The effect of nutritional knowledge and promotions on the purchase intention of meal-kits

Master Thesis Marketing

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Abstract

Given the growing popularity of meal-kits, it is essential to gain more knowledge surrounding those products related to consumers and meal-kits. The aim of this study is to examine to what extent nutritional knowledge and promotions influence the purchase intention of meal-kits and how this effect is mediated by perceived healthiness and perceived convenience. Most of the current research focuses on the drivers of purchasing convenience food and the drivers of purchasing healthy food. However, meal-kits belong to the category of healthy convenience food and limited research has been published on the drivers of purchasing healthy convenience food.

To answer the research question of this study, an online survey was conducted amongst Dutch respondents. The results show that the relationship between nutritional knowledge and the purchase intention of meal-kits is significantly mediated by perceived healthiness and perceived convenience. In addition, the effect of promotions on the purchase intention is not mediated by perceived healthiness or perceived convenience. The results of this study are valuable to managers of meal-kit companies, as these results provide information on factors that influence the purchase intention of meal-kits.

Keywords: meal-kits, nutritional knowledge, promotions, purchase intention.

Content

1. Introduction

Meal-kits are a commercial subscription service that delivers recipes and the necessary, pre-portioned, and fresh ingredients directly to households, enabling cooking at home (Fraser et al., 2022). Meal-kits have the proposition to reduce some of the stress of deciding what to cook for dinner and allow consumers to skip shopping and planning for meals (Fraser et al., 2022). Meal-kits can improve diet quality and remove obstacles to consuming meals together by reducing perceived barriers to planning and preparing home-cooked meals using mostly fresh ingredients (Moores et al., 2021). Additionally, meal-kits have the ability to support healthy eating behaviors (e.g., enabling cooking at home and eating vegetables) and therefore may influence population health and consumer eating behaviors (Moores et al., 2021).

In the Netherlands, meal-kits are rapidly increasing in popularity. In 2019, 4,6 percent of the Dutch households ordered a complete meal-kit. In the meantime, the percentage is 5,7 percent, according to figures from market researcher GfK (Emerce, 2020). The majority of the meal-kits are from HelloFresh, the largest supplier in the Netherlands (Maarse, 2018). Research by GfK shows that in 2019, 143.000 Dutch households ordered meal-kits from HelloFresh. This number has increased to 345.000 in 2021 (Statista, 2021). The reason for this growth can be explained by the increasing interest in combining convenience and health (Fernandez & Raine, 2021). Not only are more households opting for a meal-kit, the number of orders is also increasing; from about six times a year a meal-kit order in 2019 to an average of ten meal-kit orders in 2021 (ABNAMRO, 2020). The amount spent per household on meal-kits grew in two years from €271 to €438. Especially during the corona crisis, sales of meal-kits rapidly increased (Nielsen, 2020). Major meal-kit providers such as Marley Spoon and HelloFresh reported a surge in demand and exponential growth during the COVID-19 pandemic (Mitchell, 2020), which may be associated with consumers' reluctance to visit supermarkets, increased time at home to spend on meal preparation, and cooking or a lack of access to fresh produce (Ronto et al., 2021).

There is already quite some literature about healthy food and the purchase intention of healthy food (Bucher et al., 2015). There is also literature available about the drivers for purchasing convenience food (Brunner et al., 2010; Hertz & Halkier, 2017). However, literature on the drivers of the purchase intention for healthy convenience food is lacking. The information about healthy food and convenience food cannot be generalized to meal-kits, as meal-kits belong to the category of healthy convenience food (Khan & Sowards, 2018). From an empirical perspective, meal-kits share many similarities with the convenience food category,

but differ on specific points (Cho et al., 2020). Although meal-kits are marketed as 'convenient', they are not fully considered as 'convenience food' (Hertz & Halkier, 2017). "Definitions of convenience food, both narrow and broad, will always be dependent upon the social, cultural and historical context in which they are used" (Scholliers, 2015, p. 4). Meal-kits reduce or eliminate dinner-related tasks, such as grocery shopping or planning, but do not fully meet the definition of convenience food, because certain activities are not made easier (Hertz & Halkier, 2017). In the study by Brunner et al. (2010), they discussed multiple drivers for convenience food consumption. One important driver highlighted in the study was nutritional knowledge. They found that the more consolidated the knowledge of nutrition and the higher the concern with the naturalness of food, the lower the consumption of convenience food products (Brunner et al., 2010). A better understanding of nutritional value can help consumers use and interpret nutritional information to form a judgment about a product (Limbu et al., 2019). Several studies have reported that higher knowledge of nutrition is associated with higher consumption of fruits and vegetables (Ares et al., 2008). Consumers who have a high level of nutritional knowledge tend to select healthier products (Yoon & George, 2012). However, there is no literature available on the impact of nutritional knowledge on the purchase intention of healthy convenience food, such as meal-kits.

The meal-kit market is becoming more mature (Nielsen, 2018). Hence, more is spent on promotional actions to persuade customers to buy meal-kits. Feichtinger et al. (1988) shows that consumers who buy convenience foods are often not price sensitive because they are prepared to pay more in exchange for convenience, implying that demand for convenience food is inelastic. However, meal-kits probably have a more elastic demand than convenience food, due to lower convenience in terms of preparation time (Hertz & Halkier, 2017). Despite the increased use of promotions in convenience food (Raj et al., 2021; Mallinson et al., 2016), we lack knowledge on how promotions influence the purchase intention of healthy convenience food (Hertz & Halkier, 2017).

Furthermore, perceived healthiness and perceived convenience appear to be important when examining the relationship between nutritional knowledge and promotions and the purchase intention of healthy convenience food (Ares et al., 2008; Samoggia et al., 2019). Nutritional knowledge plays an important role in food evaluation and will determine whether a meal-kit is considered as healthy or as more convenient (Moores et al., 2021). In addition, there is evidence that consumers associate promotions with less healthy products and with more convenience as promotions may reduce search and decision costs (Chandon & Wansink, 2012). Therefore, this study includes perceived healthiness and perceived convenience as mediators

because they are expected to mediate the relationship between the independent variables and the dependent variable.

The purpose of this study is to investigate whether the drivers nutritional knowledge and promotions, which have been suggested to be important drivers for the purchase intention of healthy food and convenience food (Brunner et al., 2010; De Vriendt et al., 2009; Hertz & Halkier, 2017), are also important drivers for the purchase intention of meal-kits. The following research question will be addressed:

To what extent do nutritional knowledge and promotions influence the purchase intention of meal-kits and how is this effect mediated by perceived healthiness and perceived convenience?

There is already quite some literature about healthy food and convenience food and the drivers of purchase intention (Brunner et al., 2010; Hertz & Halkier, 2017; Bucher et al., 2015). However, little has been written about the drivers of meal-kit consumption and the purchase intention regarding meal-kits (Cho et al., 2020; Horning et al., 2021). This research will add to the existing literature on healthy convenience food in four ways.

First, this research will create more insight into the influence of nutritional knowledge on the purchase intention of meal-kits. In previous studies regarding convenience food, they often looked at health-related-motive orientations and convenience food (Geeroms et al., 2008; Costa et al., 2007; Buckley et al., 2007; de Boer et al., 2004). Convenience food is often associated with inferior and unhealthy ingredients due to its wasteful packaging, heavy reliance on main ingredients, and low nutritional value (Brunner et al., 2010; Jackson & Viehoff, 2016). The negative public health associations of convenience foods have been widely discussed in the literature, which posits a link between a number of health-related issues and high consumption of convenience foods (Van der Horst et al., 2011; Alkerwi et al., 2015). In the study of Brunner et al. (2010), it became clear that nutritional knowledge was negatively related to the consumption of convenience food. However, this negative relationship may not apply to meal-kits, as meal-kits are perceived as healthy convenience food, and literature on healthy food states otherwise (De Vriendt et al., 2009). Moreover, it is not clear what dominates in healthy convenience food. Currently, no specific research has been published that examines the effect of nutritional knowledge on the purchase intention of healthy convenience food, such as meal-kits. Therefore, this study might provide insights into the current stream of literature on attributes of healthy convenience food and food-buying behavior by investigating the relationship between nutritional knowledge and the purchase intention of meal-kits.

Second, this research will provide insights into the effect of promotions on the purchase intention of meal-kits. Promotions are seen as actions where the customer receives a benefit from the purchase (Gedenk et al., 2010). Therefore, promotions can be a possible solution to convince consumers who believe the price is too high (Blattberg & Neslin., 1990; Gedenk et al., 2010). Results of previous research on the effect of promotions, show that price is an important factor concerning the consumption and purchase intention of food (Hansen et al., 2018; Massey et al., 2018; Foubert et al., 2018). Consumers buying healthy food tend to be more sensitive to price and promotions (Nikolova & Inman, 2015). Therefore, consumers buying healthy convenience food may take price as the key consideration in their purchase decision. If the product is inexpensive, they tend to buy more and expect that they gain more benefits from the purchases (Wang et al., 2020). Promotions can be divided into non-monetary promotions, such as premiums, and monetary promotions, such as price-cuts (Gedenk et al., 2006; Büttner et al., 2015; Foubert et al., 2018). Previous studies focused primarily on monetary promotions and argued that monetary promotions can improve store performance by transforming visitors into buyers and attracting traffic (Büttner et al., 2015; Buil et al., 2013; Gedenk et al., 2010). Few studies have examined the effects of non-monetary promotions (Lowe & Barnes, 2012). No attempt has been made to examine how the purchase intention for meal-kits is affected by promotions, and particularly for non-monetary promotions. Consumers who buy healthy convenience food, such as meal-kits might differ from consumers buying general convenience foods regarding promotions. Therefore, this study might provide insights into the current stream of literature on promotions by investigating the relationship between promotions and the purchase intention of meal-kits.

