test the different effects of the Nutri-Score on purchase intention.

In order to test the proposed hypotheses, an online survey experiment was conducted. This was a self-administered questionnaire (SAQ). SAQs are useful for online surveys since respondents can fill in the questionnaire at their own speed and in their own time (Lavrakas, 2008). There is no (physical) interference of the researcher, which is preferable during Covid-19 times. Moreover, an online SAQ ensures objectivity of the data since the respondents are not being influenced by the researcher. The SAQ should meet two criteria: proper wording and appropriate formatting of the questionnaire. A SAQ should be completely self-explanatory (Lavrakas, 2008). Therefore, the questions and set-up were made unambiguous and easily interpretable.

To analyze the causal influence of the Nutri-Score on purchase intention, the use of an online survey experiment is helpful. This experiment consisted of a mixed between–within

subjects design. The between-subjects design means that different groups of people were exposed to only one particular treatment or condition (Field, 2013). In this study, the treatment was the absence or presence of the Nutri-Score. Respondents were allocated to one of the scenarios at random to increase external validity, each respondent then answered the same questions regarding their purchase intentions. The within-subjects part is about the products that were shown in the experiments. Four products with Nutri-Scores A and E were shown to the respondents in each group, respectively with and without Nutri-Scores, in random order. Furthermore, financial scarcity was included as a moderator.

3.2 Sample

This study was conducted in the Netherlands, since little research has been conducted on this subject in the Netherlands (De Temmerman et al., 2020). To make sure every participant understood the questions, the language of the survey was Dutch. Measurement scales from academic literature were used to ensure internal validity. The scales that were used were initially designed in English and have been translated into Dutch.

To gather enough participants, a convenience sampling technique was applied. Convenience sampling falls into the non-probability sampling techniques, which means not every person has the same chance of participating in this study and therefore it belongs to the select sampling methods (Vennix, 2016). A convenience sample was chosen since there were no selection criteria that respondents should meet. For this study, anyone above the age of 18 was suitable since it is assumed that all adults have experience with supermarkets and their products. The number of respondents therefore depends on the willingness of individuals to participate in this survey. Collecting data using a convenience sample provides convenience, since a lot of data can be collected quickly (Field, 2013). Furthermore, the so-called snowball method was used. A snowball sample is in line with the convenience sample and is also part of the non-probability sampling techniques. The survey was distributed online via WhatsApp, Facebook, Instagram, and LinkedIn. Followed by the snowball sample where friends, family and colleagues were asked to participate and share the survey. In order to obtain a diverse group of respondents, effort was put into making sure the demographics were balanced. The starting addresses consisted of people with different ages, educational levels, and income levels. More specifically, both researchers sent the link to the survey to a minimum of 25 women and 25 men as starting addresses via WhatsApp, so that approximately 100 potential participants were reached. Further, the potential respondents were asked to share the survey with at least 2 people and to share the survey on their social media. In order to give the potential respondents an extra

incentive, it was stated that a Bol.com voucher of €25 would be raffled among the ones who wanted to participate in the raffling. By doing so, over 150 respondents were expected from this online sampling method.

Since the network of the researcher mainly consists of highly educated people with average and above average incomes, it was expected that most of them would score low on financial scarcity. In order to find significant results for the hypotheses on financial scarcity, it was important to collect a sample that also consists of people with low financial resources. Hence, it was decided to put extra work in finding those people. Therefore, about 500 notes with a QR code and link to the survey were distributed to people living in neighborhoods where most people had a low-income. These notes were distributed via letter boxes in the following neighborhoods in Nijmegen: Meijhorst, Hatert and Nije Veld. According to Statistics Netherlands these are the three neighborhoods with the lowest incomes in Nijmegen (CBS, 2018). In addition, 300 notes were distributed through food packages from the food bank of Nijmegen. Furthermore, notes were posted on bulletin boards in local supermarkets since it was not allowed to hand out flyers due to Covid-19 regulations. The expected reach of the notes was approximately 1600 potential respondents, since 800 notes were distributed, and the average household consists of two people (CBS, 2020). We expected a response rate of 10% and therefore approximately 160 responses were expected. By using the mixed sampling methods and the incentive, enough respondents should have been found, and sufficient data could be collected in the intended time.

The recommended minimum sample size is 20 participants per group. As a result, the minimum sample size for conducting the analysis was 40 respondents. Furthermore, equal sample sizes per group are preferred (Hair, Anderson, Black & Babin, 2018). Since earlier studies found small effects of FOP labels on purchase intentions (Ikonen et al., 2019), a larger sample size per group should have been used to maintain acceptable levels of statistical power (Hair et al., 2018). Therefore, the required sample size was determined by the use of the G*Power 3.1 test (Erdfelder, Faul & Buchner, 1996). An effect size of 0.1, a significance level of $\alpha = 0.05$, a power level of 0.95, two groups, and four measurements resulted in a minimum sample size of 216. Hence, a sample size of 108 respondents per group was aimed for.

3.3 Procedure

The survey used in this research is shown in Appendix D. The survey was conducted in collaboration with Marketing Master student Jamie de Beijer. Therefore, the survey also consisted of a section about the need for cognition, which is not used in this research.

Furthermore, the survey was pre-tested among 10 participants. Participants could write down comments for improvement of the questions or other questions/ambiguities. These comments were taken into account and adjustments were made before the survey was distributed (Appendix E).

The online survey began with a short introduction to thank the respondents for filling in the survey, to explain the aim of this study and to give a short description of the set up. Information about the research ethics as well as the average duration of the survey were given.

In this study two scenarios were used to measure the effect of the presence of the Nutri-Score on purchase intention. The product category that was chosen to be used during this research was snacks, since 9 out of 10 Dutch citizens eat a snack on a daily basis (Multiscope, 2017). The snacks were chosen based on the infographic of the Dutch Consumer Union (see Appendix A). In order to prevent some sort of bias towards more favorable snacks, we choose products that were not obviously unhealthy and that looked somewhat alike.

After the introduction, each participant was randomly assigned to one of two conditions (between-subjects factor). Half of the respondents were manipulated by seeing the snacks provided with a Nutri-Score, the other half got to see the products without a Nutri-Score. Then in each condition, respondents got to see four different snacks in random order (within-subjects factor): two unhealthy snacks (with or without Nutri-Score E) and two healthy snacks (with or without Nutri-Score A). The participants could click on a button to view the back-of-pack nutritional information if they wanted so. Both groups got the same questions regarding their purchase intentions. An overview of the BOP information and snacks used during the experiment is shown in Appendix B. The pictures of the snacks and corresponding prices are based on the website of Albert Heijn. Prices are added to keep the shopping experience as real as possible. Moreover, it was important to show prices since money plays a large role in the lives of financial scarce consumers.

Thereafter, questions regarding respondent's financial scarcity were asked. The last part of the questionnaire covered some manipulation check questions. The questionnaire ended with questions about gender, age and education. After the demographical questions, the participants were asked via which way they entered the survey. Lastly, they were thanked for their participation and had the possibility to fill in their e-mail addresses to win the Bol.com voucher.

3.4 Measures

Purchase intention was measured with the three-item scale developed by Mai and Hoffmann (2015). This scale has also been used in other studies that measured the purchase intention of

products with and without a Nutri-Score (De Temmerman et al., 2020). To measure this variable, measurement scales from prior research are useful to ensure validity and reliability of this study. The items were measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The three items were: “I will buy this product,” “Next time I am buying a [product category], I will choose this product,” and “I prefer this product to other [product category].” Product category was replaced by snack type.

This study made use of the scale developed by Van Dijk et al. (2020) to measure the financial scarcity of participants. The Psychological Inventory of Financial Scarcity measurement scale assesses people’s self-rated subjective state of financial scarcity. The scale consisted of twelve items that were formulated as statements, and respondents could indicate how much they agreed with a statement on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This scale was chosen because it measures a unidimensional construct and has a good internal consistency (Van Dijk et al., 2020). An overview of the scale and translation is shown in Appendix C.

Finally, in this study control variables for age, gender, education level, deliciousness of the product, nutritional knowledge, and perceived healthiness of diet were used. These variables were included considering they could affect purchase intention of consumers (De Temmerman et al., 2020; Feunekes et al., 2008). Nutritional knowledge was measured with one item “I am knowledgeable about health and nutrition issues” on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Perceived healthiness of diet was measured with the question “How would you describe your overall diet?”, with scores ranging from 1 (excellent) to 5 (poor). Both control questions were based on Feunekes et al. (2008). Furthermore, manipulation checks were conducted to ensure the effectiveness of the exposure to the manipulation of the Nutri-Score, whether participants could assess the healthiness of the snack, and whether the participants viewed the BOP nutritional information. The two items that were included to check whether participants had seen the Nutri-Score and BOP label were: “I have seen the Nutri-Score label” and “I have seen the back-of-pack nutritional information.” Participants could answer those questions with yes or no. Further, the item regarding the healthiness was measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree): “I could easily assess how healthy the snack was.”

3.5 Data analysis

The survey was created with the program Qualtrics. This program allowed participants to retrieve the survey via a hyperlink or a QR-code. After sufficient data was collected, the data

was exported to IBM SPSS Statistics for analysis. Primarily, the data has been checked for any missing or incomplete answers. Statistical assumptions were checked, and validity and reliability measures were considered. A mixed ANOVA was performed to test the hypothesized effects. The mixed ANOVA was conducted to assess the difference in the impact of the manipulated condition (presence/absence of the Nutri-Score). The mixed design included both repeated measures and between-subjects. This data analysis method offered the possibility to add the moderator financial scarcity to the analysis in order to assess to what extent financial scarcity impacted the purchase intention and the interaction effects on the relationships between the independent variable and the dependent variable. There were four repetitions (within-subject), one fixed factor which was the presence/ absence of the Nutri-Score (between-subjects), and lastly the covariate financial scarcity has been added to the analysis.

3.6 Research ethics

This research followed the general principles of research ethics in order to conduct the research responsibly (Sekaran & Bougie, 2016). First, one of the most important rules is to carefully handle the data collected from respondents to guarantee their privacy. Therefore, the participation in the survey was anonymous. Moreover, the respondents that took part in this research did it on a voluntary basis. Participants could end the survey whenever they wanted to. Further, the collected data was only used for the purpose of this study and has not been shared with others. Lastly, it was stated that the email addresses for the raffle were deleted straight after the raffle took place.

Furthermore, this research applied the American Psychological Association (APA) guidelines to ensure it complied with the rules for academic research. Besides, the researcher was transparent and open about the research. To ensure this, the research goal was explained in the introduction text and the email addresses of the researcher were given to the participants at the end of the survey. Therefore, the participants had the chance to request the results of the study or ask questions concerning the survey.

Chapter 4: Results

This chapter contains the results of the survey. First, the sample description is given. Next, the reliability and validity of the used scales are discussed. Then, assumptions are checked. Finally, the main analyses are performed and discussed.

4.1 Sample description

The sample of this research consisted of respondents who had completed the online questionnaire. In total, 533 respondents started filling in the questionnaire. After excluding empty and unusable cases that contained missing values, a total of 406 respondents remained. Lastly, one respondent who was 14 years old was excluded, since the minimum age was set at 18 years. Therefore, the final sample size consisted of 405 participants. Of those 405 respondents, 197 people participated in the control condition, and 208 people participated in the experimental condition that showed Nutri-Scores.

An overview of the sample is given in Table 1. Four respondents did not fill in the descriptive information. Of the 401 respondents who did answer the demographics questions, 29.9% were male, 69.8% were female and 0.2% filled in otherwise. The mean age of the sample was 32.97 years old, with a range of 18 to 83 years. Moreover, it can be noted that the highest represented age category was that of young adults between the age of 18 to 25 years old. Lastly, the majority of the respondents were either higher vocational educated (HBO) or academically educated (56.6%).

Demographics		Percent
Gender	Male	29.9
	Female	69.8
	Otherwise	0.2
Age	18-25	57.8
	26-40	13.8
	41-60	24.3
	>60	4.3
Educational level	Primary education	0.5
	High school	7.5
	Intermediate vocational education (MBO)	17.7
	Higher vocational education (HBO)	38.9
	Academic education	35.4
N		405

Table 1: Demographic distribution of the sample

4.2 Reliability analysis

The data were analyzed with the use of SPSS. Since the used measurement scales were all validated and widely used in earlier research, the validity of the scales was already proven.

The reliability analyses were conducted to measure internal consistency of all scales. In general, a value of $\alpha > .6$ to $.7$ is acceptable. However, ideally the value of α exceeds $.85$ (Hair et al., 2018). Deleting items could improve Cronbach's α . According to Hair et al. (2018), an item could be deleted if it results in an increase of at least $.05$.

All scales had an α above the minimum threshold of $.7$. As shown in Table 2, all *purchase intention* scales had an α above $.85$, which indicates highly reliable measurement scales (Hair et al., 2018). Deletion of one of the items would not increase the Cronbach's α . Furthermore, the scale of *financial scarcity* had an α of above $.85$ as well, and therefore the scale was indicated as reliable. No items were deleted since it did not significantly improve the reliability of the scale. The results of all reliability analyses are presented in Appendix G.

Variable	N of Items	M	SD	α
PI Rice crackers without NS (healthy)	3	2.28	1.04	.923
PI Snelle Jelle without NS (healthy)	3	2.63	1.00	.904
PI Hero B'tween without NS (unhealthy)	3	2.33	1.07	.913
PI Yoghurt crackers without NS (unhealthy)	3	2.24	1.09	.933
PI Rice crackers with NS (healthy)	3	2.50	1.09	.929
PI Snelle Jelle with NS (healthy)	3	2.70	1.13	.941
PI Hero B'tween with NS (unhealthy)	3	2.19	.98	.923
PI Yoghurt crackers with NS (unhealthy)	3	2.31	1.08	.934
Financial Scarcity	12	1.78	.601	.908

Table 2: Summary statistics of purchase intention (PI) and financial scarcity

4.3 Assumptions

Before running the Mixed ANOVA, the assumptions were checked. There were six assumptions of mixed ANOVA that needed to be tested (Field, 2013).

First of all, the dependent variable should be measured at the continuous level. This assumption is met since purchase intentions were measured on an interval scale.

Second, the within-subjects factor should consist of at least two categorically matched pairs. Since the participants were shown four snacks with or without a Nutri-Score, this assumption is also met.

Third, the between-subjects factor should also consist of two categorically independent groups. For this study two groups were compared. People participated in the control condition

in which no Nutri-Scores were shown or in the experimental condition where Nutri-Scores were shown. Therefore, the groups were independent.

The fourth assumption is about the outliers. There should be no significant outliers in any group of the within-subjects factor or between-subjects factor. To check this assumption, the z-scores of all variables were analyzed. All z-scores are consistent with what is expected in a normal distribution. More specifically, 95% of all the z-scores lay within a normal range. As a result, no outliers were deleted.

The next assumption is about the normal distribution of the dependent variable. To test this assumption, the skewness and kurtosis of the variables have been checked. The data show that not all variables are normally distributed. However, this is usually not a problem since the distribution of the mean could be assumed to be approximately normal, because of the central limit theory (Field, 2013). In this study the number of observations in each group was higher than 30. Violation of the assumption of normality could still provide valid results.

The sixth assumption covers sphericity. Sphericity is a form of compound symmetry and refers to the equality of variances of the differences between treatment levels. Sphericity can be assessed using Mauchly's test, which tests the hypothesis that the variances of the differences between conditions are equal. If Mauchly's test is not significant, we can conclude that the variances of differences are roughly equal (Field, 2013). When looking at Mauchly's Test of Sphericity (Appendix H, Table 24) we see that this assumption was violated for the main effects of snacks ($\chi^2(5) = 28.81, p < .001$). Since Mauchly's test was significant, it was needed to adjust the degrees of freedom for any F-ratio that was affected by the violation. When looking at the Box index (ϵ), we can see that $\epsilon > 0.75$. As a result, the Huynh-Feldt correction should be used and interpreted during the analysis.

4.4 Manipulation checks

Three manipulation checks were considered, an overview of which is shown in Appendix I. First, it was checked if the main manipulation of the absence or presence of the Nutri-Score was effective. 197 people participated in the control condition that did not show Nutri-Scores. 180 participants (91.4%) reported not seeing the Nutri-Score, and 17 respondents (8.6%) did report seeing the Nutri-Score label while it was not shown to them. Furthermore, 208 people participated in the experimental condition and were exposed to the Nutri-Score label on the package. 79 Participants (38%) reported seeing the Nutri-Score label, while 129 (62%) did not see the Nutri-Score label. As a result, the manipulation did work, since more participants

reported seeing the label in the experimental condition. However, although reports of not seeing the Nutri-Score does not rule out that it has been effective, it would have been more preferable if more participants reported seeing the label in the experimental condition.

Next, the manipulation check of how well participants could assess the healthiness of the snacks was checked. An independent-samples *t*-test was conducted to compare the reported ability to assess the healthiness of the snacks both in the absence of the Nutri-Score and the presence of the Nutri-Score conditions. There was a significant difference in the scores for absence of the Nutri-Score ($M = 3.25$, $SD = 0.96$) and presence of the Nutri-Score ($M = 3.44$, $SD = 0.96$) conditions; $t(403) = -1.97$, $p = 0.049$. This result suggests that participants in the experimental condition were significantly better at assessing the healthiness of the snacks (Appendix I, Table 28).

The participants were asked how many times they requested the back-of-pack information of the snack (BOP). The average number was between one and two times. An independent-samples *t*-test was conducted to investigate whether there was a difference in requesting BOP information in the absence of the Nutri-Score and the presence of the Nutri-Score conditions. There was no significant difference in the scores for absence of the Nutri-Score ($M = 2.64$, $SD = 1.62$) and presence of the Nutri-Score ($M = 2.59$, $SD = 1.59$) conditions; $t(403) = .30$, $p = 0.76$. An overview of these statistics is shown in Appendix I, Tables 29 and 30.

Lastly, prices were added to the snacks to make the shopping experience as real as possible, and to check if people would base their choices on price. When looking at the average purchase intentions of the different type of snacks (Table 3), there appears to be no visible connection between the purchase intentions of healthy and unhealthy snacks, and the prices of the snacks.

Snack	N	Price	Purchase intention	SD
RIJST	405	€ 1.19	2.39	1.08
SNELLE	405	€ 1.79	2.67	1.07
HERO	405	€ 1.29	2.26	1.03
YOGHURT	405	€ 0.99	2.27	1.08

Table 3: Overview of purchase intentions for different snacks

4.5 Results

4.5.1 Hypothesis 1

After testing the assumptions and manipulation checks, the main analysis without control variables was conducted. By using the mixed ANOVA, it was possible to test the first formulated hypothesis. An overview of these results is shown in Appendix J. The first hypothesis was “Consumers have a higher (lower) purchase intention for products provided with a high (low) Nutri-Score compared to products without a Nutri-Score.”

Mauchly’s test indicated that the assumption of sphericity had been violated. As stated in the assumptions section, we needed to look at the Huynh-Feldt statistics. The results show that there was a significant main effect of purchase intention by type of snack, $F(2.91, 1171.5) = 15.04, p < .05$. There was no significant effect of Nutri-Score, indicating that purchase intentions in the control and the experimental condition were not significantly different ($F(1, 403) = 0.77, p = .38$). Furthermore, there was no significant interaction effect between type of Snack and Nutri-Score ($F(2.91, 1171.5) = 2.51, p = .06$). Based on the fact that the interaction effect was non-significant, Hypothesis 1 was rejected.

Since the interaction effect had a p -value of .06, which is close to a significant value of $p < .05$, it was decided to look closer into the different purchase intention of the snacks. As shown in Table 4, the means differed between the control and experimental group for all snacks. More specifically, Figure 4 shows an overview of the analysis. It was expected that the average means of the purchase intention of RIJST and SNELLE (healthy products) would be higher within the group that was shown the NS-label, compared to the control group. As shown in Table 4, the means were higher for the healthy snacks within the experimental condition, compared to the control group. Furthermore, it was expected that the purchase intention of HERO and YOGHURT (unhealthy products) would be lower for the group that was shown the NS-label, compared to the control group. When looking at Table 4, we see that this was only the case for Hero, and not for Yoghurt.

Next, an independent samples t -test was conducted to compare the purchase intentions of the snacks between the different Nutri-Score conditions. There was a significant difference in the purchase intention of RIJST in the absence of the Nutri-Score ($M = 2.28, SD = 1.04$) and in the presence of the Nutri-Score ($M = 2.50, SD = 1.11$) conditions; $t(403) = -2.13, p = 0.034$. These results suggested that participants in the experimental condition scored significantly higher on purchase intention of RIJST. However, no significant effects appeared for the other three snacks.

Snack	Nutri-Score	N	Purchase intention	SD
RIJST	NO	197	2.28	1.04
	YES	208	2.50	1.11
SNELLE	NO	197	2.63	1.00
	YES	208	2.70	1.13
HERO	NO	197	2.33	1.07
	YES	208	2.19	0.98
YOGHURT	NO	197	2.24	1.09
	YES	208	2.31	1.08

Table 4: Overview of purchase intentions for different snacks by experimental condition.

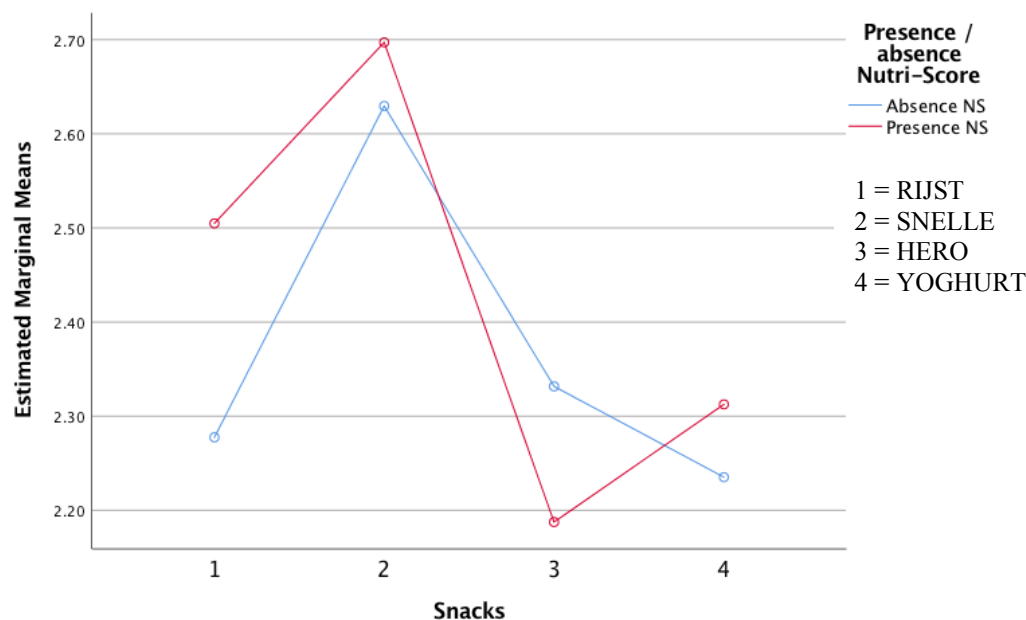


Figure 4. Graph of estimated marginal means of purchase intention for different snacks by experimental condition.

4.5.2 Hypothesis 2

The second hypothesis was: “Consumers have a higher purchase intention for products provided with a more favorable Nutri-Score compared to products provided with a less favorable Nutri-Score.” Since this hypothesis focused on participants who had participated in the group in which the Nutri-Score label was shown on the product, this hypothesis was tested within the experimental condition. a paired-samples *t*-test was conducted to compare purchase intention of healthy snacks (Nutri-Score A) and unhealthy snacks (Nutri-Score E) within the experimental condition. An overview of the analysis is added in Appendix K. There was a significant difference in the scores for healthy snacks, i.e., the average purchase intention for Rijst and Snelle ($M = 2.60$, $SD = 0.88$), and unhealthy snacks, i.e., the average purchase

intention for Hero and Yoghurt ($M = 2.25$, $SD = 0.83$); $t(207) = 4.51$, $p = .000$ (Appendix K, Table 43). These results suggested that when participants were exposed to the Nutri-Score on the snacks, their purchase intention for healthier snacks was significantly higher than for unhealthy snacks, and therefore Hypothesis 2 was confirmed. However, it should be noted that the same result was found within the control condition. There was a significant difference in the scores for healthy snacks, i.e., the average purchase intention for Rijst and Snelle ($M = 2.45$, $SD = 0.77$), and unhealthy snacks, i.e., the average purchase intention for Hero and Yoghurt ($M = 2.28$, $SD = 0.85$); $t(196) = 4.51$, $p < .05$ (Appendix K, Table 45). In addition, the effect sizes were calculated. The effect size of the experimental group with Nutri-Scores was .31, which is a small effect (Cohen, 1988). The effect size within the control group was .18, which is a negligible effect, and therefore the differences in average purchase intention are negligible, even though they were statistically significant (Cohen, 1988). Overall, the difference in effects of the experimental and control conditions was not significant.

4.5.3 Hypothesis 3

The last hypothesis concerned the potential moderating effect of financial scarcity. Hypothesis 3 was: “Consumers who score relatively high (low) on financial scarcity have a lower (higher) purchase intention for unhealthy (healthy) products provided with a Nutri-Score, compared to consumers who score relatively low (high) on financial scarcity.” This hypothesis only looks within the Nutri-Score group. As a result, this section only concerns the purchase intentions of the group that was shown Nutri-Scores on the snacks.

As stated in Chapter 3, effort was taken to make sure enough participants experienced financial scarcity. Despite this effort, it became clear that most participants (within the Nutri-Score condition) scored relatively low on financial scarcity when interpreting the mean, median, mode, and frequencies (Appendix L, tables 46 and 47) of financial scarcity. However, an independent samples t -test was conducted to compare the financial scarcity of the participants between the participants that were gathered via social media and via notes that were handed out in low-income neighborhoods. An overview of this test is shown in Appendix L. There was a significant difference in financial scarcity of social media participants ($M = 1.74$, $SD = 0.55$) and those from low-income neighborhoods ($M = 2.13$, $SD = 0.86$) conditions; $t(37.06) = -2.52$, $p < 0.05$. Levene’s test indicated unequal variances ($F = 13.64$, $p = .000$), so degrees of freedom were adjusted from 399 to 67.64. These results suggested that participants in low-income neighborhoods scored significantly higher on financial scarcity than the social media participants.

Furthermore, it was checked whether people experiencing financial scarcity based their purchase intention on prices. Financial scarcity was split up in relatively low and relatively high scarcity, based on the frequency table. It was decided to split the group around 50% into relatively low financial scarcity and relatively high financial scarcity. Participants who scored between 1 and 1.67 were classified as having relatively low financial scarcity and participants who scored above 1.67 were classified as relatively high scarcity. However, it should be noted that overall scores were very low. Hence, the relative scores were interpreted. When interpreting the independent samples *t*-tests (Appendix L, Table 51), there was one significant effect found for SNELLE. The average purchase intention of the low financial scarcity group ($M = 2.52, SD = 1.17$) was significantly lower than the average purchase intention of the high financial scarcity group ($M = 2.87, SD = 1.01$) conditions; $t(206) = -2.21, p < .05$. These results suggested that participants in the low financial scarcity group had a significantly lower purchase intention of SNELLE than the high financial scarcity group. The opposite effect was expected since it was expected that the low financial scarcity group would have had a higher purchase intention for SNELLE than the high financial scarcity group, because it is a healthy product with the corresponding letter A in green.

Next, a one-way repeated measures ANOVA with financial scarcity included as a covariate was performed (Appendix L, Tables 52 to 56). For this analysis financial scarcity was not split up into low and high. Mauchly's test indicated that the assumption of sphericity had been violated. As stated in the assumptions section, we needed to look at the Huynh-Feldt statistics. The results show that there was no significant main effect of purchase intention by type of snack, $F(2.85, 588.78) = 1.95, p > .05$. There was no significant overall interaction effect between type of Snack and financial scarcity ($F(2.85, 588.78) = 1.32, p > .05$). Also, the between-subjects table shows a main effect of the covariate financial scarcity ($F(1, 206) = 4.56, p = .034$), indicating that if we ignore all other variables, the scores of financial scarcity differed of each other. However, since the interaction effect was not significant, Hypothesis 3 was rejected.