Third, the link between nutritional knowledge and promotions is expected to be mediated by perceived healthiness and perceived convenience. Previous studies have examined the effect of nutritional knowledge on food choice and food evaluation (Andrews et al., 1998; Droms, 2006; Kozup et al., 2006; Brunner et al., 2010). According to Axelson & Brinberg (1992), nutritional knowledge influences health beliefs and food attitudes, which in turn influence purchase intention and consumer behavior. In the study by Wansink et al. (2005), it became clear that the consumption of food correlates with nutritional knowledge when people link the health-related attributes of the food to the consumption benefits of eating it. Furthermore, previous studies focused on sales promotions and the influence on perceived convenience and perceived healthiness (Chandon et al., 2000; Chandon & Wansink, 2012; Hawkes, 2008). According to Powell et al. (2016), consumers associate promotions with high convenience because it can reduce consumers' search and decision costs. Additionally,

promotions are associated with less healthy products, as promotions are particularly common for larger packed and less-healthy products (Bennett et al., 2020; Powell et al., 2016). There is no specific literature on this mediation relationship in the healthy convenience food literature. In that sense, by including the mediation effect of perceived healthiness and perceived convenience, a theoretical contribution is established.

Fourth, the effect of promotions on the perceived convenience and perceived healthiness of meal-kits is expected to be moderated by brand characteristics. According to Buil et al. (2013), promotions have different effects on national brands compared to private labels. Within the retail literature, national brands and private labels may moderate the relationship between promotions and purchase intention (Foubert et al., 2018). According to Foubert et al. (2018), the influence of price-cuts and premiums on the purchase intention is smaller for private labels than for national brands. Currently, there is no specific literature on these differences in the healthy convenience food literature. In that sense, by including the moderating effect of national brands versus private labels, a theoretical contribution is established.

This study will provide meal-kit providers with useful insights into the drivers that may determine the purchase intention of meal-kits. The focus on the impact of nutritional knowledge provides meal-kit providers with concrete information about the effect of nutritional knowledge on perceived healthiness and perceived convenience and in the end on the purchase intention of meal-kits. With this knowledge, meal-kit providers can reach their target group effectively and efficiently. In addition, this study will provide meal-kit providers with useful insights into the impact of promotions on the perceived healthiness and perceived convenience of meal-kits. With this knowledge, meal-kit providers gain insight into which promotional strategy will have the most favorable outcome for the purchase intention of meal-kits. Furthermore, this study will generate insights into the differences between national brands and private labels. This can help meal-kit providers in making decisions and in developing strategies aimed at competitors. Overall, the results of this study can help meal-kit providers to develop marketing strategies that clearly distinguish meal-kits from healthy food and convenience food.

The second chapter of this study provides an overview of all the relevant literature and concepts of this study: convenience food, meal-kits, healthy food, and promotions. Chapter three presents the conceptual model, and the hypotheses are explained. In chapter four, the methodology is discussed by describing the research design, the operationalization, and the research ethics.

Chapter five provides an overview of the results of the research. Finally, the sixth chapter provides academic implications, managerial implications, limitations, and future research.

2. Literature review

This chapter provides an overview of the main concepts of this study. First, convenience food and meal-kits will be explained and discussed. Second, a literature review on healthy food will be given. Finally, the concept of promotions will be discussed.

2.1 Convenience food

Although definitions are multiple and controversial, the term 'convenience food' encompasses a wide range of processed and semi-processed foods, often contrasted with 'fresh' foods based on raw ingredients and cooked from scratch (Jackson & Viehoff, 2016). 'Convenience food' is a very controversial category that is interpreted and used in many different ways (Halkier, 2013). Szabo (2011), for example, uses the term convenience food to refer to snack foods, packaged/canned/frozen/pre-prepared foods, fast foods, and the idea of convenience in providing foods that do not require direct consumer involvement in the work of growing and harvesting it. Brunner et al. (2010) divided convenience food into four different categories: salads, single components, moderately processed food, and highly processed food. Most definitions emphasize that convenience food is about products that save time (Brunner et al., 2010; Jackson & Viehoff, 2016). The aim of convenience food is "to help consumers minimize time as well as the physical and mental effort required for food preparation, consumption, and cleanup" (Brunner et al., 2010, p. 498). In addition, many tasks, activities, and culinary competencies essential to food preparation are being taken over by industries and services designed to ensure that cooking requires less energy, both mentally and physically (Darian & Cohen, 1995; Scholderer & Grunert, 2005). According to Warde (1999) and Shove (2003), convenience foods have become more important due to people's growing need for convenience, control, efficiency and to better manage and spend their time. Feichtinger et al. (1988), demonstrated in their research that people are often not price sensitive when buying convenience food, because they are prepared to pay extra in exchange for convenience. According to Jackson & Viehoff (2016), convenience food also has many disadvantages, even though it can facilitate the preparation of meals. The term convenience food is frequently associated with wasteful packaging and unhealthy food of low nutritional value (Howard et al., 2012). People's perception regarding convenience food often has an unfavorable image (Costa et al., 2007; De Boer et al., 2004), as consumers cannot control the food preparation process, which can lead to concerns about food quality (Carrigan, et al., 2006). Moreover, the ingredients used in the production process of convenience food are often responsible for consuming large

volumes of energy, water and land, high greenhouse gas emissions, and expensive transportation (Defra, 2012).

Concluding, convenience food is a multi-faceted term that is somewhat problematic when it comes to one overall definition. Some authors argue for a more general definition of convenience food since the term is too broadly defined (Scholliers, 2015, Jackson & Viehoff, 2016; Hertz & Halkier, 2017).

2.2 Meal-kits

Meal-kits are delivered in boxes and consist of pre-portioned ingredients that are often individually packaged (Hertz & Halkier, 2017). According to Nielsen (2020), meal-kits are positioned in the market as a healthy alternative to out-of-home meals for consumers who have limited time but are health conscious. Consumers have the expectation that they will be able to cook high-end quality food using meal-kits offering fresh ingredients and food quality (Reilly, 2019). The use of meal-kits can provide consumers with several benefits (Hertz & Halkier, 2017; Khan & Sowards, 2018). A first advantage of using meal-kits is that they can reduce the mental and physical effort required for cooking (Hertz & Halkier, 2017; Khan & Sowards, 2018). Meal-kits reduce the time spent on shopping and take the planning of the meal out of the hands of the consumer (Moores et al., 2021). Research by Hertz and Halkier (2017) found that meal-kit users felt less anxious and relieved about meal planning. The second advantage of using meal-kits is that they can provide inspiration for variations and cooking in the diet (Hertz & Halkier, 2017). According to Hertz and Halkier (2017), meal-kits are considered as a healthy alternative to other convenience foods because the dishes contain more vegetables and are more nutritious. The third advantage of using meal-kits is that they are more environmentally friendly than other convenience foods (Hertz & Halkier, 2017; Khan & Sowards, 2018). Food waste can be avoided by delivering only the necessary ingredients for the specified number of family members. In terms of packaging, meal-kits are also considered more environmentally friendly, as most ingredients (with the exception of sensitive ingredients) are packed separately in one box and consumers use fewer plastic bags than they would use to purchase, for example, individual vegetables (Ketelsen et al., 2020).

2.3 Healthy food

Healthiness is a very important product characteristic that determines the way people think about food products (Grunert, 2006). An internationally accepted recommendation for a healthy

diet is to eat a variety of ingredients and meals (Drescher et al., 2007). Several studies have shown that a varied eating pattern is associated with positive health effects (Kant et al., 1993). Bucher et al. (2015) states that experts and laypeople agree that there are some 'healthy' food groups, such as vegetables and fruits, and other food groups that should be consumed in moderation, such as fatty foods and foods high in sugar. Experts consider a number of criteria such as density, type of fat, energy, and sodium content to determine whether a food can be classified as healthy (Bucher et al., 2015). Nutrient profiling systems have been developed that combine multiple product attributes into one single score (Bucher et al., 2015). The purpose of these nutrient profiles is to categorize food based on its nutritional composition, taking into account current nutrition policy objectives (Lobstein & Davies, 2009). Nutritional profiles can be used to indicate that a product is nutritionally superior to another product. Therefore, they are expected to encourage the industry to change the composition of products (Rayner et al., 2009). Although nutritional profile scores allow objective evaluation of the healthiness of foods, little is known about how lay consumers weigh multiple nutritional criteria to evaluate the healthiness of individual food components or even meals (Paquette, 2005).

People who are motivated to maintain or improve their health by behaving in a health-conscious manner, and people who are concerned about or aware of their health, possess high levels of health awareness (Kraft & Goodell, 1993; Newsom et al., 2005). Consumers with high levels of health awareness exhibit corresponding health behaviors, such as making healthy food choices (Moorman & Matulich, 1993). Consumers are more willing to accept functional foods if they follow a healthy diet or lifestyle (Verbeke, 2005). According to Ares et al. (2008), consumers with a low level of nutritional knowledge are not interested in the consumption of healthy products, while consumers with a high level of nutritional knowledge are interested in the additional value of healthy products. This implicates that, in addition to health awareness, nutritional knowledge is also an important factor in the consumption of functional foods. Furthermore, Ross & Melzer (2016) identified two important barriers to healthy eating, including costs of healthy food and lack of time. For people who were already struggling with busy work and family schedules, the time required to shop for groceries and prepare meals proved to be a major obstacle to healthy eating. Relying on quick microwave meals or eating out-of-home often took the place of consuming a home-cooked meal (Ross & Melzer, 2016). In addition, the cost of fresh food was also cited as a major barrier to healthy eating. According to Ross & Melzer (2016), offering a healthier substitute is a great way to promote healthy eating. However, it can be seen as a barrier when the healthier option is more expensive (Ross & Melzer, 2016).