Furthermore, it was decided to run an extra analysis to test the potential effect of financial scarcity. The covariate financial scarcity was split up in relatively low and relatively high scarcity, as stated above. The fixed effect variable was included as a between-subjects effect. The results show that there was a significant main effect of purchase intention by type of snack ($F(2.85, 588.78) = 10.44, p = .000$). There was again no significant interaction effect between type of Snack and financial scarcity ($F(2.85, 588.78) = 1.00, p > 0.05$). When looking at the parameter estimates table (Appendix L, Table 63), we see that there was a significant

difference in average purchase intention of Snelle between the low financial scarcity group ($M = 2.52, SD = 1.17$) and the high financial scarcity group ($M = 2.87, SD = 1.07$) $t(206) = -2.21, p < 0.05$. This effect was negative, which means that the average purchase intention of the low financial scarcity group is significantly lower than the average purchase intention of the high financial scarcity group. This effect was not expected, since consumers who score relatively low on financial scarcity should have a higher purchase intention for healthy products provided with a Nutri-Score, compared to consumers who score relatively high on financial scarcity. Further, there is a significant difference in average purchase intention of Yoghurt between the low financial scarcity group ($M = 2.15, SD = 1.07$) and the high financial scarcity group ($M = 2.47, SD = 1.07$) $t(206) = -2.09, p < 0.05$. This effect was negative, which means that the average purchase intention of the low financial scarcity group was significantly lower than the average purchase intention of the high financial scarcity group. Again, this effect was not expected since its outcome was in the opposite direction of what was expected. As a result, Hypothesis 3 was rejected. All relevant tables are shown in Appendix L.

Lastly, two independent samples t -tests were performed to compare the purchase intentions for the snacks between the low and high financial scarcity groups (Appendix L, Tables 64 and 65). There was no significant difference in the average purchase intention of healthy snacks (RIJST and SNELLE (Nutri-Score A)) for the low financial scarcity group ($M = 2.49, SD = 0.89$) and the high financial scarcity group ($M = 2.71, SD = 0.85$) conditions; $t(206) = -1.81, p = 0.071$. Furthermore, there was also no significant difference in the average purchase intention of unhealthy snacks (HERO and YOGHURT (Nutri-Score E)) for the low financial scarcity group ($M = 2.15, SD = 0.87$) and the high financial scarcity group ($M = 2.34, SD = 0.79$) conditions; $t(206) = -1.72, p = 0.088$. The p -values could be interpreted as marginally significant ($p < 0.1$). Although, when interpreting the average purchase intentions, we see that the outcomes for the snacks are opposite from what was expected in Hypothesis 3. As a result, Hypothesis 3 was rejected. All relevant tables are shown in Appendix L.

4.5.4 Control variables

In this study control variables for gender, age, education, nutritional knowledge, and diet were included as covariates considering that these variables could affect the purchase intention of snacks. Furthermore, we added the control variables deliciousness of the snack for all four snacks. This variable was added to the survey based on the pre-test results. Participants preferred to let the researchers know to what extent they liked the snack. Also, it might be the

case that deliciousness would override the effect of scarcity, so the purchase intentions should be corrected for this effect.

Another mixed ANOVA was performed with the control variables added as covariates. Since Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(5) = 24.34, p = .000$), the Huynh-Feldt statistics were interpreted. The results show that there was no significant main effect of purchase intention by type of snack, $F(2.98, 1157.07) = 2.03, p = .108$. There was no significant effect of Nutri-Score, indicating that purchase intentions from the control and the experimental condition were not significantly different ($F(1, 388) = .95, p = .332$). To conclude, the interaction effect between the type of snack and Nutri-Score remained non-significant when all control variables were added ($F(2.98, 1171.07) = 1.55, p = .201$). Due to this finding, H1 should remain rejected.

Next, the other interaction terms were checked. It became clear that the deliciousness of each snack significantly interacted with the type of snack. An overview of these results is shown in Table 67, Appendix M. The parameter estimates show that deliciousness of each snack was only significantly related to the purchase intention of the corresponding snack.

Furthermore, the interaction effect between snack type and nutritional knowledge was significant ($F(2.98, 1157.07) = 3.24, p < .05$). In order to better look into this, it was decided to split up the nutritional knowledge variable into relatively low knowledge and relatively high knowledge. These groups were based on the answers on the nutritional knowledge question. The low knowledge group consisted of the participants who answered that they (totally) disagreed with the statement: "I am knowledgeable about health and nutrition issues." The neutral score was left out, since it had no clear meaning, or the respondents had no clear opinion about their nutritional knowledge. The high knowledge group consisted of the participants who answered that they (totally) agreed with the statement. A mixed ANOVA was performed with snacks as the within-subjects variable and nutritional knowledge (low/high) as the between factor (Appendix M, Tables 69 to 74). Mauchly's Test of Sphericity was significant for the main effects of snacks ($\chi^2(5) = 7.29, p = .20$). Since Mauchly's test was significant, we did not assume sphericity, and we had to look at the Huynh-Feldt statistic. The results show that there was a significant main effect of purchase intention by type of snack, $F(2.96, 712.04) = 12.17, p = 0.000$. Moreover, the interaction effect between snacks and nutritional knowledge remained significant ($F(2.96, 712.04) = 3.86, p < .05$). Therefore, parameter estimates were analyzed to compare the purchase intentions of the snacks between the low and high nutritional knowledge groups was conducted. The results of this are stated in Appendix M, Table 75. There was a significant difference in the purchase intention of RIJST for the low nutritional knowledge

group ($M = 2.27$, $SD = 1.13$) and the high nutritional knowledge group ($M = 2.56$, $SD = 1.09$) conditions; $t(241) = -2.00$, $p < .05$. These results suggested that participants of the high nutritional knowledge group had a significantly higher purchase intention for RIJST, which seems logical since these respondents should know it is a healthy product. However, no significant differences in scores were found for the other three snacks.

Additional analysis control variables

As stated in Chapter 2, some studies found an effect of gender, where women reported more reading and use of nutritional labels than men (Grunert & Wills, 2007). Since the respondents answered the question of how many times they checked the nutritional information on the back of pack (BOP), it was decided to test whether women would request and use the BOP information more. An independent-samples t -test was conducted to compare the requested BOP information of men and women (Appendix M, Table 77). Levene's test indicated unequal variances ($F = 6.05$, $p = .0014$), so degrees of freedom were adjusted from 398 to 245.83. There was a significant difference in the scores for women ($M = 2.79$, $SD = 1.62$) and men ($M = 2.23$, $SD = 1.48$) conditions; $t(245.83) = 3.29$, $p < .05$. These results suggest that on average women scored significantly higher at requesting the BOP information than men. This could be an indication that women use more back-of-pack nutritional labels than men.

Further, in the literature more educated consumers and older consumers reported higher label use (Grunert & Wills, 2007). However, as shown in Tables 78 to 80 (Appendix M) no evidence was found to support these claims.

4.5.5 Additional analysis

An additional analysis was performed to further investigate Hypothesis 1. Many participants answered the manipulation check not correctly, therefore they were deleted from the data set for this additional analysis. Consequently, the control group consisted of 180 participants, and the experimental group consisted of 79 participants. A mixed ANOVA was conducted to assess the difference in the impact of the manipulated condition (presence/absence of the Nutri-Score).

Mauchly's Test of Sphericity (Appendix N, Table 84) was significant for the main effect of snacks ($\chi^2(5) = 15.09$, $p < .05$). Since Mauchly's test was significant, the degrees of freedom for any F-ratio that was affected by the violation were adjusted. As a result, the Huyn-Feldt statistic was used to interpret the analysis. An overview of the average scores is shown in Table 5. The results of the mixed ANOVA show that there was a significant main effect of purchase intention by type of snack, $F(2.94, 756.46) = 10.37$, $p = .000$. The effect of Nutri-Score was

significant, indicating that purchase intentions from the control and the experimental condition were significantly different ($F(1, 257) = 4.09, p < .05$). Surprisingly, the interaction effect between the type of snack and Nutri-Score was significant ($F(2.94, 756.46) = 5.12, p < .05$) which was a small effect ($\eta^2 = 0.02$). However, looking at parameter estimates (Appendix N, Table 87), the interaction effect of RIJST and Nutri-Score was the only significant effect. There was a significant difference in the purchase intention of RIJST for the control group ($M = 2.28, SD = 1.05$) and the experimental group that was shown the Nutri-Score ($M = 2.83, SD = 1.12$) conditions; $t(257) = -2.3.82, p = .000$. The effect size of RIJST is medium ($\eta^2 = 0.054$). These results suggested that participants of the experimental group had a significantly higher purchase intention for RIJST compared to the control group. As a result, Hypothesis 1 could be partially confirmed since there was a significant effect. However, this only holds for RIJST.

Furthermore, a repeated measures ANOVA with financial scarcity included as a covariate was performed to investigate Hypothesis 3 again (Appendix N, Tables 88 to 92). Only the Nutri-Score condition was analyzed since this was necessary in order to investigate Hypothesis 3. Mauchly's Test of Sphericity was significant for the main effect of snacks ($\chi^2(5) = 14.89, p < .05$). The results show that there was no significant main effect of purchase intention by type of snack, $F(2.81, 216.22) = 1.80, p > .05$. There was also no significant interaction effect between type of Snack and financial scarcity ($F(2.81, 216.22) = .92, p > 0.05$). Since the interaction effect was non-significant, Hypothesis 3 was rejected.

Snack	Nutri-Score	N	Purchase intention	SD
RIJST	NO	180	2.28	1.04
	YES	79	2.83	1.12
SNELLE	NO	180	2.60	1.01
	YES	79	2.81	1.16
HERO	NO	180	2.34	1.07
	YES	79	2.17	0.96
YOGHURT	NO	180	2.25	1.11
	YES	79	2.28	1.08

Table 5: Overview of purchase intentions for different snacks by experimental condition.

Chapter 5: Discussion

First, this chapter offers the conclusion of this study and provides an answer to the central research question. Thereafter, theoretical and practical implications are discussed. The last section of this chapter describes the research quality and limitations of this research and offers directions for further research.

5.1 Conclusion

Previous research showed an effect of the Nutri-Score on purchase intention (Julia & Hercberg, 2017; Crosetto et al., 2018; De Temmerman et al., 2020). The Nutri-Score could help consumers make healthier purchases (Nikolova & Inman, 2015; Julia & Hercberg, 2017), and therefore contribute to the fight against obesity. Specifically, evidence showed that purchase intentions for healthy products with Nutri-Scores were higher than without Nutri-scores. Moreover, this effect was opposite for unhealthy products. Furthermore, Crosetto et al. (2018) showed that people had a higher purchase intention for products with a favorable Nutri-Score than for products with an unfavorable Nutri-Score. Financial scarcity could be a potential moderator. The feeling of financial scarcity could influence how people made decisions and allocated their resources (Shah et al., 2012.) Therefore, consumer perceptions of financial scarcity could have an influence on people's purchase intentions. The central research question that was being investigated during this study was: "In which way does financial scarcity moderate the effect of the Nutri-Score on the consumer's purchase intention?"

First of all, the question: "what is the effect of the Nutri-Score on the consumer's purchase intention?" needed to be answered. This question looked at the relationship without the moderator. To answer this part, two hypotheses were formulated. The first hypothesis was tested with a mixed ANOVA. Results showed that there was no significant evidence to support this entire hypothesis, however after performing an additional analysis it was possible to partially confirm Hypothesis 1. Although purchase intentions for healthy products with Nutri-Score were higher than without Nutri-Score, the interaction effect of RIJST and Nutri-Score was the only significant effect. Moreover, for unhealthy products, YOGHURT resulted in a surprising result since the purchase intention was higher within the Nutri-Score group than within the control group. However, no significant effects were found for the unhealthy snacks. The part about healthy products in the hypothesis: "Consumers have a higher purchase intention for products provided with a high Nutri-Score compared to products without a Nutri-Score" could only be confirmed for RIJST, since RIJST resulted in significant different purchase

intentions between the control group and the experimental group. As a result, Hypothesis 1 was partially confirmed.

Hypothesis 2 tested whether consumers would have a higher purchase intention for products provided with a more favorable Nutri-Score compared to products provided with a less favorable Nutri-Score. The paired-samples *t*-test showed that purchase intentions for healthy snacks (Nutri-Score A) were significantly higher than for unhealthy snacks (Nutri-Score E), within the experimental condition, although this was also the case within the control group. The effect size within the latter group was negligible, whereas in the experimental condition a significant small effect was found.

Lastly, the potential moderating effect of financial scarcity was investigated. Results in Chapter 4 showed there was no significant interaction effect between type of snack and financial scarcity. As a result, Hypothesis 3 was rejected. The answer on the question: “In which way does financial scarcity moderate the effect of the Nutri-Score on the consumer’s purchase intention?” is therefore simple; financial scarcity does not moderate the proposed effect in this study. An overview of all outcomes is shown in Table 6.