2.4 Promotions

Sales promotion is a ubiquitous, and in some cases dominant, component of a company's marketing mix. It can be defined as an "action-oriented marketing event whose purpose is to have a direct impact on the behavior of the firm's customers" (Christiana, 2015, p. 394). Sales promotions include price discounts, trade deals, feature advertising, special displays, coupon rebates, sweepstakes, reward programs, and contests (Lowe & Barnes, 2012). Promotions have a noticeable impact on the behavior of customers as the definition of promotions suggests. However, they tap into and induce significant competitive responses and trigger important psychological processes in the minds of consumers (Shu & Peck, 2011). According to Gedenk et al. (2010), managing retail promotions is not trivial. Retailers can use many different types of monetary promotions, such as temporary price reductions, multi-item promotions, and coupons, and combine them with non-monetary promotions such as displays, features, and other materials (Drechsler et al., 2017). In addition, retailer promotions can have many different effects. The effects of promotions and the increase in sales may result in, for example, store switching, category switching, stockpiling, increased consumption, or brand switching (Gedenk et al., 2010). Moreover, manufacturers and retailers pursue different goals, and retailers have to take into account its impact on their own margins when planning their retail promotions and the manufacturer's trade promotion policy. Over the last 25 years, a large research effort has been spent on studying the effects of promotions (Neslin, 2002; Gedenk et al., 2018; Vigna & Mainardes, 2019; Peschel, 2021). All definitions related to promotions have in common that promotions are temporary marketing activities that are used to influence consumer and buying behavior (Blattberg & Neslin, 1990). Several studies distinguish between two different types of promotions: monetary promotions and non-monetary promotions.

This study focuses on price-cuts (monetary promotions) and premiums (non-monetary promotions), as these are important promotions in the retail sector according to Foubert et al. (2018) and Gedenk et al. (2010). Monetary promotions can be very efficient in producing short-term effects on sales (Alvarez & Casielles, 2005; Gedenk et al., 2010), but can have negative effects on brand equity and price sensitivity (Kalwani & Yim, 1992; Mela et al., 1997; Yi & Yoo, 2011). Non-monetary promotions do not show these negative effects on brand equity and increased price sensitivity, but their influence on the attractiveness of the offer and marketing share is often lower than that of monetary promotions (Alvarez & Casielles, 2005; Chandon et al., 2000; Palazón & Delgado-Ballester, 2011). Both types of promotions (monetary and non-monetary) may have different effects on consumer behavior and ultimately on buying behavior (Srinivasan & Anderson, 1998). According to Chandon et al. (2000), monetary and non-

monetary promotions differ in the type of psychological benefit they provide to consumers. Monetary promotions have mainly utilitarian benefits such as more quality for the same price, money savings, or a decrease in search costs (Chandon et al., 2000). Non-monetary promotions, on the other hand, provide mainly hedonic benefits, such as the expression of personal values, exploration, or entertainment (Chandon et al., 2000). Consumers prefer price-cuts for high-risk products because they are less likely to build up inventory for these types of products (Lowe & Barnes, 2012; Sinha & Smith, 2000). Gedenk et al. (2006) states that non-monetary promotions can be split up into 'true promotions' and 'supportive promotions'. Supportive promotions can be used without monetary promotions, but they are often used in combination with monetary promotions, such as price-cuts (Gedenk et al., 2006). According to Lowe & Barnes (2012), monetary and non-monetary promotions are likely to differ depending on the innovativeness of a product. According to current theory, consumers evaluate non-monetary promotions as separate gains and monetary promotions as reduced losses in existing product categories, due to the degree to which the units of the promotion are proportional to the price of the product (Lowe & Barnes, 2012).

In conclusion: multiple studies in the academic literature show that, in the short-term, sales promotions lead to a significant increase in the sales of the promoted product. Research on monetary promotions shows that the greater the degree of the discount, the greater the increase in sales (Blattberg & Neslin, 1990; Ailawadi et al., 2007). By influencing consumers' buying behavior, sales promotions can lead to changes in food-consumption patterns (Paine-Andrews et al., 1997). However, these effects are complex; the impact of the promotions varies widely according to the type of promotion, the type of customer, and the type of product (Hawkes, 2008).

3. Conceptual model

In this chapter, the relationships between the variables in the conceptual model will be explained. This study focuses on the purchase intention for meal-kits as the dependent variable. The conceptual model consists of two independent variables: nutritional knowledge and promotions. The variable promotions is divided into three categories: no promotion, monetary promotions (price-cuts), and non-monetary promotions (premiums). Furthermore, two mediators are included in the model: perceived healthiness and perceived convenience, as these are important variables that can mediate the relationship between the two independent variables (nutritional knowledge and promotions) and the dependent variable (purchase intention) (Bennett et al., 2020; Powell et al., 2016). Additionally, the relationship between promotions and the perceived healthiness and perceived convenience of meal-kits is expected to be moderated by the brand characteristics national brand and private label (Foubert et al., 2018). The conceptual model is shown in figure 1.

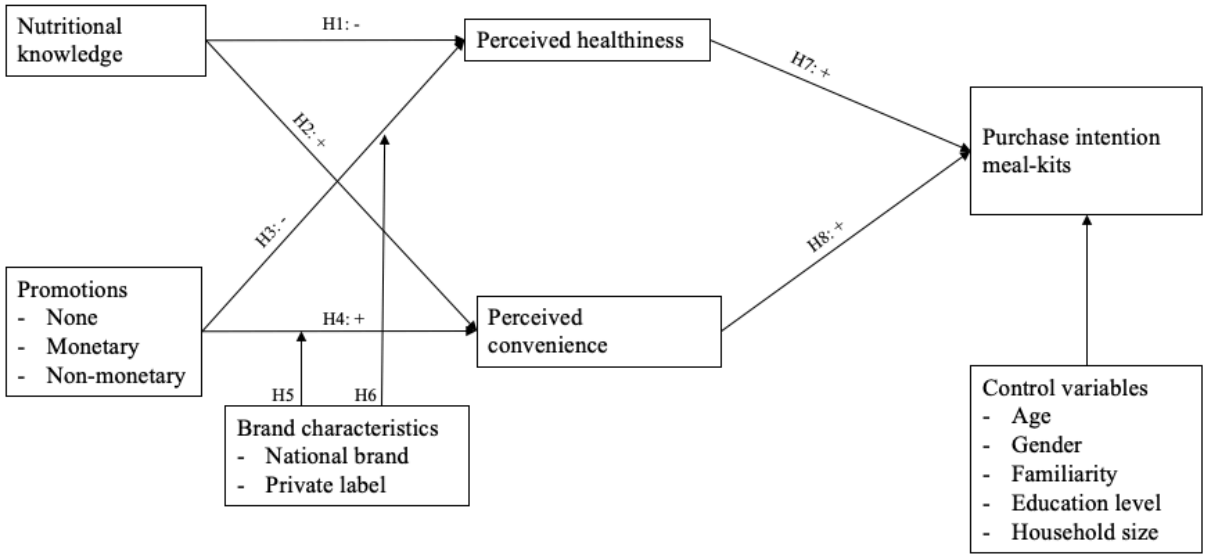

Figure 1. Conceptual model

3.1 Nutritional knowledge

Several studies have shown that nutritional knowledge has a negative impact on convenience food, but has a positive impact on the consumption of healthy food (Brunner et al., 2010; Spronk et al., 2014). Knowledge has been credited with providing the power to perform cognitive processes (Miller & Cassady, 2015). Nutritional knowledge renders attention, memory, comprehension, and decision-making processes more efficient and is therefore powerful (Chiesi et al., 1979; Ericsson & Kintsch, 1995). Several studies that focus on food choice and healthy

eating behavior have examined that nutritional knowledge and the motivation to engage in healthy behaviors are critical factors (Moorman et al., 2004; Moorman & Matulich, 1993; Wardle et al., 2000). Particularly, there is evidence that nutritional knowledge plays a crucial role in consumers' use of nutrition labels (Drichoutis et al., 2005), as well as in food selection and food evaluation (Andrews et al., 1998; Droms, 2006; Kozup et al., 2006). Therefore, nutritional knowledge could be one of the factors influencing food choice. A certain level of nutritional knowledge is necessary to make healthy food choices, given the abundance of possibilities for food choices in Western societies (Brug et al., 2008). Most studies on nutritional knowledge found significant relationships between high levels of nutritional knowledge and healthier food consumption (especially higher consumption of fruits and vegetables) (Spronk et al., 2014). According to the study by Spronk et al. (2014), consumers with a high level of nutritional knowledge ate more favorable (e.g., fruit and vegetables) and less unfavorable foods (e.g., meat products) and showed a higher diet quality overall. According to the study by Brunner et al. (2010), nutritional knowledge has a negative effect on the consumption of convenience food because convenience food is associated with unhealthy and inferior ingredients.

Meal-kits are considered as healthy convenience food since they consist of fresh ingredients rather than pre-cooked or frozen ingredients (Hertz & Halkier, 2017). Consumer attitudes towards health are central when it comes to the acceptance of food. In the marketplace, meal-kits are positioned as a healthy alternative to away-from-home meals for consumers who have limited time but are health conscious (Nielsen, 2020). However, the nutritional quality of meal-kits has recently been questioned by nutritional professionals (Moores et al., 2021). Two nutritional analyses of meal-kit services in Australia revealed that, on average, meal-kit recipes contained an adequate number of vegetables, but excess quantities of salt, protein, and dietary fat (Moores et al., 2021; Gibson & Partridge, 2019). Moreover, people who have a high level of nutritional knowledge want to be able to decide for themselves which products they will buy (Hakli et al., 2016; Spronk et al., 2014). Meal-kits contain many different products and ingredients, which may cause doubts for people with a high level of nutritional knowledge, as it is beyond their control (Spronk et al., 2014). According to Grunert & Wills (2007), the more consumers know about nutrition, the more likely they are to want to choose the ingredients themselves, because then they know exactly the nutritional composition of the meal. Therefore, consumers with a high level of nutritional knowledge are more inclined to purchase all the ingredients themselves (Grunert & Wills, 2007). Moreover, it is expected that people with a high level of nutritional knowledge are more likely to categorize meal-kits as convenience

products, as they do not immediately consider meal-kits to be healthy but as time- and effort-saving options (Cho et al., 2020). Given these findings, it is expected that a high level of nutritional knowledge of consumers has a negative effect on the perceived healthiness of meal-kits and has a positive effect on the perceived convenience of meal-kits.

H1: A high level of nutritional knowledge decreases the perceived healthiness of meal-kits.
H2: A high level of nutritional knowledge increases the perceived convenience of meal-kits.

3.2 Promotions

Promotions are common strategies in the food industry to attract consumers to their products and increase sales (Blattberg & Neslin, 1990). In general, researchers find large sales boosts from price-cuts. Khan and Sowards (2018) found that meal-kits are often perceived as expensive products. Moreover, it is expected that meal-kits have a more elastic demand than convenience food and consumers tend to be more price sensitive, because meal-kits are not fully considered as convenience food (Khan & Sowards, 2018). Therefore, consumers buying meal-kits will be strongly influenced by price and promotions. Since promotions can generate a boost in demand, it can be expected that the purchase intention of meal-kits increases when a promotion is applied compared to when no promotion is applied. Different types of promotions can be used to achieve the desired effects. This study focuses on monetary promotions (price-cuts) and non-monetary promotions (premiums), where it is expected that, in the case of meal-kits, monetary promotions have a stronger effect than non-monetary promotions. There are several reasons that suggest that a monetary promotion may be more effective than a non-monetary promotion. First, there is increasing competition within the meal-kits market. According to Lal (1990), temporary discounts are most effective in competitive sectors. Second, the money saved from a monetary promotion is completely fungible and can be allocated flexibly, whereas the benefits of a non-monetary promotion are fixed (Heilman et al., 2002). Third, the research of Sinha and Smith (2000) shows that monetary promotions work better than non-monetary promotions for expensive products. Since meal-kits are expensive compared to single ingredients for the same meal and are perceived as expensive products by consumers (Khan & Sowards, 2018), it is expected that monetary promotions work better than non-monetary promotions.

Promotions are often associated with less healthy products (McKeown & Thomas, 2013; Samoggia et al., 2019). Additionally, literature also suggests that both monetary and non-

monetary promotions are applied to less healthy foods (Bennett et al., 2020). In general, it is assumed that retailers promote unhealthy foods more heavily than healthy foods (Bennett et al., 2020). Therefore, it is expected that the impact of monetary promotions on the perceived healthiness compared to no promotion is negative. In addition, it is also expected that the impact of non-monetary promotions on perceived healthiness compared to no promotion is negative. Given the prevalence of arguments in favor of monetary promotions, it is expected that monetary promotions have a stronger impact on perceived healthiness than non-monetary promotions.

H3a: The impact of monetary promotions versus no promotion on the perceived healthiness of meal-kits is negative.
H3b: The impact of non-monetary promotions versus no promotion on the perceived healthiness of meal-kits is negative.
H3c: The impact of monetary promotions versus non-monetary promotions on the perceived healthiness of meal-kits is negative.

Consumers are constantly searching for solutions that will minimize their effort and time in procurement methods and in meal preparation (Cho et al., 2020). McNeill (2012) states that convenience is not only about products, packaging, or store formats. It means more than the new engagement strategies or the latest developments in technology (McNeill, 2012). According to Chandon et al. (2000), monetary promotions and non-monetary promotions can reduce consumer search and decision costs and therefore improve the perceived convenience. Today's customer is said to be increasingly short on time and somewhat 'jaded' to marketing messages, and thus would be more likely to be influenced by promotions because of the convenience (McNeill, 2012). Since meal-kits are marketed as time-saving products that offer value for money, promotions may increase consumption through greater perceived convenience (Chandon & Wansink, 2012; Hawkes, 2008). Additionally, the study by Bennett et al. (2020), shows that promotions attract customers, because promotions facilitate and shorten the decision-making process, which increases the convenience of purchasing a product. Olsen et al. (2012) implies that this is also the case in the context of healthy convenience food. Therefore, it is expected that the impact of monetary promotions on the perceived convenience compared to no promotion is positive. In addition, it is also expected that the impact of non-monetary promotions on perceived convenience compared to no promotion is positive. Finally, it is

expected that non-monetary promotions have a smaller impact than monetary promotions on perceived convenience.

H4a: The impact of monetary promotions versus no promotion on the perceived convenience of meal-kits is positive.
H4b: The impact of non-monetary promotions versus no promotion on the perceived convenience of meal-kits is positive.
H4c: The impact of monetary promotions versus non-monetary promotions on the perceived convenience of meal-kits is positive.

3.3 National brand versus private label

Nowadays, meal-kits are offered by both national brands (HelloFresh) and private labels (Allerhande Box Albert Heijn). Increasing promotional spending in attempts to increase perceived convenience and halt the migration of value-conscious consumers has been a common response by private label manufacturers (Puelles et al., 2016). There is evidence that national brand promotions are effective deterrents of private label penetration (Gielens et al., 2021). However, other studies suggest that significant and frequent promotions of national brands may have a negative effect on perceived healthiness and can erode brand loyalty (Samoggia et al., 2019). For retailers, ubiquitous and well-known national brands are appealing targets for promotions, because they can attract customers to stores by increasing perceived convenience (Ailawadi et al., 2001). Promotions are an attempt by the retailer to define its brand in the competitive environment (Olbrich & Jansen, 2014). According to Olbrich et al. (2017), a high price promotion attracts customers and ultimately results in higher market share and higher perceived convenience for the corresponding, promoted national brands. However, for private labels, a high promotion share may lead to low market shares and is often associated with lower healthiness (Olbrich et al., 2016). Private label promotions are probably a strategic attempt to dispose of poorly selling products (Olbrich et al., 2017). In addition, customers who purchase products of private labels generally seek non-varying prices, to reduce the effort involved in comparing prices and thereby increase convenience (Olbrich & Grewe, 2009; Ortmeyer et al., 1991). Private labels are used by retailers to increase the attractiveness of their stores and to communicate their pricing competency (Olbrich & Jansen, 2014). Therefore, Olbrich & Jansen (2014) argue that private labels should be offered at a low, non-varying price, which results in a low promotion share for these products.

According to Khan & Sowards (2018), meal-kits are expensive compared to single ingredients for the same meal and are perceived as expensive products by consumers. Moreover, meal-kits are likely to have more elastic demand and consumers are expected to be more sensitive to price and promotions in contrast to earlier findings that consumers are less price sensitive to convenience products (Ririn et al., 2019). Previous research has shown that both non-monetary promotions (Buil et al., 2013) and monetary promotions (Gedenk et al., 2010) tend to be more effective for national brands than for private labels. According to Foubert et al. (2018), this may be the case for two reasons. First, consumers tend to pay more attention to promotions of well-known brands (Buil et al., 2013; d'Astous & Jacob, 2002). Well-known brands benefit more from promotions compared to lesser-known brands (Datta et al., 2017). This applies to non-monetary promotions as well as monetary promotions. However, the second reason applies only to monetary promotions. A lower price makes national brands affordable to price sensitive consumers, who usually purchase the cheaper private labels, but now have the opportunity to buy another, too expensive product (Foubert et al., 2018). Buyers of national brands may not want to give up quality to benefit from the lower price of the private label, resulting in a lower impact of a monetary promotion for a private label (Blattberg & Wisniewski, 1989). Consumers who buy national brands also associate buying national brands with greater perceived convenience than private labels when a monetary promotion is provided and do not want to switch to private labels when a monetary promotion is offered (Steenkamp et al., 2010). Additionally, Mauri et al. (2015) believes that monetary promotions of national brands have a stronger negative effect on the dietary quality of a product compared to non-monetary promotions. One possible explanation could be that national brands have stronger personalities for their brands which could be affected by a monetary promotion (Rossi et al., 2015). On the other hand, consumers who buy private labels tend to be more influenced by non-monetary promotions, because they do not want varying prices and stick to their private label (Foubert et al., 2018). Therefore, it is expected that the impact of non-monetary promotions on the perceived convenience and perceived healthiness is higher for private labels than for national brands. For national brands, it is expected that monetary promotions, unlike non-monetary promotions, have a higher impact on perceived convenience and perceived healthiness.

H5a: The impact of monetary promotions versus no promotion on the perceived convenience of meal-kits is higher for national brands than for private labels

H5b: The impact of non-monetary promotions versus no promotion on the perceived convenience of meal-kits is lower for national brands than for private labels.
H5c: The impact of monetary promotions versus non-monetary promotions on the perceived convenience of meal-kits is higher for national brands than for private labels.

H6a: The impact of monetary promotions versus no promotion on the perceived healthiness of meal-kits is higher for national brands than for private labels
H6b: The impact of non-monetary promotions versus no promotion on the perceived healthiness of meal-kits is lower for national brands than for private labels.
H6c: The impact of monetary promotions versus non-monetary promotions on the perceived healthiness of meal-kits is higher for national brands than for private labels.

3.4 Perceived healthiness and perceived convenience

Meal-kit services have been evolving to meet consumers' needs (Moores et al., 2021). Examples include using eco-friendly insulation materials, including organic ingredients, and providing more convenience in meal preparation (Hertz & Halkier, 2017). A vital role in increasing food consumption is the adding of convenience to foods, such as pre-cut ingredients (Yoon & George, 2012). Stein et al. (2019) and Wolfson et al. (2016) showed in their research that lack of time is often seen as a barrier to the consumption and preparation of healthy food. Meal-kits offer these convenience features by delivering pre-cut raw ingredient bundles with recipe cards in a box for a complete home-cooked meal (Yoon & George, 2012). Findings indicate that meal-kits may contribute to a healthier diet by offering convenience in grocery shopping, meal preparation, and meal planning (Mialki et al., 2020; Stein et al., 2019). Therefore, it is expected that the perceived convenience of meal-kits positively increases the intention of consumers to purchase meal-kits. In addition, meal-kits are often geared at providing a balanced, healthy meal (Fraser et al., 2022). Several studies have shown that meal-kits are generally recognized as healthy by consumers based on the list of fresh ingredients such as vegetables (Cho et al., 2020; Hertz & Halkier, 2017; Moores et al., 2021). In a recent study by Fraser et al. (2022), most participants stated that they considered the portions of the meal-kit to be healthy and in line with nutritional guidelines. The results of the study indicate that most participants believed that meal-kits were healthy because they contained core foods and fresh ingredients (Fraser et al., 2022). Therefore, it is expected that the perceived healthiness of meal-kits positively increases the intention of consumers to purchase meal-kits.