Hypothesis	Description	Result
H1	Consumers have a higher (lower) purchase intention for products provided with a high (low) Nutri-Score compared to products without a Nutri-Score.	Partially confirmed
H2	Consumers have a higher purchase intention for products provided with a more favorable Nutri-Score compared to products provided with a less favorable Nutri-Score.	Confirmed
H3	Consumers who score relatively high (low) on financial scarcity have a lower (higher) purchase intention for unhealthy (healthy) products provided with a Nutri-Score, compared to consumers who score relatively low (high) on financial scarcity.	Rejected

Table 6: Overview of results

5.2 Theoretical implications

The most important outcome of this study was the significant effect between the Nutri-Score and snacks that was found within the additional analysis. This effect was expected since previous studies already found evidence that supported the effectiveness of the Nutri-Score (Julia & Hercberg, 2017; Crosetto et al., 2018; De Temmerman et al., 2020). However, the effect was only significant for RIJST. The only significant effect was found for this particular healthy snack; therefore, the outcomes only hold for this product. Surprisingly, no effects were found for the other three snacks. This is in contrast with the literature, since previous studies

found effects for healthy and unhealthy snacks (De Temmerman et al., 2020; Feunekes et al., 2008; Ares et al., 2018; Crosetto et al., 2018). Apparently, this was not the case within this study. This contrast between the findings could be due to the fact that only four products were used. The study of De Temmerman et al. (2020) is similar to this study. The same research design was used, and the authors also used a mixed design in which the between-subjects factor consisted out of a control (absence of the Nutri-Score) and an experimental (presence of the Nutri-Score) condition. Further, they used 4 products per Nutri-Score letter, in total 20 products were used. These 20 products were selected from different products categories. Furthermore, De Temmerman et al. (2020) asked their respondents how familiar they were with the Nutri-Score. Instead, in this study it was asked if respondents had seen the Nutri-Score label on the products. Further, their research did not place the Nutri-Score on the product but showed it next to the product in the same size as the product. Therefore, it might be more notable, which might explain the significant effects that were found in their study. Furthermore, the studies of Ares et al. (2018) and Crosetto et al. (2018) both used more products and represented more product categories. As a result, participants could have seen the Nutri-Score more often and the label could have been more noticeable. Moreover, Ares et al. (2018) and Crosetto et al. (2018) used a bigger Nutri-Score label on the packages than we did. Since previous research used more products, the Nutri-Score could have been more noticed due to seeing the same label repeatedly. All in all, the above may explain why our study showed less effects. It is likely that our Nutri-Score label on the products was less noticeable. This could also be an explanation why so many people reported not seeing the label while it was shown to them. Moreover, the results of this study showed that participants within the experimental condition did not request the back-of-pack information less than people that were not shown a Nutri-Score label. This could also be an indication that participants had not seen the label or did not understand the label. For instance, Crosetto et al. (2018) found a drop in the rate back-of-pack views when a nutritional label was shown on the front of the package.

The outcomes regarding the second hypothesis were expected, since prior research showed that people's purchase intention was higher for products with a favorable Nutri-Score compared to products with an unfavorable Nutri-Score (Crosetto et al., 2018). Within this study, the same result was found. However, as mentioned before, this effect was also found for products that did not have a Nutri-Score label on it. Hence, this outcome has less meaning. However, the effect was stronger for the Nutri-Score condition, which was in line with the expectations.

Last, financial scarcity had no moderating effect on the relationship between purchase intention and products with or without Nutri-Scores. This outcome contradicts authors that suggested that financial scarcity could play a role (Blitstein et al., 2020; Sánchez-Garcia et al., 2019). This can be explained by the fact that, in general, the effect of the Nutri-Score was small and not proven for all snacks. Therefore, it is difficult to prove an effect of financial scarcity. As a result, it is necessary to further investigate this potential moderator, since it cannot be ruled out that it has any influence. Further, although this research represents the population to some extent, the average score of financial scarcity is a bit lower than the average scores found in the study of Van Dijk et al. (2020). Therefore, our sample may not be representative enough and might have consisted out of too little financially scarce people. This could also have contributed to the fact that no effect was found within our study. Furthermore, during the analysis it could have been decided to split up financial scarcity (low/high) in another way. For example, based on the score in the middle, which was the neutral score, or by dividing 75% into low financial scarcity and 25% into high financial scarcity. However, since many participants scored low on financial scarcity, the group with high financial scarcity would have been too small to make adequate statements about the outcomes.

5.3 Practical implications

The results of this study are helpful for consumers and can be used by the government, retailers, manufacturers, and marketers. First, this research suggested that the Nutri-Score could help customers to buy healthier products. Moreover, when the Nutri-Score is present, it could help people pick the healthier options. Furthermore, participants in this study that were shown a Nutri-Score reported that they could better assess the healthiness of the snacks compared to the group that was not offered Nutri-Scores on the products. Although more research is needed, the Nutri-Score label should be used in the supermarket, since it might help consumers to pick healthier options and no downsides were found in this study. This is in line with one of the goals of nutritional labels, since they could help consumers understand the nutritional quality of food products at the supermarket and therefore improve their purchase decisions and health.

Furthermore, this study also holds practical implications for manufacturers. If the Nutri-Score will be implemented, it has major implications for manufacturers of supermarket products. This implementation might not be liked by manufacturers who manufacture unhealthy products. They could be afraid of dropping sales due to consumers who make healthier choices and therefore buy less of their products. Therefore, it will be necessary to obligate companies to place the Nutri-Score on their products, otherwise manufacturers of unhealthy products

probably will not implement the nutritional label. As a result, the Nutri-Score will contribute to the second goal of a nutritional label which is that it should drive food manufactures to develop healthier products with a more favorable Nutri-Score (Van Kleef & Dagevos, 2015).

In addition, marketers could help promote products or brands by focusing on favorable Nutri-Scores or comparing products from competitors that have less favorable Nutri-Scores. Marketers could influence people's buying behavior and they could help make customers loyal to a particular brand. Moreover, marketers could also help companies with less favorable Nutri-Scores in setting up campaigns that cover this problem.

Next, it is recommended that the government should set up a large campaign if they would decide to widely introduce the Nutri-Score. Furthermore, supermarkets could participate and have a role in this campaign as well, since they are the one selling the products. This study showed that many participants who were shown the Nutri-Score reported not seeing it. It is the job of the government to inform people about the Nutri-Score and to give information about what it stands for and how it can be used. Moreover, the government could set up campaigns in which they pay attention to the obesity problem in the Netherlands and link the Nutri-Score to this as a part of the solution. This is a contribution to the third goal of nutritional labels, since it allows the government to influence public health by providing nutritional information in a non-enforcing way (Cowburn & Stockley, 2015).

5.4 Research quality, limitations and further research

The quality of the study is an important part of research. Various steps were taken to make sure the quality of the study was sufficient. Nevertheless, the generalizability of this study is limited, since a convenience sample was used. As a result, the external validity is low.

In order to guarantee internal validity, it was clearly described which steps have been taken in this study. Measurement scales from the academic literature were used to ensure construct validity. Furthermore, the survey has been checked in advance and was pre-tested by others, to make sure that the questions were understandable, and the survey worked well. In addition, the survey and results have been added to the appendices to increase the understandability of this study. As a result, the data collection and data analysis can be verified.

Internal consistency has been measured to ensure reliability. The Cronbach's Alpha of all constructs turned out to be very good. As a result, the scales used in this study were reliable and they could not be improved by deleting items.

Although this research was carefully designed and executed, it has some limitations. First of all, this study only focused on one product category. Therefore, the results cannot easily

be applied to other product categories. Moreover, this study used only four products; two healthy snacks and two unhealthy snacks. As a result, it is hard to say something about healthy or unhealthy products since each group only consisted of two products. The products cannot be seen as representative for the entire snack assortment. However, due to the length and the ease of the survey it was decided to include only four snacks. Furthermore, two products from Albert Heijn's private label were used, and two products of premium brands. Further research should focus on more product categories and should investigate the purchase intention of more products. In addition, products from multiple brands should be used to ensure the shopping experience is as realistic as possible. Moreover, using private labels of different supermarkets and premium brands offers the opportunity to investigate whether brands play a role in the decision process and whether this has an influence on the purchase intention of products with and without Nutri-Scores.

Second, since a convenience sample was used in this study, it is hard to generalize the results. There are some more potential limitations regarding the sample that was used in this study. As stated in Chapter 4, approximately 70% of the sample were female. Furthermore, more than 50% of the sample consisted of young adults. These two facts contribute to the result of a non-generalizable sample. This sample cannot be seen as representative for the entire Dutch population. As a result, further research should focus on obtaining a representative sample to test the effects of the Nutri-Score.

Third, although effort was put into making sure financially scarce people were reached, the average score on financial scarcity was low. Many participants did not experience financial scarcity. This limitation of this study could be an explanation for the non-significant results regarding the hypothesis of financial scarcity. Further, this study used a 5-point Likert scale to measure financial scarcity. In fact, all items used in this study were measured on a 5-point scale for convenience and clarity of the respondents. Outcomes might have been different if the respondents had more answer options. However, it is possible that participants were not willing to give insights into their financial state. Further research could offer participants multiple answer categories to get a more precise picture of the financial scarcity state of the respondent (e.g. a 7-point Likert scale). However, the scale of financial scarcity already contained multiple items and therefore offered a refined score of financial scarcity. Further research should also reach a financially scarce group that is willing to give honest answers about their financial state since it measures the subjective experience of financial scarcity. Furthermore, less subjective measures, such as income statements or an overview of budget for groceries, could be used to estimate someone's financial state since these play a role in the feeling of financial scarcity.

However, participants might not be willing to participate in this. Further, if prices of products are shown to the participants, control questions regarding whether they have seen the prices and whether it affected their purchase intention should be added. In short, there are many interesting areas for further research regarding the Nutri-Score and financial scarcity.

Next, this study was set up as an online experiment. Participants were offered pictures of products and had the possibility to see the back-of-pack nutritional table. However, this is not the most realistic shopping experience, since most people buy their groceries in the supermarket. Further research should focus on the real-life shopping experience. For example, Nutri-Scores could be added to the entire snack segment of a supermarket. Therefore, the actual purchases could be measured, and the shopping experience is as real as possible. Furthermore, a pilot with online supermarkets could give adequate insights. An online supermarket could offer the Nutri-Score on their products. Since many respondents reported not seeing the Nutri-Score on the product, it would be an interesting adjustment in further research to enlarge the Nutri-Score label of the products when they are shown online.

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Appendix B: Snacks



€1,19



€1,19



€1,29



€1,29



€0,99



€0,99



€1,79

Voedingswaarden

Soort	Per 100 Gram.
Energie	1.585 kJ (375 kcal)
Vet	3 g
waarvan verzadigd	0,7 g
waarvan onverzadigd	2,5 g
waarvan enkelvoudig onverzadigd	1 g
waarvan meervoudig onverzadigd	1,5 g
Koolhydraten	76 g
waarvan suikers	1,5 g
Voedingsvezel	6 g
Eiwitten	8 g
Zout	0,3 g

BOP: Dunne Rijstwafels (RIJST)



€1,79

Voedingswaarden

Soort	Per 100 Gram.
Energie	2.060 kJ (492 kcal)
Vet	25 g
waarvan verzadigd	11 g
Koolhydraten	53 g
waarvan suikers	23 g
Voedingsvezel	3,9 g
Eiwitten	12 g
Zout	0,94 g

BOP: Hero B'tween mueslireep pinda & pindakaas (HERO)

Voedingswaarden

Soort	Per 100 Gram.
Energie	2.095 kJ (500 kcal)
Vet	23 g
waarvan verzadigd	13 g
waarvan onverzadigd	9,5 g
Koolhydraten	67 g
waarvan suikers	35 g
Voedingsvezel	1,5 g
Eiwitten	5,5 g
Zout	0,2 g

Voedingswaarden

Soort	Per 100 Gram.
Energie	980 kJ (234 kcal)
Vet	1,2 g
waarvan verzadigd	0,2 g
Koolhydraten	53,5 g
waarvan suikers	4,9 g
waarvan polyolen	22,1 g
Voedingsvezel	17,1 g
Eiwitten	2,6 g
Zout	0,44 g

BOP: Rijstwafels Yoghurt (YOGHURT)

BOP: Snelle Jelle Kruidkoek zero (SNELLE)

Images of the Snacks. Adapted from: *Albert Heijn products*, by Albert Heijn (2020). Retrieved from <https://www.ah.nl/producten>. Copyright 2021 by Albert Heijn.

Appendix C: Financial scarcity scale

Table 1: PIFS measurement scale in English and Dutch

1. I often don't have enough money.
2. I am often not able to pay my bills on time.
3. I often don't have money to pay for the things that I really need
4. I experience little control over my financial situation
5. I think I am able to manage my finances properly.
6. When I think about my financial situation, I feel powerless.
7. I am constantly wondering whether I have enough money.
8. I have a hard time thinking about things other than my financial situation.
9. I worry about money a lot.
10. I am only focusing on what I have to pay at this moment rather than my future expenses.
11. I take future expenses into account.
12. Because of my financial situation, I live from day to day

1. Ik heb vaak niet genoeg geld.
2. Ik kan mijn rekeningen vaak niet op tijd betalen.
3. Ik heb vaak geen geld om dingen te betalen die ik echt nodig heb.
4. Ik ervaar dat ik weinig controle heb over mijn financiële situatie.
5. Ik denk dat ik mijn financiën goed kan beheren.
6. Als ik aan mijn financiële situatie denk voel ik mij machteloos.
7. Ik vraag me constant af of ik wel genoeg geld heb.
8. Ik vind het moeilijk om aan andere dingen te denken dan aan mijn financiële situatie.
9. Ik maak mij veel zorgen over geld.
10. Ik concentreer me alleen op wat ik op dit moment moet betalen en niet op mijn toekomstige uitgaven.
11. Ik houd rekening met toekomstige uitgaven.
12. Vanwege mijn financiële situatie leef ik van dag tot dag.

Appendix D: Survey

Beste meneer/mevrouw,

Hartelijk dank voor uw deelname aan dit onderzoek! Wij zijn Jente en Jamie, masterstudenten Marketing van de Radboud Universiteit Nijmegen. Het doel van dit onderzoek, voor onze Master Thesis, is om erachter te komen wat de voorkeur van consumenten is voor tussendoortjes.

Het invullen van de enquête zal ongeveer 5 minuten duren. Deelname is geheel vrijwillig en u kunt op elk moment met de enquête stoppen. Wij gebruiken de gegevens uitsluitend voor dit onderzoek, zodat uw anonimiteit gewaarborgd wordt. Er zijn geen goede of foute antwoorden. Door naar de volgende pagina te gaan, bevestigt u dat u 18 jaar of ouder bent, en dat uw gegevens voor het onderzoek gebruikt mogen worden.

Door het invullen van de vragenlijst maakt u kans op een Bol.com cadeaukaart t.w.v. €25. Aan het einde van deze vragenlijst volgt de mogelijkheid om uw e-mailadres in te vullen, zodat u mee kunt doen met de loting.