H7: Consumers' perceived healthiness increases their intention to purchase meal-kits.

H8: Consumers' perceived convenience increases their intention to purchase meal-kits.

H9: The impact of nutritional knowledge and promotions on the purchase intention of meal-kits is mediated by perceived healthiness and perceived convenience.

4. Methodology

In this chapter, the research methodology will be discussed. First, the research design will be explained. Thereafter, it will be discussed how the variables central in this study are operationalized according to which scales are used. Next, the statistical design will be explained. The final section of this chapter will explain the research ethics.

4.1 Research design

A quantitative research method was applied to collect data about the purchase intention of meal-kits. Using quantitative research, a comprehensive study can be made, enabling generalization of findings and involving more subjects (Holton & Burnett, 2005). It requires careful experimental design and the ability for anyone to replicate the study, which makes the data more reliable and less open to argument (Field, 2018). As a result, interpreting the data and presenting the findings is straightforward and less open to error and subjectivity.

To test the hypotheses, an online survey-experiment was designed. A survey was used, because it facilitates gathering much information in a limited time period (Selm & Jankowski, 2006). Within this online survey-experiment, the independent variables were manipulated to discover the effects on the dependent variable (Charness et al., 2012). The design of the study consisted of a 3 (promotions: none promotion, price-cuts, and premiums) x 2 (brand characteristics: national brand versus private label) between-subjects design. This means that different groups of participants were assigned to different conditions, with each participant experiencing only one of the experimental conditions (Mullet & Chasseigne, 2018). The decision was made to conduct a between-subjects design, because it minimizes the transfer and learning of participants across conditions (Sauro, 2015). After a respondent has completed a series of questions, he or she is more knowledgeable about the domain than that person was before (Charness et al., 2012). That knowledge is likely to help the participant become more efficient in a second survey, even though that second survey may be different from the first. With between-subject design, this transfer of knowledge is not an issue (Sauro, 2015). Participants are never exposed to several levels of the same independent variable. A second reason why the decision was made to conduct a between-subjects design is that it has shorter sessions than within-subject designs (Budiu, 2018). Respondents who test one condition or treatment will have a shorter session than those who test two or more. Shorter sessions can be more appropriate for remote unmoderated testing and are less tiring for respondents (Sauro, 2015). Moreover, especially when you use multiple independent variables in your research,

between-subjects designs are easier to set up. The reason has to do with the order randomization, to make sure there are no order effects (Charness et al., 2012). It would be more difficult to apply a within-subjects design when a study involves multiple independent variables, because randomization becomes more difficult to implement within some of the existing platforms for quantitative usability testing, as each respondent requires a random order of the stimuli (Field, 2018).

Furthermore, within this study, self-administered questionnaires (SAQ) were used. A self-administered questionnaire is a structured form that consists of a series of open-ended and closed-ended questions (De Leeuw, 2008). It is called self-administered as the respondents fill it in themselves, without an interviewer. Lavrakas (2008, p. 803) defined SAQs as: "a self-administered questionnaire (SAQ) refers to a questionnaire that has been designed specifically to be completed by a respondent without the intervention of a researcher (e.g., an interviewer) collecting the data". The lack of interference from the researcher is one advantage of self-administered questionnaires (Vannette, 2014). Participants can fill in the questionnaire at their own speed and may feel less fear of judgment (De Leeuw, 2008). It helps the researcher to reduce the costs of data collection in the study. Self-administered surveys are more convenient for participants, because they do not have to fill the questionnaires immediately, which can improve the survey participation rates (Vannette, 2014). Because participants do not have to fill and submit the questionnaire immediately, they can take their time to think about each question and fill in the best responses (De Leeuw, 2008). This helps to improve the validity of the data. It also reduces research bias, since the researcher does not have any contact with the respondents when they fill out the survey (Vannette, 2014). This limits the researcher's ability to physically influence participants' responses. In addition, respondents experience more privacy with self-administered questionnaires (De Leeuw, 2008). The absence of the researcher can make the participant feel comfortable and more willing to provide unconventional and unique answers (De Leeuw, 2008). Moreover, using self-administered questionnaires for data collection allows researchers to gather data from large sample sizes spread over different geographical locations (Lavrakas, 2008).

The language of the questionnaire was presented in Dutch to prevent misunderstandings as the study was conducted in the Netherlands. Respondents were approached via several social networks such as Facebook, Instagram, and LinkedIn and were randomly assigned to one of the six different scenarios. To ensure internal validity, measurement scales from previous academic studies were used. The scales that were used in this study, were initially developed in English, but have been translated into Dutch. A back translation method was used for translating the

scales, in order to obtain an adequate translation (Douglas & Craig, 2007). The size of the sample was determined based on the rule of thumb conducted by Hair et al. (2018). They stated that the minimum sample size is 50 and preferably 100 observations. The minimal sample size for regression analysis is 5 observations per independent variable (Hair et al., 2018). However, the desired level is between 15 to 20 observations for each independent variable. When this level is reached, the results should be generalizable if the sample is representative. Hence, this study aimed for a sample size of at least 120 respondents. Accounting for a non-response rate of 40% (Nayak & Narayan, 2019), the sample size should be at least 170 respondents.

4.2 Operationalization

It is important to use scales that are valid and have been tested in previous literature to ensure validity and reliability. A selection of scales was made based on the literature and are summarized in table 1 and table 2.

Scenarios were used in this study. As mentioned earlier, a 3 x 2 between-subjects design was applied. This means that every participant was randomly assigned to one of the six different scenarios. When describing the scenarios, existing meal-kits were used to represent a national brand and a private label. HelloFresh represented the national brand as it is the largest supplier in the Netherlands (Maarse, 2018). The Allerhande Foodbox of Albert Heijn represented the private label, because Albert Heijn is the largest and best-known supermarket in the Netherlands (Levensmiddelenkrant, 2022). To measure the effect of promotions, respondents were manipulated by showing them either no promotion, a monetary promotion (price-cut), or a non-monetary promotion (premium). The price-cut was 50%, as this percentage is commonly used in the fast-moving consumer goods industry (Tarallo et al., 2019). In addition, this percentage is similar to the percentages most commonly used by HelloFresh and other meal-kit suppliers (HelloFresh, 2022). The premium was presented by showing the respondents a situation in which they would receive a free kitchen tool kit. This non-monetary promotion was chosen because this is also used by meal-kit suppliers such as Marley Spoon and HelloFresh (Maarse, 2018). The price-cut and the premium correspond in terms of absolute advantage in price by taking a percentage of 50%. Respondents were exposed to one of the six scenarios. For each scenario, questions were asked about the purchase intention, the perceived healthiness, and the perceived convenience. In the first scenario, purchase intention was measured without any promotion. In the second scenario, purchase intention was measured by a price-cut and in the third scenario, purchase intention was measured by a premium. To measure the moderated

effect of national brands and private labels, respondents were manipulated by showing them either a private label meal-kit or a national brand meal-kit. The prices of the meal-kits shown to the participants were based on the current prices of the market. These prices were the same for both national brands and private labels and therefore will not affect the results. Moreover, maintaining the same price also ensures that the relative value of the free kitchen tool kit is the same for HelloFresh as for Albert Heijn.

Nutritional knowledge was measured with the scale developed by Dickson-Spillmann et al. (2011). The aim of developing the scale was to create a short scale based on the consumers' natural language of food (Dickson-Spillman et al., 2011). This scale has also been used in other studies on convenience food and has been tested on reliability and validity (Cronbach's alpha = 0.72) (Brunner et al., 2010). Nutritional knowledge was measured by asking the participants to choose one of the three answer options, namely whether the statement is correct, incorrect, or whether they don't know. According to Dickson-Spillmann et al. (2011), people possess a high level of nutritional knowledge if they have answered 80% or more statements correctly.

Furthermore, perceived convenience was measured by a 7-point Likert scale derived from the studies of Jang et al. (2011) and Pham et al. (2018). The reliability of this scale is reported to have an alpha of 0.90. Perceived healthiness was measured by 3 items from the food or eating behavior questionnaires in the study of Jang et al. (2011) and Kim et al. (2018). The reliability of this scale is reported to have an alpha of 0.76. The reason why these two scales were chosen, is because the items in this scale capture the degree to which people perceive the meal-kit as healthy or as more convenient. The two mediators (perceived convenience and perceived healthiness) were measured on a 7-point Likert scale, with answers ranging from 'strongly disagree (1) to strongly agree (7)'. The Likert scale is widely used and is easy to understand for respondents (Dawes, 2008). Additionally, to measure purchase intention, the scale developed by Ko et al. (2015) was used. This scale measures the likelihood of a consumer who is seeking out and trying to buy a particular product or brand. The scale consists of three items and is based on a 7-point Likert scale. The construct reliability of this scale is reported to have an alpha of 0.83 (Ko et al., 2015). Finally, in this study five control variables were used: age, gender, familiarity with meal-kits, education level, and household size. These variables were included in the model, because demographic variables can influence the purchase intention of meal-kits (Brunner et al., 2010; Omar et al., 2016).

Variable	*Operationalization*	*Source*
Nutritional knowledge	Lentils contain only a few useful nutrients; therefore, their health benefit is not great. The health benefit of fruit and vegetables lies only in the supply of vitamins and minerals. A healthy diet means nothing else than eating vitamins. Fat is always bad for your health; you should therefore avoid it as much as possible. A healthy meal should consist of half meat, a quarter vegetables, and a quarter side dishes. If you have eaten high-fat foods, you can reverse the effects by eating apples. Whole meal foods contain fiber, which is of no use for digestion. To eat healthily, you should eat less. Whatever foods you decrease does not matter. If chips did not contain so much salt, you could eat more of them without any problem.	Dickson-Spillmann et al., 2011
Promotions	Two dummy variables that indicates whether the meal-kit is accompanied by a monetary promotion (0/1) or non-monetary promotion (0/1).	
National brand versus private label	One dummy variable that indicates whether the meal-kit is a national brand (0/1).	

Perceived healthiness	The meal-kit will help me cook healthy food at home. The meal-kit avoids food additives and uses ingredients with no preservatives. Meal-kits are healthier alternatives to food options such as prepared foods from grocery stores or restaurants.	Jang et al., 2011; Kim et al., 2018
Perceived convenience	The meal-kit delivers ingredients with easy-to-follow recipes straight to the doorstep. Using the meal-kit, I can cook food quickly and efficiently. The meal-kit allows me to reduce time to prepare, cook and even clean up.	Jang et al., 2011; Pham et al., 2018
Purchase intention	Unlikely/likely Definitely would not/definitely would Improbable/probable	Ko et al., 2015

Table 1. Operationalization variables

Control variables	
Age	What is your age?
Gender	a. Male b. Female c. Neutral
Familiarity with meal-kits	a. Never heard of it b. Somewhat heard of it c. Know a little d. Know it well e. Know it very well
Education level	a. None b. Primary education

	c. Secondary education d. Secondary vocational education e. Higher professional education f. University education
Household size	a. 1 person b. 2 persons c. 3 or more persons

Table 2. Operationalization control variables

4.3 Statistical design

The online questionnaire was developed and distributed with the program Qualtrics. A pre-test was conducted to validate the online questionnaire. The program Qualtrics was used because the obtained data could then easily be exported to the data analysis program IBM SPSS Statistics. A multiple regression analysis was conducted in this study to analyze the effect of nutritional knowledge and promotions on the purchase intention of meal-kits, while being mediated by perceived healthiness and perceived convenience. To investigate the mediation effect, PROCESS analysis (model 4) was applied using the bootstrap procedure in SPSS (Hayes, 2012). PROCESS was used because it combines many of the functions of popular procedures and tools (such as SOBEL, RSQUARE, and INDIRECT) into one simple procedure (Hayes, 2012). Moreover, PROCESS greatly expands the number of models that combine moderation and mediation and allows mediators to be linked serially in a causal sequence rather than only in parallel (Hayes, 2012). It also offers measures of effect size for indirect effects in both single and multiple mediator models (Hayes, 2012).

Two interaction variables were generated by multiplying the independent variable promotions by the moderator brand characteristics. Furthermore, a new variable was computed that averaged the scores from respondents on the items for purchase intention, to compare the purchase intention between groups (summated score purchase intention). In order to include the categorical variables promotion and educational level in the regression analysis, dummy variables were computed. Within this study, three models have been developed. The first model (Table 7) investigates the influence of the independent variables and moderator on the perceived healthiness. The second model (table 8) investigates the influence of the independent variables and moderator on the perceived convenience. The third model investigates the influence of the mediators on the purchase intention (Table 9). Finally, in Tables 10 and 11, the mediation effects were investigated.

4.4 Research ethics

Various ethical aspects were taken into account when conducting the study. Ethical principles ensure that participation in research is safe, voluntary, and informed for participants (Vanclay et al., 2013). The first, and most important ethical aspect is anonymity. In this research, anonymity is guaranteed by not collecting any personal identifying information, such as name, phone number, or email. Secondly, participants were free to choose to participate in the study without any pressure or coercion. All participants were able to withdraw from or leave the study at any point in time without feeling an obligation to continue. Within this study, the researcher made clear to participants that there would be no negative consequences or repercussions to their refusal to participate. Third, informed consent was taken into account during this research. This means that all participants receive and understand all the information they need to decide whether they want to participate (Jefford & Moore, 2008). This was established by introducing the survey with a short description of the research and the purpose of the research. Finally, there was no contact between the researcher and the respondent while filling in the survey, because an SAQ was used. These research ethics are important because defying research ethics will probably lower the credibility of the research. The reason for this is that it is then difficult for others to trust the data if the methods are morally questionable (Vanclay et al., 2013).

5. Results

In this chapter, the results of the survey will be presented. The data gathered will be analyzed and the hypotheses will be tested. First, the sample size and descriptive characteristics of the sample will be discussed followed by a reliability analysis and assumptions regarding multiple regression analysis. Finally, the results will be explained.

5.1 Sample

First, it is important to take the missing data into account (Hair et al., 2018). However, there were no missing values in the data. This can be explained by the fact that respondents were obliged to answer all the questions, otherwise, they could not proceed with the survey. However, there were a few dropouts that were removed before the analysis was conducted. Furthermore, data was collected from a total of 223 valid respondents. Of these 223 respondents, 59.6% were female and 40.4% were male. The majority of the respondents were secondary vocational educated (38.6%) or higher professional educated (34.1%). Furthermore, 58% of the respondents belong to a household of 3 or more persons. Only 7.2% of the respondents belong to a one-person household. The mean age of the sample was 39 years, with a range from 19 to 72 years old. 22.4% of all respondents were young adults between 19 to 25 years old. Most of the respondents belong to the category of 41 to 59 years old (41.3%). Finally, it can be noted that most respondents are familiar with meal-kits (M = 2.70). 44.4% of the respondents have heard of meal-kits and 15.2% of the respondents are very familiar with meal-kits. Only 1.8% of the respondents have never heard of meal-kits. The descriptive statistics of the variables are summarized in Table 3 and Table 4.

Variable	**Specification**	**Frequency**	**Percentage**
Gender	*Male*	90	40.4
	Female	133	59.6
Education level	*None*	0	0
	Primary education	2	0.9
	Secondary education	21	9.4
	Secondary vocational education	86	38.6
	Higher professional education	76	34.1
	University education	38	17.0

Household size	*1 person*	16	7.2
	2 persons	78	35.0
	3 or more persons	129	57.8

Table 3. Descriptive statistics gender, education level and household size

Variable	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Age	223	19	72	39.13	12.713
Familiarity with meal-kits	223	1	5	2.70	0.803

Table 4. Descriptive statistics age and familiarity

The majority of the respondents (64.1%) have a high level of nutritional knowledge, which means that they answered 80% of the statements correctly (Table 5). Furthermore, the descriptive statistics with regard to the dependent variable purchase intention were assessed (Table 6). First, purchase intention is lowest in the scenarios with no promotion (M = 4.075), while purchase intention is highest in scenarios with a monetary promotion (M = 5.403). Purchase intention with a non-monetary promotion (M = 4.784) is in between purchase intention with no promotion and purchase intention with monetary promotion. Second, the effect of nutritional knowledge and promotions on the purchase intention of meal-kits was expected to be mediated by perceived healthiness and perceived convenience. The perceived healthiness (M = 3.855) of meal-kits is substantially lower than the perceived convenience (M = 5.610), which may influence purchase intention. Third, the effect of nutritional knowledge and promotions on the purchase intention was expected to be moderated by brand characteristics (national brand versus private label). Purchase intention is higher for meal-kits of national brands (M = 4.909) compared to meal-kits of private labels (M = 4.651).

Variable	**Specification**	**Frequency**	**Percentage**
Nutritional knowledge	*Low*	80	35.9
	High	143	64.1

Table 5. Descriptive statistics nutritional knowledge

Purchase intention	N	Minimum	Maximum	Mean	Std. Deviation
No promotion	71	1	7	4.075	1.343
Monetary promotion	81	1	7	5.403	1.147
Non-monetary promotion	71	1	7	4.784	1.291
Perceived healthiness	223	1	7	3.855	1.468
Perceived convenience	223	1	7	5.610	0.898
National brand	114	1	7	4.909	1.429
Private label	109	1	7	4.651	1.293

Table 6. Descriptive statistics purchase intention

5.2 Reliability analysis

There were three variables that were measured based on a 7-point Likert scale: perceived healthiness, perceived convenience, and purchase intention. The 7-point Likert scale has a range from 1 (negative) to 7 (positive). First, the reliability and validity of the scales were evaluated. To ensure validity, validated scales from previous studies were used. The Cronbach's alphas of these previous scales were also evaluated. Furthermore, the wording of the items was adapted to the context of this study.

Next to validity, reliability was evaluated. Cronbach's alpha was used as the reliability coefficient, where 0.70 is generally used as the lower limit (Hair et al., 2018). In this study, a Cronbach's alpha of 0.70 was also used as the minimum threshold. The variables perceived healthiness ($\alpha = 0.789$), perceived convenience ($\alpha = 0.719$) and purchase intention ($\alpha = 0.839$) have an alpha above the minimum threshold of 0.70, which implies that the constructs are reliable. Deletion of one of the items would not increase the Cronbach's alpha of all three variables. The coefficients for the reliability analysis can be found in Appendix III.

5.3 Assumptions

Before conducting the regression analysis, several assumptions have to be met in order to conduct a valid regression analysis. The first assumption of regression analysis is that all variables used in this study are at least of metric measurement level (Hair et al., 2018). Within this study, some variables are already transformed from categorical variables into dichotomous variables. Brand characteristic (national brand versus private label) already has 0 and 1 as minimum and maximum. Nutritional knowledge was also transformed into a dummy variable

and coded with 0 and 1 (0 = low nutritional knowledge, 1 = high nutritional knowledge). Promotions consisted of three levels (no promotion, monetary promotion, and non-monetary promotion) and had to be transformed into dummy variables. Perceived healthiness, perceived convenience, and purchase intention were measured on a 7-point Likert scale and are therefore of metric measurement level. Now that the first assumption of metric measurement level has been met, the next step is to check whether the other assumptions are also fulfilled. The assumptions that have to be met are linearity of the variate, normality of the error term measured, independence of errors, homoscedasticity, and multicollinearity (Hair et al., 2018). Descriptives and plots were used to check for linearity of the variate and homoscedasticity. The assumption of normality was tested using the Kolmogorov-Smirnov test. The tolerance levels and variance inflation factor (VIF) were used for analyzing multicollinearity and independence of errors was tested using the Durbin-Watson statistic. The correlation matrix can be found in Appendix IV. This correlation matrix shows that no variable has a Pearson's correlations coefficient that is higher than 0.85. A correlation coefficient higher than 0.85 would be a sign of multicollinearity (Field, 2018). Therefore, all variables can be used in the regression analysis.