Nogmaals bedankt voor uw deelname! U helpt ons en de wetenschap een stap verder!

Jente Frints
Jamie de Beijer

Stel u voor dat u op zoek bent naar een tussendoortje in de supermarkt. U krijgt hierna vier verschillende tussendoortjes te zien en kunt daarbij aangeven in hoeverre u het eens bent met de stellingen. Op de achterkant van de verpakkingen vindt u informatie over de samenstelling van de producten.

In hoeverre bent u het eens met de volgende stellingen?

Antwoorden: 1 = helemaal niet mee eens; 2 = niet mee eens; 3 = neutraal; 4 = mee eens; 5 = helemaal mee eens.

1. Ik ben van plan om dit product te kopen.
2. De volgende keer dat ik een tussendoortje koop, kies ik dit product.
3. Ik geef de voorkeur aan dit product over andere tussendoortjes.
4. Dit product lijkt mij lekker

U heeft zojuist van vier verschillende tussendoortjes uw aankoopintentie aangegeven. Graag stellen wij u nog een aantal vragen over voeding.

1. Ik kon gemakkelijk beoordelen hoe gezond het tussendoortje is.
Antwoorden: 1 = helemaal niet mee eens; 2 = niet mee eens; 3 = neutraal; 4 = mee eens; 5 = helemaal mee eens.
2. Ik heb het Nutri-Score label gezien op de verpakking van het tussendoortje.
Antwoorden: ja; nee.

3. Bij hoeveel producten heeft u de voedingsinformatie op de achterkant van de verpakking bekeken?
Antwoorden: Niet; Bij 1 product; bij 2 producten; bij 3 producten; bij 4 producten.
4. Ik heb veel kennis over de gezondheid van voeding.
Antwoorden: 1 = helemaal niet mee eens; 2 = niet mee eens; 3 = neutraal; 4 = mee eens; 5 = helemaal mee eens.
5. Hoe gezond vindt je dat je eet?
Antwoorden: 1 = gezond; 2 = een beetje gezond; 3 = neutraal; 4 = niet zo gezond; 5 = ongezond.

Need for cognition.

In hoeverre zijn de volgende stellingen kenmerkend voor u of voor wat u gelooft?

Antwoorden: 1 = helemaal niet kenmerkend voor mij; 2 = niet kenmerkend voor mij; 3 = neutraal; 4 = kenmerkend voor mij; 5 = heel kenmerkend voor mij.

1. Ik geef de voorkeur aan complexe problemen boven eenvoudige problemen.
2. Ik neem graag de verantwoordelijkheid om met een situatie om te gaan die veel denkwerk vereist.
3. Denken is niet mijn idee van plezier.
4. Ik doe liever iets dat weinig aandacht vereist dan iets dat zeker mijn denkvermogen zal uitdagen.
5. Ik geniet echt van een taak waarbij nieuwe oplossingen voor problemen moeten worden bedacht.
6. Ik heb liever een taak die intellectueel, moeilijk en belangrijk is boven een taak die enigszins belangrijk is maar niet veel aandacht vereist.

Financial scarcity

In hoeverre bent u het eens met de volgende stellingen?

Antwoorden: 1 = helemaal niet mee eens; 2 = niet mee eens; 3 = neutraal; 4 = mee eens; 5 = helemaal mee eens.

1. Ik heb vaak niet genoeg geld.
2. Ik kan mijn rekeningen vaak niet op tijd betalen.
3. Ik heb vaak geen geld om dingen te betalen die ik echt nodig heb.
4. Ik ervaar dat ik weinig controle heb over mijn financiële situatie.
5. Ik denk dat ik mijn financiën goed kan beheren.
6. Als ik aan mijn financiële situatie denk voel ik mij machteloos.
7. Ik vraag me constant af of ik wel genoeg geld heb.
8. Ik vind het moeilijk om aan andere dingen te denken dan aan mijn financiële situatie.
9. Ik maak mij veel zorgen over geld.
10. Ik concentreer me alleen op wat ik op dit moment moet betalen en niet op mijn toekomstige uitgaven.
11. Ik houd rekening met toekomstige uitgaven.
12. Vanwege mijn financiële situatie leef ik van dag tot dag.

Als laatste volgen nog een aantal korte vragen.

1. Wat is uw leeftijd?
2. Wat is uw geslacht?
 - Man
 - Vrouw
 - Anders
3. Wat is uw hoogst genoten opleiding?
 - Lagere school/basisonderwijs
 - Voortgezet onderwijs
 - Mbo
 - Hbo
 - Universiteit
4. Hoe bent u bij deze enquête gekomen?
 - Social media (bijv. WhatsApp, Facebook of LinkedIn)
 - Via een briefje met QR-code en/of link
5. Indien u kans wil maken op de Bol.com waardebon t.w.v. €25, vul dan hier uw emailadres in. In verband met uw privacy zal uw e-mailadres direct na de loting worden verwijderd.

Dit waren de vragen. Nogmaals hartelijk dank voor uw medewerking!

Indien u geïnteresseerd bent in de resultaten van het onderzoek, kunt u een mail sturen naar j.debeijer@student.ru.nl of j.frints@student.ru.nl.

Appendix E: Pre-test results

Table 2: pre-test descriptives

Respondent	Leeftijd	Opleiding	Apparaat	Datum
1	60	Hbo	Tablet	11-04-2021
2	56	Mbo	Tablet	11-04-2021
3	21	Hbo	Mobiel	11-04-2021
4	23	WO	Mobiel	12-04-2021
5	23	WO	Laptop	11-04-2021
6	24	WO	Mobiel	11-04-2021
7	21	WO	Laptop	11-04-2021
8	19	Voortgezet onderwijs	Mobiel	11-04-2021
9	56	Hbo	Tablet	11-04-2021
10	53	Hbo	Mobiel	11-04-2021

Table 3: Comments pre-test

Respondent 1 <ul style="list-style-type: none"> Bij de inleiding meteen vertellen van wij zijn Jamie en Jente, masterstudenten. Nu staat er alleen “wij zijn”. Je zegt in de gehele enquête 3x hartelijk dank voor uw deelname. Dat is nogal overdreven. Wellicht minder vaak benoemen of anders verwoorden.
Respondent 2 <ul style="list-style-type: none"> Als je niet van rijstwafels houdt, wat moet je dan invullen? Je kunt nu niet aangeven dat je het niet lekker vindt. De stellingen over nadenken zijn lastig om te begrijpen.
Respondent 3 <ul style="list-style-type: none"> “Ik geef de voorkeur aan dit product OVER andere tussendoortjes”. Moet dit niet BOVEN andere tussendoortjes zijn?
Respondent 4 <ul style="list-style-type: none"> Ik vind sommige tussendoortjes niet lekker, maar dat kan ik niet aangeven. Bij de stelling “Ik geef de voorkeur aan complexe boven eenvoudige problemen”, zou je misschien “complexe problemen” ervan kunnen maken. Dan leest de zin wat makkelijker.
Respondent 5 <ul style="list-style-type: none"> Ik vind 3 van de 4 producten niet lekker, maar dat heeft dus niks te maken met de verpakking. Hebben jullie daar ook rekening mee gehouden qua antwoordopties? Bedoelen jullie met "andere tussendoortjes" die andere op de plaatjes? Of over het algemeen?
Respondent 6 <ul style="list-style-type: none"> Het werkt goed. Er is geen vraag met of ik iets lekker vind. De knop om te switchen naar de achterkant van de verpakking werkte goed.
Respondent 7

<ul style="list-style-type: none"> • Ik vind sommige producten minder lekker. • Beetje veel vragen over geld.
Respondent 8 <ul style="list-style-type: none"> • Veel vragen over geld. • Lange zinnen bij het stuk over nadenken.
Respondent 9 <ul style="list-style-type: none"> • Werkte goed, wel veel vragen over financiën en eigenlijk wil ik helemaal geen tussendoortje kopen.
Respondent 10 <ul style="list-style-type: none"> • De vragen over “need for cognition” waarbij wordt gevraagd over een taak vind ik lastig in te vullen, het ligt voor mij aan de soort taak en mijn antwoord kan per taak dus verschillen. • Geen fan van Nutri-Score.

Appendix F: Variable overview

Table 4: English description variables

Variable	Description
FS	Financial scarcity
RIJST	Purchase intention rice crackers (with and without Nutri-Score)
SNELLE	Purchase intention Snelle Jelle bar (with and without Nutri-Score)
HERO	Purchase intention Hero B'tween bar (with and without Nutri-Score)
YOGHURT	Purchase intention yoghurt rice crackers (with and without Nutri-Score)
PI_Rijst	Purchase intention rice crackers without Nutri-Score
PI_Snelle	Purchase intention Snelle Jelle bar without Nutri-Score
PI_Hero	Purchase intention Hero B'tween bar without Nutri-Score
PI_Yoghurt	Purchase intention yoghurt rice crackers without Nutri-Score
PI_NS_Rijst	Purchase intention rice crackers with Nutri-Score
PI_NS_Snelle	Purchase intention Snelle Jelle bar with Nutri-Score
PI_NS_Hero	Purchase intention Hero B'tween bar with Nutri-Score
PI_NS_Yoghurt	Purchase intention yoghurt rice crackers with Nutri-Score
PI_NS_Healthy	Purchase intention healthy products with Nutri-Score (rice crackers and Snelle Jelle bar)
PI_NS_Unhealthy	Purchase intention unhealthy products with Nutri-Score (Hero B'tween bar and yoghurt rice crackers)
PI_Healthy	Purchase intention healthy products (rice crackers and Snelle Jelle bar)
PI_Unhealthy	Purchase intention unhealthy products (Hero B'tween bar and yoghurt rice crackers)
Kennis	Nutritional knowledge
Dieet	Overall diet
Leeftijd	Age
Geslacht	Gender
Opleiding	Education
Lekker_rijst	Deliciousness of rice crackers
Lekker_snelle	Deliciousness of Snelle Jelle bar
Lekker_hero	Deliciousness of Hero B'tween bar
Lekker_yoghurt	Deliciousness of yoghurt rice crackers
FSlaaghoog	Financial scarcity low and high
Kennis_laag_hoog	Nutritional knowledge low and high

Appendix G: Reliability analyses

Table 5: Reliability statistics PI_Rijst

Cronbach's Alpha	N of Items
.923	3

Table 6: Item-Total Statistics PI_Rijst

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Rijst_1	4.43	4.195	.855	.881
Rijst_2	4.60	4.578	.855	.881
Rijst_3	4.64	4.589	.824	.904

Table 7: Reliability statistics PI_Snelle

Cronbach's Alpha	N of Items
.904	3

Table 8: Item-Total Statistics PI_Snelle

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Snelle_1	5.09	4.053	.805	.868
Snelle_2	5.34	4.338	.839	.841
Snelle_3	5.35	4.237	.788	.881

Table 9: Reliability statistics PI_Hero

Cronbach's Alpha	N of Items
.913	3

Table 10: Item-Total Statistics PI_Hero

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Hero_1	4.51	4.506	.850	.853
Hero_2	4.74	4.991	.853	.855
Hero_3	4.75	4.823	.777	.915

Table 11: Reliability statistics PI_Yoghurt

Cronbach's Alpha	N of Items
.933	3

Table 12: Item-Total Statistics PI_Yoghurt

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Yoghurt_1	4.36	4.640	.859	.909
Yoghurt_2	4.50	4.996	.879	.892
Yoghurt_3	4.55	5.075	.855	.910

Table 13: Reliability statistics PI_NS_Rijst

Cronbach's Alpha	N of Items
.929	3

Table 14: Item-Total Statistics PI_NS_Rijst

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
NS_Rijst_1	4.86	4.961	.834	.914
NS_Rijst_2	5.07	5.213	.913	.855
NS_Rijst_3	5.10	5.009	.823	.923

Table 15: Reliability statistics PI_NS_Snelle

Cronbach's Alpha	N of Items
.941	3

Table 16: Item-Total Statistics PI_NS_Snelle

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
NS_Snelle_1	5.30	5.169	.884	.909
NS_Snelle_2	5.39	5.158	.898	.898
NS_Snelle_3	5.49	5.410	.851	.935

Table 17: Reliability statistics PI_NS_Hero

Cronbach's Alpha	N of Items
.923	3

Table 18: Item-Total Statistics PI_NS_Hero

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
NS_Hero_1	4.34	3.799	.832	.901
NS_Hero_2	4.39	4.095	.890	.855
NS_Hero_3	4.39	4.114	.814	.912

Table 19: Reliability statistics PI_NS_Yoghurt

Cronbach's Alpha	N of Items
.934	3

Table 20: Item-Total Statistics PI_NS_Yoghurt

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
NS_Yoghurt_1	4.50	4.589	.850	.918
NS_Yoghurt_2	4.65	4.818	.910	.868
NS_Yoghurt_3	4.72	5.101	.837	.925

Table 21: Reliability statistics Financial scarcity

Cronbach's Alpha	N of Items
.908	12

Table 22: Item-Total Statistics Financial Scarcity

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
FS_1	19.37	41.836	.710	.897
FS_2	19.85	44.394	.755	.897
FS_3	19.80	44.173	.705	.898
FS_4	19.68	42.995	.736	.896
FS_5_recode	19.54	45.442	.512	.907
FS_6	19.64	43.182	.755	.895
FS_7	19.48	41.775	.730	.896
FS_8	19.86	45.319	.634	.901
FS_9	19.52	43.413	.612	.902
FS_10	19.47	44.061	.576	.904
FS_11_recode	19.35	47.703	.310	.915
FS_12	19.77	43.822	.706	.898