The first model examines the relationship between the independent variables and the perceived healthiness (Table 7). Linearity and normality of model 1 have been checked by assessing the histogram and the normal probability plot which is shown in Appendix V figures 2 and 3. Based on the examination of the p-plot, we can assume that the assumption regarding linearity has not been violated. Furthermore, normality is tested with the Kolmogorov-Smirnov test (sig = 0.200). Based on the Kolmogorov-Smirnov test we can assume that the variables are normally distributed. The assumption of independence of errors is tested with the Durbin-Watson statistic. The Durbin-Watson statistic should be close to 2 to ensure that there is independence of errors (Hair et al., 2018). The Durbin-Watson statistic of model 1 is 1.744 (Appendix V, Table 14). A rule of thumb is that Durbin-Watson statistic values in the range of 1.5 to 2.5 are relatively normal, indicating there is independence of errors (Field, 2018). Next, a scatterplot of standardized predicted values and standardized residuals has been created (Appendix V, figure 4). Based on the scatterplot, it can be concluded that there is no systematic relationship between the predicted outcomes and the errors. Therefore, we can assume that the assumption of homoscedasticity is met because there is no distinct pattern that can be derived. Finally, multicollinearity statistics were assessed (Appendix V, Table 15). The tolerance levels of the independent variables should be higher than 0.20, otherwise, there could potentially be high correlations between the independent variables (Hair et al., 2018). In model 1, all variables are above 0.2, which indicates that there is no sign of multicollinearity (Appendix V, Table 15).

However, it should be noted that some tolerance levels are relatively low and almost reach the minimum threshold. Additionally, all VIF values are below 5, which means that the assumption of multicollinearity is met.

The second model examines the relationship between the independent variables and the perceived convenience (Table 8). Based on the histogram and normal probability plot (Appendix VI figures 5 and 6) we can assume that the assumption of linearity has been met. Looking at the normal probability plot, we can conclude that there are slightly more outliers than in the probability plot of model 1. The Kolmogorov-Smirnov statistic of model 2 is 0.092, which means that the variables are normally distributed. Next, the Durbin-Watson statistic of model 2 is 1.822, which indicates that there is independence of errors (Appendix VI, Table 16). Looking at the scatterplot of model 2 (Appendix VI figure 7), it can be concluded that there is no particular pattern in the data, which means that the assumption of homoscedasticity is met. Finally, multicollinearity statistics were assessed using the tolerance levels and VIF values (Appendix VI, Table 17). All variables in model 2 have a tolerance level higher than 0.2, and all VIF values are below 5, which means that the assumption of multicollinearity is met.

The third model examines the effects between the two mediators and the dependent variable (Table 9). The histogram and normal probability plot show that model 3 meets the assumption of linearity (Appendix VII, figures 8 and 9). Based on the Kolmogorov-Smirnov statistic (sig = 0.129), we can assume that the variables are normally distributed. The Durbin-Watson statistic of model 3 is 2.241, which means that there is independence of errors (Appendix VII, Table 18). Based on the examination of the scatterplot (Appendix VII, figure 10), there is no systematic relationship between the predicted outcomes and errors. Therefore, we can conclude that the assumption of homoscedasticity has been met. Looking at the multicollinearity statistics of model 3 (Appendix VII, Table 19), we can assume that the assumption of multicollinearity has been met. All variables have a tolerance level higher than 0.2 and a VIF value lower than 5.

Overall, it can be concluded that the assumptions for conducting the regression analysis have been met for all three models.

5.4 Results

This section discusses the results of the different models. The results of the regression analysis are presented in Tables 7, 8, and 9. The results of the mediation analysis are presented in Tables 10 and 11.

5.4.1 Results model 1

The R Square of the first model is 0.341, which means that 34.1% of the variance in the dependent variable is explained by the independent variables in the regression analysis (Field, 2018). The independent variables explain 34.1% of the variance of the variable perceived healthiness. This can imply that there may be more variables that have an impact on the perceived healthiness of meal-kits. The F statistic of the model is significant $F(14, 207) = 7.637$, $p < 0.05$, which means that the model adds enough new information. Model 1 (Table 7) shows that 2 variables have a significant effect. The first significant effect is nutritional knowledge ($\beta = -1.4535$ $t = -7.765$, $p < 0.05$). This effect means that people with a high level of nutritional knowledge, consider meal-kits to be less healthy, which supports H1. The second significant effect is age ($\beta = -0.015$ $t = -2.143$, $p < 0.05$). This effect means that the older people are, the lower the perceived healthiness of meal-kits. Furthermore, there is no significant effect of price-cuts ($\beta = -0.362$ $t = -1.231$, $p > 0.05$) or premiums ($\beta = 0.030$ $t = -0.098$, $p > 0.05$) on the perceived healthiness of meal-kits and therefore H3a and H3b are not supported. In addition, Appendix VIII (Table 20) shows the results of model 1 with premiums as the reference category. These results show that H3c is also not supported ($\beta = -0.335$, $t = -1.110$, $p > 0.05$). This means that whether the promotion is a price-cut or a premium, it does not have any effect on the perceived healthiness of meal-kits. Moreover, the interaction effects between promotions and brand characteristics are also not significant. Based on the results of model 1 (Table 7), it can be concluded that there is no interaction effect between price-cuts and national brands ($\beta = 0.671$, $t = 1.624$, $p > 0.05$) and between premiums and national brands ($\beta = -0.112$, $t = -0.263$, $p > 0.05$) regarding the perceived healthiness of meal-kits. Therefore, H6a and H6b are not supported. In addition, H6c is also not supported according to the results presented in Appendix VIII (Table 20) with premiums as reference category ($\beta = 0.786$, $t = 1.880$, $p > 0.05$). This means that there is no effect and no difference between national brands and private labels when it comes to the effect of promotions on the perceived healthiness of meal-kits. However, it should be noted that the significance level of H5c ($p = 0.061$) is close to 0.05

Variable	**β**	**SE B**	**t**	**Sig.**	**H**
Constant	5.958	0.626	9.512	0.000	
Nutritional knowledge	-1.435	0.185	-7.765	0.000	H1: -
Price-cut	-0.362	0.294	-1.231	0.220	H3a: -
Premium	-0.030	0.304	-0.098	0.922	H3b: -

National brand	-0.261	0.304	-0.858	0.392	
Interaction effects					
Price-cut * National Brand	0.671	0.413	1.624	0.106	H6a: +
Premium * National Brand	-0.112	0.427	-0.263	0.793	H6b: -
Control variables					
Primary education	-0.245	0.918	-0.267	0.789	
Secondary education	0.667	0.319	2.090	0.058	
Higher professional education	-0.013	0.203	0.062	0.951	
University education	-0.042	0.251	-0.169	0.866	
Age	-0.015	0.007	-2.143	0.033	
Gender	-0.094	0.174	-0.540	0.590	
Familiarity	-0.107	0.110	-0.970	0.333	
Household size	-0.012	0.138	-0.089	0.929	

Dependent variable: Perceived healthiness

Table 7. Model 1

5.4.2 Results model 2

The R Square of the second model is lower than the R Square value of the first model. The second model explains 14.1% of the variance ($R^2 = 0.141$). The F statistic of the second model is significant $F(14, 207) = 2.432$, $p < 0.05$. Model 2 (table 8) shows that 3 variables have a significant effect. The first significant effect is nutritional knowledge ($\beta = -0.275$ $t = -2.130$, $p < 0.05$). This effect means that people with a high level of nutritional knowledge, consider meal-kits to be less convenient. In contrast to hypothesis 2, there is a significant effect, however the effect is not in the right direction. Hypothesis 2 predicted that a high level of nutritional knowledge increases the perceived convenience of meal-kits. However, based on the results it decreases the perceived convenience. The second significant effect is age ($\beta = 0.010$ $t = 2.123$, $p < 0.05$). This effect means that, the older people are, the higher the perceived convenience of meal-kits. The third significant effect is familiarity ($\beta = 0.165$ $t = 2.145$, $p < 0.05$). The more familiar people are with meal-kits, the higher the perceived convenience of meal-kits. In contrast to hypothesis 4a and 4b, there were no effects of price-cuts ($\beta = 0.145$ $t = 0.704$, $p > 0.05$) or premiums ($\beta = 0.360$ $t = 1.694$, $p > 0.05$) on the perceived convenience of meal-kits,

and therefore H4a and H4b are not supported. H4c is also not supported (β = -0.213, t = -1.012, p > 0.05) when premiums are used as reference category (Appendix VIII, Table 21). This indicates that, whether it is a price-cut or a premium, it does not have any effect on the perceived convenience of meal-kits. There is no difference in the type of promotion on the perceived convenience of meal-kits. However, it should be noted that the effect of premiums on perceived convenience (Table 8) is close to 0.05. Moreover, based on the results of model 2, it can be concluded that there are no interaction effects between promotions and brand characteristics on the perceived convenience. There is no interaction effect between price-cuts and national brands (β = 0.671, t = 1.624, p > 0.05) and between premiums and national brands (β = -0.112, t = -0.263, p > 0.05) regarding the perceived convenience. Therefore, H5a and H5b are not supported. Additionally, H5c is also not supported (β = 0.893, t = 1.617, p > 0.05) when premiums are used as reference category (Appendix IX, Table 21). This means that there is no effect and no difference between national brands and private labels when it comes to the effect of promotions on the perceived convenience of meal-kits.