Appendix H: Assumptions

Table 23: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PI_Rijst	197	1,00	5,00	2,2775	1,03550	,460	,173	-,654	,345
PI_Hero	197	1,00	5,00	2,3316	1,06931	,416	,173	-,703	,345
PI_Yoghurt	197	1,00	5,00	2,2352	1,08925	,481	,173	-,820	,345
PI_Snelle	197	1,00	5,00	2,6294	1,00214	-,027	,173	-,988	,345
PI_NS_Rijst	208	1,00	5,00	2,5048	1,10529	,198	,169	-,962	,336
PI_NS_Yoghurt	208	1,00	5,00	2,3125	1,08178	,568	,169	-,409	,336
PI_NS_Snelle	208	1,00	5,00	2,6971	1,12867	-,075	,169	-1,164	,336
PI_NS_Hero	208	1,00	5,00	2,1875	,98163	,607	,169	-,366	,336
Valid N (listwise)	0								

Table 24: Mauchly's Test of Sphericity

Measure: Purchase_intention							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Snacks	,931	28,809	5	,000	,959	,969	,333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + Nutri_Score

Within Subjects Design: Snacks

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Appendix I: Manipulations

Table 25: Statistics absence NS

Ik heb het Nutri-Score label gezien op de verpakking van het tussendoortje.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ja	17	8,6	8,6	8,6
	Nee	180	91,4	91,4	100,0
	Total	197	100,0	100,0	

Table 26: Statistics presence NS

Ik heb het Nutri-Score label gezien op de verpakking van het tussendoortje.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ja	79	38,0	38,0	38,0
	Nee	129	62,0	62,0	100,0
	Total	208	100,0	100,0	

Table 27: Group statistics Manipulation healthiness

Group Statistics					
	Nutri_Score	N	Mean	Std. Deviation	Std. Error Mean
Manu_Gezond	Geen NS	197	3,25	,962	,069
	Wel NS	208	3,44	,961	,067

Table 28: T-test Manipulation healthiness

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
Manu_Gezond	Equal variances assumed	,258	,612	-1,972	403	,049	-,189	,096	-,376	-,001
	Equal variances not assumed			-1,972	401,787	,049	-,189	,096	-,376	-,001

Table 29: Statistics manipulation BOP

Statistics		
Manu_BOP		
N	Valid	405
	Missing	0
Mean		2.61
Median		2.00
Mode		1

Table 30: Statistics manipulation BOP

Manu_BOP					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Niet	155	38.3	38.3	38.3
	Bij 1 product	66	16.3	16.3	54.6
	Bij 2 producten	59	14.6	14.6	69.1
	Bij 3 producten	30	7.4	7.4	76.5
	Bij 4 producten	95	23.5	23.5	100.0
	Total	405	100.0	100.0	

Table 31: Statistics BOP and Nutri-score

Group Statistics					
	Nutri_Score	N	Mean	Std. Deviation	Std. Error Mean
Manu_BOP	Absence NS	197	2.64	1.615	.115
	Presence NS	208	2.59	1.591	.110

Table 32: T-test BOP and Nutri-score

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
Manu_BOP	Equal variances assumed	.098	.754	.303	403	.762	.048	.159	-.265	.362
	Equal variances not assumed			.303	401.071	.762	.048	.159	-.265	.362

Appendix J: Hypothesis 1

Table 33: Mixed ANOVA - Within-Subjects Factors

Within-Subjects Factors	
Measure:	
Purchase intention	
Snacks	Dependent Variable
1	RIJST
2	SNELLE
3	HERO
4	YOGHURT

Table 34: Mixed ANOVA - Between-Subjects Factors

Between-Subjects Factors			
		Value Label	N
Nutri_Score	1	Geen NS	197
	2	Wel NS	208

Table 35: Mixed ANOVA – Descriptive Statistics

Descriptive Statistics				
	Nutri_Score	Mean	Std. Deviation	N
RIJST	Geen NS	2,2775	1,03550	197
	Wel NS	2,5048	1,10529	208
	Total	2,3942	1,07661	405
SNELLE	Geen NS	2,6294	1,00214	197
	Wel NS	2,6971	1,12867	208
	Total	2,6642	1,06821	405
HERO	Geen NS	2,3316	1,06931	197
	Wel NS	2,1875	,98163	208
	Total	2,2576	1,02648	405
YOGHURT	Geen NS	2,2352	1,08925	197
	Wel NS	2,3125	1,08178	208
	Total	2,2749	1,08477	405

Table 36: Mixed ANOVA - Mauchly's Test of Sphericity

Measure: Purchase intention							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Snacks	,931	28,809	5	,000	,959	,969	,333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + Nutri_Score

Within Subjects Design: Snacks

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Table 37: Mixed ANOVA - Tests of Within-Subjects Effects

Tests of Within-Subjects Effects						
Measure: Purchase_intention						
Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Snacks	Sphericity Assumed	42,490	3	14,163	15,039	,000
	Greenhouse-Geisser	42,490	2,877	14,770	15,039	,000
	Huynh-Feldt	42,490	2,907	14,617	15,039	,000
	Lower-bound	42,490	1,000	42,490	15,039	,000
Snacks * Nutri_Score	Sphericity Assumed	7,081	3	2,360	2,506	,058
	Greenhouse-Geisser	7,081	2,877	2,461	2,506	,060
	Huynh-Feldt	7,081	2,907	2,436	2,506	,060
	Lower-bound	7,081	1,000	7,081	2,506	,114
Error(Snacks)	Sphericity Assumed	1138,623	1209	,942		
	Greenhouse-Geisser	1138,623	1159,381	,982		
	Huynh-Feldt	1138,623	1171,498	,972		
	Lower-bound	1138,623	403,000	2,825		

Table 38: Mixed ANOVA - Tests of Between-Subjects Effects

Tests of Between-Subjects Effects					
Measure: Purchase_intention					
Transformed Variable: Average					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	2325,181	1	2325,181	5485,226	,000
Nutri_Score	,329	1	,329	,776	,379
Error	170,831	403	,424		

Table 39: Parameter estimates

Parameter Estimates								
Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
						Lower Bound	Upper Bound	
RIJST	Intercept	2.505	.074	33.701	.000	2.359	2.651	.738
	[Nutri_Score=1]	-.227	.107	-2.133	.034	-.437	-.018	.011
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.
SNELLE	Intercept	2.697	.074	36.388	.000	2.551	2.843	.767
	[Nutri_Score=1]	-.068	.106	-.637	.525	-.277	.141	.001
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.
HERO	Intercept	2.188	.071	30.773	.000	2.048	2.327	.701

	[Nutri_Score=1]	.144	.102	1.414	.158	-.056	.345	.005
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.
YOGHURT	Intercept	2.312	.075	30.727	.000	2.165	2.460	.701
	[Nutri_Score=1]	-.077	.108	-.716	.474	-.289	.135	.001
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Table 40: T-test – Group Statistics

Group Statistics				
	Nutri_Score	N	Mean	Std. Deviation
RIJST	Geen NS	197	2,2775	1,03550
	Wel NS	208	2,5048	1,10529
SNELLE	Geen NS	197	2,6294	1,00214
	Wel NS	208	2,6971	1,12867
HERO	Geen NS	197	2,3316	1,06931
	Wel NS	208	2,1875	,98163
YOGHURT	Geen NS	197	2,2352	1,08925
	Wel NS	208	2,3125	1,08178

Table 41: T-test – Independent Samples Test

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
RIJST	Equal variances assumed	2,212	,138	-2,133	403	,034	-,22731	,10657	-,43681	-,01782
	Equal variances not assumed			-2,137	402,953	,033	-,22731	,10638	-,43644	-,01819
SNELLE	Equal variances assumed	4,007	,046	-,637	403	,525	-,06767	,10628	-,27660	,14125
	Equal variances not assumed			-,639	401,345	,523	-,06767	,10594	-,27593	,14058

HERO	Equal variances assumed	4,440	,036	1,414	403	,158	,14414	,10192	-,05623	,34451
	Equal variances not assumed			1,411	395,297	,159	,14414	,10216	-,05671	,34499
YOGHURT	Equal variances assumed	,392	,532	-,716	403	,474	-,07731	,10791	-,28944	,13483
	Equal variances not assumed			-,716	401,489	,474	-,07731	,10793	-,28948	,13487

Appendix K: Hypothesis 2

Table 42: Paired samples statistics with Nutri-Score

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PI_NS_Healthy	2,6010	208	,87609	,06075
	PI_NS_Unhealthy	2,2500	208	,83229	,05771

Table 43: Paired samples t-test with Nutri-Score

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PI_NS_Healthy - PI NS Unhealthy	,35096	1,12322	,07788	,19742	,50450	4,506	207	,000

Table 44: Paired samples statistics without Nutri-Score

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PI_Healthy	2.4535	197	.76706	.05465
	PI_Unhealthy	2.2834	197	.84794	.06041

Table 45: Paired samples t-test without Nutri-Score

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PI_Healthy - PI_Unhealthy	.17005	.93828	.06685	.03821	.30189	2.544	196	.012

$$\text{Cohen's } d = \frac{\text{Mean}}{SD}$$

$$\text{Cohen's } d \text{ control group} = \frac{.17005}{.93828} = 0.18$$

$$\text{Cohen's } d \text{ experimental (with Nutri-Score) group} = \frac{.35096}{1.13322} = 0.31$$

Appendix L: Hypothesis 3

Table 46: Statistics financial scarcity

Statistics		
FS		
N	Valid	208
	Missing	0
Mean		1.8017
Median		1.7500
Mode		2.00
Std. Deviation		.62078
Minimum		1.00
Maximum		3.92

Table 47: frequencies - financial scarcity

FS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	14	6.7	6.7	6.7
	1.08	12	5.8	5.8	12.5
	1.17	11	5.3	5.3	17.8
	1.25	17	8.2	8.2	26.0
	1.33	17	8.2	8.2	34.1
	1.42	6	2.9	2.9	37.0
	1.50	9	4.3	4.3	41.3
	1.58	5	2.4	2.4	43.8
	1.67	12	5.8	5.8	49.5
	1.75	7	3.4	3.4	52.9
	1.83	5	2.4	2.4	55.3
	1.92	7	3.4	3.4	58.7
	2.00	20	9.6	9.6	68.3
	2.08	12	5.8	5.8	74.0
	2.17	8	3.8	3.8	77.9
	2.25	7	3.4	3.4	81.3
	2.33	9	4.3	4.3	85.6
	2.42	7	3.4	3.4	88.9
	2.50	2	1.0	1.0	89.9
	2.58	1	.5	.5	90.4
	2.67	3	1.4	1.4	91.8
	2.83	2	1.0	1.0	92.8
	2.92	3	1.4	1.4	94.2
	3.00	2	1.0	1.0	95.2
	3.08	2	1.0	1.0	96.2

	3.25	1	.5	.5	96.6
	3.33	2	1.0	1.0	97.6
	3.42	1	.5	.5	98.1
	3.50	1	.5	.5	98.6
	3.67	2	1.0	1.0	99.5
	3.92	1	.5	.5	100.0
	Total	208	100.0	100.0	

Table 48: Group statistics financial scarcity

Group Statistics					
	Kanaal	N	Mean	Std. Deviation	Std. Error Mean
FS	Via social media (bijv. WhatsApp, Facebook of LinkedIn)	172	1.7384	.54674	.04169
	Via een briefje met QR-code en/of link	33	2.1313	.86428	.15045

Table 49: Independent samples t-test financial scarcity

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
FS	Equal variances assumed	13.644	.000	-3.401	203	.001	-.39294	.11553	-.62073	-.16515
	Equal variances not assumed			-2.517	37.062	.016	-.39294	.15612	-.70925	-.07663

Table 50: Group statistics financial scarcity low and high

Group Statistics					
	FSlaaghoog	N	Mean	Std. Deviation	Std. Error Mean
RIJST	1.00	103	2.4563	1.13950	.11228
	2.00	105	2.5524	1.07400	.10481
SNELLE	1.00	103	2.5243	1.16653	.11494
	2.00	105	2.8667	1.06879	.10430
HERO	1.00	103	2.1456	1.00616	.09914
	2.00	105	2.2286	.96001	.09369
YOGHURT	1.00	103	2.1553	1.07438	.10586

	2.00	105	2.4667	1.07178	.10460
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Table 51: Independent samples t-test financial scarcity

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
RIJST	Equal variances assumed	.385	.535	-.626	206	.532	-.09607	.15351	-.39872	.20658
	Equal variances not assumed			-.625	204.741	.532	-.09607	.15360	-.39890	.20676
SNELLE	Equal variances assumed	1.425	.234	-2.208	206	.028	-.34239	.15508	-.64814	-.03665
	Equal variances not assumed			-2.206	203.688	.029	-.34239	.15521	-.64842	-.03637
HERO	Equal variances assumed	.133	.716	-.608	206	.544	-.08294	.13634	-.35174	.18586
	Equal variances not assumed			-.608	205.101	.544	-.08294	.13640	-.35187	.18599
YOGHURT	Equal variances assumed	.038	.847	-2.092	206	.038	-.31133	.14881	-.60472	-.01793
	Equal variances not assumed			-2.092	205.903	.038	-.31133	.14882	-.60473	-.01792

Table 52: Repeated measures ANCOVA within-subjects factors

Within-Subjects Factors
Measure: Purchase_intention

Snacks	Dependent Variable
1	PI_NS_Rijst
2	PI_NS_Snelle
3	PI_NS_Hero
4	PI_NS_Yoghurt

Table 53: Repeated measures ANCOVA descriptive statistics

Descriptive Statistics			
	Mean	Std. Deviation	N
PI_NS_Rijst	2.5048	1.10529	208
PI_NS_Snelle	2.6971	1.12867	208
PI_NS_Hero	2.1875	.98163	208
PI_NS_Yoghurt	2.3125	1.08178	208

Table 54: Repeated measures ANCOVA - Mauchly's Test of Sphericity

Measure: Purchase_intention							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Snacks	,931	28,809	5	,000	,959	,969	,333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + Nutri_Score

Within Subjects Design: Snacks

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Table 55: Repeated measures ANCOVA Tests of Within-Subjects Effects

Tests of Within-Subjects Effects							
Measure: Purchase_intention							
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Snacks	Sphericity Assumed	5.785	3	1.928	1.951	.120	.009
	Greenhouse-Geisser	5.785	2.802	2.065	1.951	.125	.009
	Huynh-Feldt	5.785	2.858	2.024	1.951	.123	.009
	Lower-bound	5.785	1.000	5.785	1.951	.164	.009
Snacks * FS	Sphericity Assumed	3.920	3	1.307	1.322	.266	.006
	Greenhouse-Geisser	3.920	2.802	1.399	1.322	.267	.006
	Huynh-Feldt	3.920	2.858	1.371	1.322	.267	.006

	Lower-bound	3.920	1.000	3.920	1.322	.252	.006
Error(Snacks)	Sphericity	610.989	618	.989			
	Assumed						
	Greenhouse-Geisser	610.989	577.160	1.059			
	Huynh-Feldt	610.989	588.772	1.038			
	Lower-bound	610.989	206.000	2.966			

Table 56: Repeated measures ANCOVA Tests of Between-Subjects Effects

Tests of Between-Subjects Effects						
Measure: Purchase_intention						
Transformed Variable: Average						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	101.638	1	101.638	249.296	.000	.548
FS	1.859	1	1.859	4.559	.034	.022
Error	83.986	206	.408			

Table 57: Mixed ANOVA Within-Subjects Factors

Within-Subjects Factors	
Measure:	
Purchase_intention	
Snacks	Dependent Variable
1	PI_NS_Rijst
2	PI_NS_Snelle
3	PI_NS_Hero
4	PI_NS_Yoghurt

Table 58: Mixed ANOVA Between-Subjects Factors

Between-Subjects Factors		
		N
FSlaaghoog	1.00	103
	2.00	105

Table 59: Mixed ANOVA Descriptives

Descriptive Statistics				
	FSlaaghoog	Mean	Std. Deviation	N
PI_NS_Rijst	1.00	2.4563	1.13950	103
	2.00	2.5524	1.07400	105
	Total	2.5048	1.10529	208

PI_NS_Snelle	1.00	2.5243	1.16653	103
	2.00	2.8667	1.06879	105
	Total	2.6971	1.12867	208
PI_NS_Hero	1.00	2.1456	1.00616	103
	2.00	2.2286	.96001	105
	Total	2.1875	.98163	208
PI_NS_Yoghurt	1.00	2.1553	1.07438	103
	2.00	2.4667	1.07178	105
	Total	2.3125	1.08178	208

Table 60: Mixed ANOVA Mauchly's Test of Sphericity

Measure: Purchase_intention							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Snacks	.931	28,809	5	.000	.959	.969	.333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + Nutri_Score

Within Subjects Design: Snacks

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Table 61: Mixed ANOVA Tests of Within-Subjects Effects

Tests of Within-Subjects Effects							
Measure: Purchase_intention							
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Snacks	Sphericity Assumed	30.997	3	10.332	10.435	.000	.048
	Greenhouse-Geisser	30.997	2.800	11.069	10.435	.000	.048
	Huynh-Feldt	30.997	2.857	10.851	10.435	.000	.048
	Lower-bound	30.997	1.000	30.997	10.435	.001	.048
Snacks * FSlaaghoog	Sphericity Assumed	2.959	3	.986	.996	.394	.005
	Greenhouse-Geisser	2.959	2.800	1.057	.996	.390	.005
	Huynh-Feldt	2.959	2.857	1.036	.996	.392	.005
	Lower-bound	2.959	1.000	2.959	.996	.319	.005
Error(Snacks)	Sphericity Assumed	611.950	618	.990			
	Greenhouse-Geisser	611.950	576.854	1.061			
	Huynh-Feldt	611.950	588.454	1.040			

	Lower-bound	611.950	206.000	2.971			
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Table 62: Mixed ANOVA Tests of Between-Subjects Effects

Tests of Between-Subjects Effects						
Measure: Purchase_intention						
Transformed Variable: Average						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	1222.532	1	1222.532	3012.767	.000	.936
FSlaaghoog	2.253	1	2.253	5.553	.019	.026
Error	83.591	206	.406			

Table 63: Parameter estimates

Parameter Estimates								
Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
						Lower Bound	Upper Bound	
PI_NS_Rijst	Intercept	2.552	.108	23.628	.000	2.339	2.765	.730
	[FSlaaghoog=1,00]	-.096	.154	-.626	.532	-.399	.207	.002
	[FSlaaghoog=2,00]	0 ^a	.	.	.	.	.	.
PI_NS_Snelle	Intercept	2.867	.109	26.268	.000	2.652	3.082	.770
	[FSlaaghoog=1,00]	-.342	.155	-2.208	.028	-.648	-.037	.023
	[FSlaaghoog=2,00]	0 ^a	.	.	.	.	.	.
PI_NS_Hero	Intercept	2.229	.096	23.228	.000	2.039	2.418	.724
	[FSlaaghoog=1,00]	-.083	.136	-.608	.544	-.352	.186	.002
	[FSlaaghoog=2,00]	0 ^a	.	.	.	.	.	.
PI_NS_Yoghurt	Intercept	2.467	.105	23.555	.000	2.260	2.673	.729
	[FSlaaghoog=1,00]	-.311	.149	-2.092	.038	-.605	-.018	.021
	[FSlaaghoog=2,00]	0 ^a	.	.	.	.	.	.
a. This parameter is set to zero because it is redundant.								

Table 64: T-test financial scarcity group statistics

Group Statistics					
	FSlaaghoog	N	Mean	Std. Deviation	Std. Error Mean
PI_NS_Healthy	1.00	103	2.4903	.89474	.08816
	2.00	105	2.7095	.84764	.08272
PI_NS_Unhealthy	1.00	103	2.1505	.86870	.08560
	2.00	105	2.3476	.78688	.07679

Table 65: Independent Samples Test financial scarcity

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
PI_NS_Healthy	Equal variances assumed	.549	.460	-1.814	206	.071	-.21923	.12083	-.45746	.01899
	Equal variances not assumed			-1.813	204.899	.071	-.21923	.12089	-.45759	.01912
PI_NS_Unhealthy	Equal variances assumed	.473	.493	-1.716	206	.088	-.19713	.11488	-.42363	.02937
	Equal variances not assumed			-1.714	203.179	.088	-.19713	.11499	-.42387	.02960

Appendix M: Control variables

Table 66: Mauchly's Test of Sphericity

Mauchly's Test of Sphericity ^a							
Measure: Purchase_intention							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Snacks	,939	24,344	5	,000	,961	,994	,333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + Lekker_rijst + Lekker_hero + Lekker_yoghurt + Lekker_snelle + Kennis + Dieet + Leeftijd + Opleiding_recode + Geslacht_recode + Nutri_Score

Within Subjects Design: Snacks

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Table 67: Mixed ANOVA with control variables - Tests of Within-Subjects Effects

Tests of Within-Subjects Effects							
Measure: Purchase_intention							
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Snacks	Sphericity Assumed	2,673	3	,891	2,032	,108	,005
	Greenhouse-Geisser	2,673	2,883	,927	2,032	,110	,005
	Huynh-Feldt	2,673	2,982	,896	2,032	,108	,005
	Lower-bound	2,673	1,000	2,673	2,032	,155	,005
Snacks * Lekker_rijst	Sphericity Assumed	158,989	3	52,996	120,848	,000	,237
	Greenhouse-Geisser	158,989	2,883	55,140	120,848	,000	,237
	Huynh-Feldt	158,989	2,982	53,314	120,848	,000	,237
	Lower-bound	158,989	1,000	158,989	120,848	,000	,237
Snacks * Lekker_hero	Sphericity Assumed	146,603	3	48,868	111,433	,000	,223
	Greenhouse-Geisser	146,603	2,883	50,844	111,433	,000	,223
	Huynh-Feldt	146,603	2,982	49,160	111,433	,000	,223
	Lower-bound	146,603	1,000	146,603	111,433	,000	,223
Snacks * Lekker_yoghurt	Sphericity Assumed	147,157	3	49,052	111,854	,000	,224

	Greenhouse-Geisser	147,157	2,883	51,036	111,854	,000	,224
	Huynh-Feldt	147,157	2,982	49,346	111,854	,000	,224
	Lower-bound	147,157	1,000	147,157	111,854	,000	,224
Snacks * Lekker_snelle	Sphericity Assumed	144,107	3	48,036	109,536	,000	,220
	Greenhouse-Geisser	144,107	2,883	49,978	109,536	,000	,220
	Huynh-Feldt	144,107	2,982	48,323	109,536	,000	,220
	Lower-bound	144,107	1,000	144,107	109,536	,000	,220
Snacks * Kennis	Sphericity Assumed	4,333	3	1,444	3,294	,020	,008
	Greenhouse-Geisser	4,333	2,883	1,503	3,294	,021	,008
	Huynh-Feldt	4,333	2,982	1,453	3,294	,020	,008
	Lower-bound	4,333	1,000	4,333	3,294	,070	,008
Snacks * Dieet	Sphericity Assumed	1,177	3	,392	,894	,443	,002
	Greenhouse-Geisser	1,177	2,883	,408	,894	,440	,002
	Huynh-Feldt	1,177	2,982	,395	,894	,443	,002
	Lower-bound	1,177	1,000	1,177	,894	,345	,002
Snacks * Leeftijd	Sphericity Assumed	,692	3	,231	,526	,665	,001
	Greenhouse-Geisser	,692	2,883	,240	,526	,657	,001
	Huynh-Feldt	,692	2,982	,232	,526	,663	,001
	Lower-bound	,692	1,000	,692	,526	,469	,001
Snacks * Opleiding_recode	Sphericity Assumed	3,167	3	1,056	2,407	,066	,006
	Greenhouse-Geisser	3,167	2,883	1,098	2,407	,068	,006
	Huynh-Feldt	3,167	2,982	1,062	2,407	,066	,006
	Lower-bound	3,167	1,000	3,167	2,407	,122	,006
Snacks * Geslacht_recode	Sphericity Assumed	2,693	3	,898	2,047	,106	,005
	Greenhouse-Geisser	2,693	2,883	,934	2,047	,108	,005
	Huynh-Feldt	2,693	2,982	,903	2,047	,106	,005
	Lower-bound	2,693	1,000	2,693	2,047	,153	,005
Snacks * Nutri_Score	Sphericity Assumed	2,032	3	,677	1,545	,201	,004

	Greenhouse-Geisser	2,032	2,883	,705	1,545	,203	,004
	Huynh-Feldt	2,032	2,982	,682	1,545	,201	,004
	Lower-bound	2,032	1,000	2,032	1,545	,215	,004
Error(Snacks)	Sphericity Assumed	510,457	1164	,439			
	Greenhouse-Geisser	510,457	1118,758	,456			
	Huynh-Feldt	510,457	1157,074	,441			
	Lower-bound	510,457	388,000	1,316			

Table 68: Mixed ANOVA with control variables – Parameter Estimates

Parameter Estimates								
Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
						Lower Bound	Upper Bound	
RIJST	Intercept	,022	,321	,068	,946	-,608	,652	,000
	Lekker_rijst	,654	,034	19,451	,000	,588	,720	,494
	Lekker_hero	,009	,029	,328	,743	-,047	,066	,000
	Lekker_yoghurt	-,006	,031	-,198	,843	-,068	,056	,000
	Lekker_snelle	,014	,035	,397	,692	-,055	,082	,000
	Kennis	,044	,043	1,032	,303	-,040	,128	,003
	Dieet	,007	,044	,164	,870	-,079	,094	,000
	Leeftijd	,002	,003	,891	,373	-,003	,008	,002
	Opleiding_recode	,101	,090	1,123	,262	-,076	,279	,003
	Geslacht_recode	,240	,082	2,905	,004	,077	,402	,021
	[Nutri_Score=1]	-,134	,073	-1,826	,069	-,278	,010	,009
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.
SNELLE	Intercept	,464	,361	1,285	,200	-,246	1,174	,004
	Lekker_rijst	,013	,038	,339	,735	-,062	,087	,000
	Lekker_hero	-,016	,032	-,499	,618	-,079	,047	,001
	Lekker_yoghurt	-,018	,035	-,520	,603	-,088	,051	,001
	Lekker_snelle	,674	,039	17,173	,000	,597	,751	,432
	Kennis	-,009	,048	-,194	,846	-,104	,085	,000
	Dieet	,053	,050	1,072	,284	-,044	,150	,003
	Leeftijd	-,001	,003	-,266	,791	-,007	,005	,000
	Opleiding_recode	-,200	,102	-1,968	,050	-,401	,000	,010
	Geslacht_recode	,047	,093	,501	,617	-,136	,229	,001
	[Nutri_Score=1]	-,038	,083	-,456	,649	-,200	,125	,001
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.
HERO	Intercept	,951	,327	2,909	,004	,308	1,594	,021

	Lekker_rijst	-,055	,034	-1,607	,109	-,123	,012	,007
	Lekker_hero	,539	,029	18,504	,000	,482	,597	,469
	Lekker_yoghurt	,034	,032	1,056	,292	-,029	,097	,003
	Lekker_snelle	,000	,036	,009	,993	-,070	,070	,000
	Kennis	-,120	,043	-2,752	,006	-,205	-,034	,019
	Dieet	,050	,045	1,124	,262	-,038	,138	,003
	Leeftijd	-,001	,003	-,183	,855	-,006	,005	,000
	Opleiding_recode	-,069	,092	-,750	,454	-,250	,112	,001
	Geslacht_recode	,037	,084	,435	,664	-,129	,202	,000
	[Nutri_Score=1]	,063	,075	,838	,403	-,084	,209	,002
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.
YOGHURT	Intercept	,469	,330	1,423	,156	-,179	1,118	,005
	Lekker_rijst	-,027	,035	-,773	,440	-,095	,041	,002
	Lekker_hero	-,035	,029	-1,183	,238	-,093	,023	,004
	Lekker_yoghurt	,612	,032	18,939	,000	,548	,675	,480
	Lekker_snelle	-,001	,036	-,038	,969	-,072	,069	,000
	Kennis	-,069	,044	-1,569	,118	-,155	,017	,006
	Dieet	,101	,045	2,227	,027	,012	,190	,013
	Leeftijd	,003	,003	,899	,369	-,003	,008	,002
	Opleiding_recode	,017	,093	,180	,857	-,166	,200	,000
	Geslacht_recode	,218	,085	2,564	,011	,051	,384	,017
	[Nutri_Score=1]	-,084	,075	-1,117	,265	-,232	,064	,003
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.
a. This parameter is set to zero because it is redundant.								

Table 69: Within-subjects factors nutritional knowledge

Within-Subjects Factors	
Measure:	
Purchase_intention	
Snacks	Dependent Variable
1	RIJST
2	SNELLE
3	HERO
4	YOGHURT

Table 70: Between-subjects factors nutritional knowledge

Between-Subjects Factors			
		Value Label	N
Kennis_laag_hoog	1.00	low nutritional knowledge	85
	2.00	high nutritional knowledge	158

Table 71: Descriptive statistics nutritional knowledge

Descriptive Statistics				
	Kennis laag hoog	Mean	Std. Deviation	N
RIJST	low nutritional knowledge	2.2667	1.13483	85
	high nutritional knowledge	2.5654	1.09603	158
	Total	2.4609	1.11658	243
SNELLE	low nutritional knowledge	2.8863	1.00994	85
	high nutritional knowledge	2.6540	1.16135	158
	Total	2.7353	1.11417	243
HERO	low nutritional knowledge	2.3451	1.10368	85
	high nutritional knowledge	2.1350	1.01094	158
	Total	2.2085	1.04686	243
YOGHURT	low nutritional knowledge	2.4392	1.05059	85
	high nutritional knowledge	2.2004	1.17230	158
	Total	2.2840	1.13478	243

Table 72: Mixed ANOVA with nutritional knowledge - Mauchly's Test of Sphericity

Mauchly's Test of Sphericity ^a							
Measure: Purchase intention							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Snacks	.948	12.740	5	.026	.968	.985	.333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + Kennis_laag_hoog

Within Subjects Design: Snacks

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Table 73: Mixed ANOVA with nutritional knowledge - Tests of Within-Subjects Effects

Tests of Within-Subjects Effects						
Measure: Purchase intention						
Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Snacks	Sphericity Assumed	36.242	3	12.081	12.171	.000
	Greenhouse-Geisser	36.242	2.903	12.484	12.171	.000
	Huynh-Feldt	36.242	2.955	12.267	12.171	.000
	Lower-bound	36.242	1.000	36.242	12.171	.001
Snacks * Kennis_laag_hoog	Sphericity Assumed	11.484	3	3.828	3.857	.009
	Greenhouse-Geisser	11.484	2.903	3.956	3.857	.010
	Huynh-Feldt	11.484	2.955	3.887	3.857	.010
	Lower-bound	11.484	1.000	11.484	3.857	.051
Error(Snacks)	Sphericity Assumed	717.624	723	.993		
	Greenhouse-Geisser	717.624	699.657	1.026		
	Huynh-Feldt	717.624	712.040	1.008		
	Lower-bound	717.624	241.000	2.978		
a. Computed using alpha = .05						

Table 74: Between-subjects factors with nutritional knowledge

Tests of Between-Subjects Effects					
Measure: Purchase intention					
Transformed Variable: Average					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	5249.614	1	5249.614	2825.025	.000
Kennis_laag_hoog	2.020	1	2.020	1.087	.298
Error	447.839	241	1.858		
a. Computed using alpha = .05					

Table 75: Parameter estimates with nutritional knowledge

Parameter Estimates							
Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
RIJST	Intercept	2.565	.088	29.059	.000	2.391	2.739
	[Kenni_s_laag_hoog=1,00]	-.299	.149	-2.001	.046	-.593	-.005
	[Kenni_s_laag_hoog=2,00]	0 ^a	.	.	.	.	.
SNELLE	Intercept	2.654	.088	30.029	.000	2.480	2.828
	[Kenni_s_laag_hoog=1,00]	.232	.149	1.554	.121	-.062	.527
	[Kenni_s_laag_hoog=2,00]	0 ^a	.	.	.	.	.
HERO	Intercept	2.135	.083	25.701	.000	1.971	2.299
	[Kenni_s_laag_hoog=1,00]	.210	.140	1.496	.136	-.067	.487
	[Kenni_s_laag_hoog=2,00]	0 ^a	.	.	.	.	.
YOGHURT	Intercept	2.200	.090	24.447	.000	2.023	2.378
	[Kenni_s_laag_hoog=1,00]	.239	.152	1.569	.118	-.061	.539
	[Kenni_s_laag_hoog=2,00]	0 ^a	.	.	.	.	.
a. This parameter is set to zero because it is redundant.							
b. Computed using alpha = .05							

Table 76: T-test – Group Statistics BOP and gender

Group Statistics					
	Geslacht	N	Mean	Std. Deviation	Std. Error Mean
Manu_BOP	Vrouw	280	2.79	1.626	.097
	Man	120	2.23	1.481	.135

Table 77: T-test - Independent Samples Test BOP and gender

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
Manu_BOP	Equal variances assumed	6.046	.014	3.285	398	.001	.568	.173	.228	.908

	Equal variances not assumed			3.411	245.830	.001	.568	.166	.240	.896
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Table 78: ANOVA - Age

ANOVA							
Manu_BOP							
			Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		4.134	3	1.378	.534	.659
	Linear Term	Unweighted	.865	1	.865	.335	.563
		Weighted	.105	1	.105	.041	.840
		Deviation	4.029	2	2.014	.781	.459
	Quadratic Term	Unweighted	1.818	1	1.818	.704	.402
		Weighted	1.119	1	1.119	.434	.511
		Deviation	2.909	1	2.909	1.127	.289
Within Groups			1021.864	396	2.580		
Total			1025.997	399			

Table 79: T-test – Group Statistics BOP and education

Group Statistics					
	opleidinglaaghoog	N	Mean	Std. Deviation	Std. Error Mean
Manu_BOP	1.00	103	2.42	1.485	.146
	2.00	298	2.69	1.639	.095

Table 80: T-test Education - Independent Samples Test BOP and education

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
Manu_BOP	Equal variances assumed	7.216	.008	- 1.478	399	.140	-.270	.183	-.630	.089
	Equal variances not assumed			- 1.550	194.123	.123	-.270	.174	-.615	.074

Appendix N: Additional analysis

Table 81: Within-subjects factors main analysis

Within-Subjects Factors	
Measure: Purchase intention	
Snacks	Dependent Variable
1	RIJST
2	SNELLE
3	HERO
4	YOGHURT

Table 82: Between-subjects factors main analysis

Between-Subjects Factors		
		N
Nutri-Score	1	180
	2	79

Table 83: Mixed ANOVA – descriptives main analysis

Descriptive Statistics				
	Nutri	Mean	Std. Deviation	N
RIJST	1	2.2815	1.04274	180
	2	2.8312	1.11819	79
	Total	2.4492	1.09394	259
SNELLE	1	2.6019	1.00594	180
	2	2.8059	1.15791	79
	Total	2.6641	1.05654	259
HERO	1	2.3407	1.06927	180
	2	2.1772	.95607	79
	Total	2.2909	1.03696	259
YOGHURT	1	2.2500	1.10519	180
	2	2.3755	1.02583	79
	Total	2.2883	1.08117	259

Table 84: Mauchly's Test of Sphericity main analysis

Mauchly's Test of Sphericity ^a							
Measure: Purchase intention							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Snacks	.943	15.089	5	.010	.965	.981	.333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + Nutri-Score

Within Subjects Design: Snacks

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Table 85: Mixed ANOVA - Tests of Within-Subjects Effects main analysis

Tests of Within-Subjects Effects							
Measure: Purchase_intention							
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Snacks	Sphericity Assumed	28.733	3	9.578	10.366	.000	.039
	Greenhouse-Geisser	28.733	2.896	9.923	10.366	.000	.039
	Huynh-Feldt	28.733	2.943	9.762	10.366	.000	.039
	Lower-bound	28.733	1.000	28.733	10.366	.001	.039
Snacks * Nutri-Score	Sphericity Assumed	14.179	3	4.726	5.116	.002	.020
	Greenhouse-Geisser	14.179	2.896	4.897	5.116	.002	.020
	Huynh-Feldt	14.179	2.943	4.817	5.116	.002	.020
	Lower-bound	14.179	1.000	14.179	5.116	.025	.020
Error(Snacks)	Sphericity Assumed	712.339	771	.924			
	Greenhouse-Geisser	712.339	744.146	.957			
	Huynh-Feldt	712.339	756.460	.942			
	Lower-bound	712.339	257.000	2.772			

Table 86: Mixed ANOVA - Tests of Between-Subjects Effects main analysis

Tests of Between-Subjects Effects						
Measure: Purchase_intention						
Transformed Variable: Average						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	1326.848	1	1326.848	3084.562	.000	.923
Nutri-Score	1.758	1	1.758	4.087	.044	.016
Error	110.551	257	.430			

Table 87: Mixed ANOVA - Parameter Estimates main analysis

Parameter Estimates								
Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
						Lower Bound	Upper Bound	
RIJST	Intercept	2.831	.120	23.602	.000	2.595	3.067	.684
	[Nutri_Score=1]	-.550	.144	-3.820	.000	-.833	-.266	.054
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.
SNELLE	Intercept	2.806	.119	23.653	.000	2.572	3.040	.685
	[Nutri_Score=1]	-.204	.142	-1.434	.153	-.484	.076	.008
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.
HERO	Intercept	2.177	.117	18.675	.000	1.948	2.407	.576
	[Nutri_Score=1]	.164	.140	1.169	.243	-.112	.439	.005
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.
YOGHURT	Intercept	2.376	.122	19.519	.000	2.136	2.615	.597
	[Nutri_Score=1]	-.126	.146	-.860	.391	-.413	.162	.003
	[Nutri_Score=2]	0 ^a	.	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Figure 1: Plot main analysis

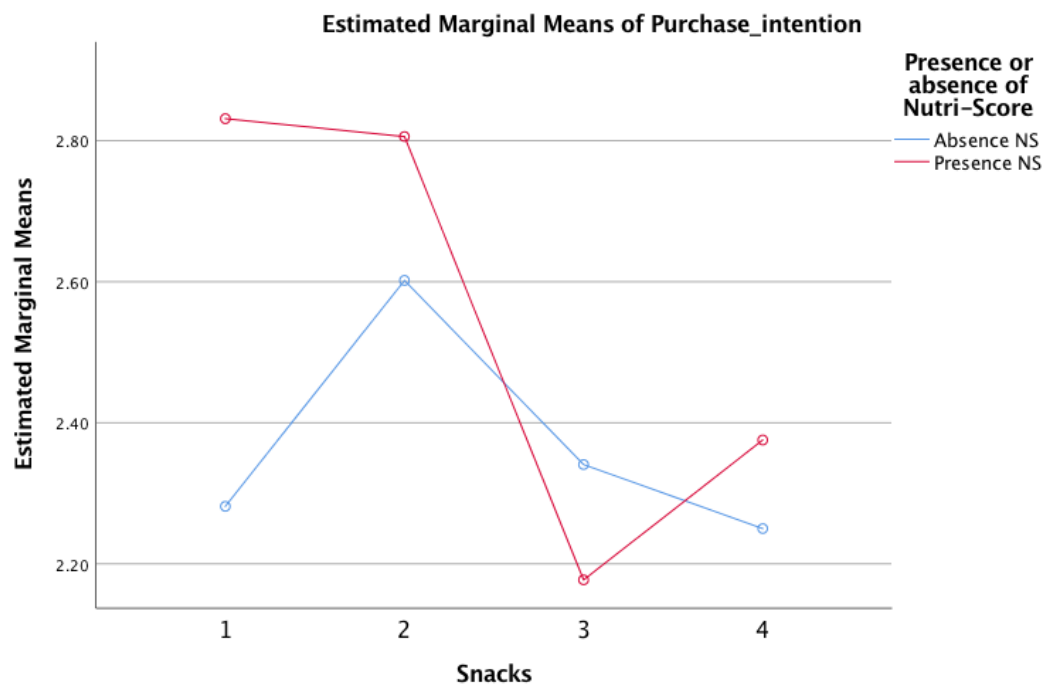


Table 88: Within-subjects factors with financial scarcity

Within-Subjects Factors	
Measure: Purchase intention	
Snacks	Dependent Variable
1	PI NS Rijst
2	PI NS Snelle
3	PI NS Hero
4	PI NS Yoghurt

Table 89: Descriptives with financial scarcity

Descriptive Statistics			
	Mean	Std. Deviation	N
PI NS Rijst	2.8312	1.11819	79
PI NS Snelle	2.8059	1.15791	79
PI NS Hero	2.1772	.95607	79
PI NS Yoghurt	2.3755	1.02583	79

Table 90: Mauchly's Test of Sphericity with financial scarcity

Mauchly's Test of Sphericity ^a							
Measure: Purchase intention							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse- Geisser	Huynh- Feldt	Lower- bound
Snacks	.822	14.887	5	.011	.889	.936	.333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + FS

Within Subjects Design: Snacks

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Table 91: Test of within-subjects effects with financial scarcity

Tests of Within-Subjects Effects							
Measure: Purchase intention							
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Snacks	Sphericity Assumed	5.370	3	1.790	1.795	.149	.023
	Greenhouse- Geisser	5.370	2.668	2.013	1.795	.156	.023
	Huynh-Feldt	5.370	2.808	1.912	1.795	.153	.023

	Lower-bound	5.370	1.000	5.370	1.795	.184	.023
Snacks * FS	Sphericity	2.762	3	.921	.923	.430	.012
	Assumed						
	Greenhouse-Geisser	2.762	2.668	1.036	.923	.422	.012
	Huynh-Feldt	2.762	2.808	.984	.923	.425	.012
	Lower-bound	2.762	1.000	2.762	.923	.340	.012
Error(Snacks)	Sphericity	230.351	231	.997			
	Assumed						
	Greenhouse-Geisser	230.351	205.398	1.121			
	Huynh-Feldt	230.351	216.224	1.065			
	Lower-bound	230.351	77.000	2.992			

Table 92: Test of between-subjects effects with financial scarcity

Tests of Between-Subjects Effects						
Measure: Purchase intention						
Transformed Variable: Average						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	46.383	1	46.383	119.420	.000	.608
FS	.686	1	.686	1.766	.188	.022
Error	29.907	77	.388			