Variable	**β**	**SE B**	**t**	**Sig.**	**H**
Constant	4.713	0.438	10.764	0.000	
Nutritional knowledge	-0.275	0.129	-2.130	0.034	H2: +
Price-cut	0.145	0.205	0.704	0.482	H4a: +
Premium	0.360	0.213	1.694	0.092	H4b: +
National brand	0.082	0.212	0.385	0.701	
Interaction effects					
Price-cut * National Brand	0.473	0.289	1.636	0.103	H5a: +
Premium * National Brand	-0.422	0.299	-1.414	0.159	H5b: -
Control variables					
Primary education	-0.050	0.641	-0.078	0.938	
Secondary education	-0.088	0.223	-0.394	0.694	
Higher professional education	0.043	0.142	0.304	0.762	
University education	0.053	0.176	0.303	0.762	
Age	0.010	0.005	2.123	0.035	
Gender	-0.077	0.122	-0.637	0.525	

Familiarity	0.165	0.077	2.145	0.033
Household size	0.041	0.097	0.423	0.673

Dependent variable: Perceived convenience

Table 8. Model 2

5.4.3 Results model 3

The R Square of the third model (R^2 = 0.246) is in between the R Square of the first and the Square of the second model. The F statistic of the model is significant F (10, 212) = 6.931, $p < 0.05$. Model 3 shows that there are two variables with a significant effect. The first significant effect of model 3 is perceived healthiness (β = -0.149 t = -2.474, $p < 0.05$). This means that there is a negative relationship between perceived healthiness and the purchase intention of meal-kits. In contrast to hypothesis 7, there is a significant effect, however, the effect is not in the right direction. Hypothesis 7 predicted that the perceived healthiness of meal-kits positively increases the purchase intention of meal-kits. However, based on the results it decreases the purchase intention. The second significant effect is perceived convenience (β = 0.614 t = 6.468, $p < 0.05$). This effect indicates that the more the perceived convenience of meal-kits, the higher the purchase intention. This effect supports hypothesis 8.

Variable	**β**	**SE B**	**t**	**Sig.**	**H**
Constant	1.511	0.812	1.861	0.012	
Perceived healthiness	-0.149	0.060	-2.474	0.014	H7: +
Perceived convenience	0.614	0.095	6.468	0.000	H8: +
Control variables					
Primary education	-0.230	0.902	-0.255	0.799	
Secondary education	-0.576	0.318	-1.809	0.072	
Higher professional education	0.043	0.201	0.216	0.829	
University education	-0.363	0.249	-1.458	0.146	
Age	0.004	0.007	0.591	0.555	
Gender	-0.035	0.174	-0.199	0.842	
Familiarity	0.184	0.111	1.661	0.098	
Household size	-0.055	0.137	-0.400	0.690	

Dependent variable: Purchase intention

Table 9. Model 3

5.4.4 Mediation effect

There is a mediation effect of nutritional knowledge on the purchase intention of meal-kits (Table 10). The impact of nutritional knowledge on the purchase intention is mediated by perceived healthiness (BootLLCI = -0.1546; BootULCI = -0.0040) and perceived convenience (BootLLCI = 0.0434; BootULCI = 0.3268). The zero is not included in the confidence interval, indicating that the mediation effect is significant (Table 10). The direct effect of nutritional knowledge on the purchase intention of meal-kits is also significant (BootLLCI = 0.5889; BootULCI = 1.2637). This means that there is a partial mediation between nutritional knowledge and the purchase intention of meal-kits. Furthermore, in contrast to hypothesis 9, there is no mediation effect of promotions on the purchase intention of meal-kits (Table 11). The impact of promotions on the purchase intention of meal-kits is not mediated by perceived healthiness (BootLLCI = -0.0236 BootULCI = 0.4275) or perceived convenience (BootLLCI = -0.2894; BootULCI = 0.0615). The zero is included in the confidence interval, indicating that the mediation effect is not significant (Table 11). The direct effect of promotion on the purchase intention of meal-kits is also not significant (BootLLCI = -0.0280; BootULCI = 0.2373).

Finally, a moderated mediation analysis was conducted using PROCESS (model 7) to look at the influence of the moderator on the mediated relationship between promotions and the purchase intention (Hayes, 2012). The moderated mediation analysis showed that the conditional indirect effects were not significant (Appendix X, Table 22). This means that there is no effect of brand characteristics on the mediated relationship between promotions and the purchase intention of meal-kits.

Mediation effects	**Effect**	**BootSE**	**BootLLCI**	**BootULCI**
Direct effect	0.9263	0.1712	0.5889	1.2637
Perceived healthiness	-0.0586	0.0408	-0.1546	-0.0040
Perceived convenience	0.1761	0.0761	0.0434	0.3268

Independent variable: nutritional knowledge

Dependent variable: Purchase intention

Table 10. Mediation effect nutritional knowledge

Mediation effects	**Effect**	**BootSE**	**BootLLCI**	**BootULCI**
Direct effect	0.1327	0.2053	-0.0280	0.2373

Perceived healthiness	0.1876	0.1135	-0.0236	0.4275
Perceived convenience	-0.1157	0.0886	-0.2894	0.0615

Independent variable: Promotions

Dependent variable: Purchase intention

Table 11. Mediation effect promotions

6. Conclusion and discussion

The objective of this study was to investigate to what extent nutritional knowledge and promotions would influence the purchase intention of meal-kits and whether that effect would be mediated by perceived healthiness and perceived convenience. Based on the findings it can be concluded that the impact of nutritional knowledge on the purchase intention of meal-kits is mediated by perceived healthiness and perceived convenience. The effects of nutritional knowledge on perceived healthiness and perceived convenience are significant when controlling for several variables. Moreover, the mediation and direct effects of nutritional knowledge on the purchase intention of meal-kits are also significant. Furthermore, there is no mediation effect of promotions on the purchase intention of meal-kits. This relationship is not mediated by perceived healthiness or perceived convenience. In addition to the mediation effect, this study also included a moderator: brand characteristics (national brand versus private label). There is no effect of this moderator on the relationships between the independent variables and the perceived healthiness or perceived convenience.

6.1 Academic implications

While previous studies investigate the drivers of purchase intention of healthy food and convenience food, this study focused on the drivers of healthy convenience food.

6.1.1 Nutritional knowledge

Based on the results of this study, it can be concluded that nutritional knowledge affects the purchase intention of meal-kits. There is an effect of nutritional knowledge on the perceived convenience and perceived healthiness. Apparently, a high level of nutritional knowledge decreases the perceived healthiness and perceived convenience of meal-kits. There is also a mediated effect of nutritional knowledge on the purchase intention of meal-kits. The effect of nutritional knowledge on the purchase intention of meal-kits is mediated by perceived healthiness and perceived convenience.

According to Brunner et al. (2010), the naturalness and nutritional knowledge of consumers are the most important drivers for the purchase intention of convenience food. This also seems to be the case within the context of meal-kits. When it comes to meal-kits, nutritional knowledge is seen as a central predictor for the purchase intention. The results showed that nutritional knowledge has a negative effect on the perceived healthiness of meal-kits, which is in line with the study of Moores et al. (2021). Additionally, according to Grunert & Wills (2007), people with high nutritional knowledge are more likely to categorize meal-kits as

convenience products. The results of this study have shown that this is not the case within the context of meal-kits. There appeared to be a negative relationship between a high level of nutritional knowledge and the perceived convenience of meal-kits. An explanation for this may be that certain activities are not made easier when purchasing meal-kits (Hertz & Halkier, 2017). People still need to take their time to cut the ingredients and prepare everything according to the recipe, which sometimes causes a barrier for people to purchase meal-kits (Hertz & Halkier, 2017). In comparison with convenience food, people may consider meal-kits to be more time-consuming because it is not ready-to-eat, and therefore consider them to be non-convenient. It would take more effort to prepare a meal from a meal-kit compared to convenience food, which makes it a more complex product. In particular, people who have high nutritional knowledge are more likely to categorize meal-kits as less convenient, as they may also be more knowledgeable about the entire process of preparing a meal-kit.

6.1.2 Promotions

This study included promotions to test whether promotions (no promotion, monetary promotions, and non-monetary promotions) have an influence on the purchase intention of meal-kits. The outcomes of this study indicate that promotions have no direct effect on the purchase intention of meal-kits. This result is not in line with previous studies on the effects of promotions in retailing. Ririn et al. (2019) for instance, found that promotions can positively influence purchase intention. Additionally, Cho et al. (2020), stated that consumers who purchase meal-kits are strongly influenced by price and promotions. However, this is not the case within this study.

Furthermore, there is no effect of promotions on the perceived healthiness of meal-kits. This is not in line with the study by McKeown & Thomas (2013) and Samoggia et al. (2019), which mentioned that consumers often associate promotions with less healthy products. Other literature also suggests that both monetary and non-monetary promotions are applied to less healthy foods (Bennett et al., 2020). The absence of a statistically significant effect can be explained by the fact that meal-kits belong to the category of healthy convenience food (De Vriendt et al., 2009). According to Feichtinger et al. (1988), consumers buying convenience food are often not price sensitive and thus not sensitive to promotions. Therefore, it may be that meal-kits are not as elastic in demand as previously assumed and that they do not associate promotions with less healthy products as they are not affected that much by promotions. This may also explain the absence of the direct effect of promotions on the purchase intention of meal-kits.

Moreover, there is no effect of promotions on the perceived convenience of meal-kits. This is in contrast with the findings of Chandon et al. (2000). According to Chandon et al. (2000), different types of promotions can improve perceived convenience by reducing consumers' search and decision costs. McNeill, (2012) states that the current customer is said to be short on time and somewhat 'jaded' to marketing messages, and thus is more likely to be influenced by promotions due to the increased convenience. In addition, the study by Bennett et al. (2020), shows that promotions attract customers because promotions facilitate and shorten the decision-making process, which increases the convenience of purchasing a product. The reason for the absence of a statistically significant effect of promotions on the perceived convenience can be explained by the fact that meal-kits are considered as less convenient than convenience food. According to the study by Daniels & Glorieux (2015), meal-kit suppliers focus on providing great 'convenience' by eliminating various tasks such as grocery shopping, meal planning, and finding recipes. According to a report by Nielsen (2018), the relative time it takes to prepare a meal with a meal-kit, became a major barrier for frequent meal-kit users. Consumers consider meal-kits as time-consuming in preparing the meal and would rather buy ready-to-eat meals to save time (Fraser et al., 2022). According to a recent national consumer survey, one of the reasons for purchasing meal-kits was reported to be saving time for grocery shopping (Cho et al., 2020). However, this is not associated with the great convenience of meal-kits, because preparing a meal from a meal-kit ultimately still takes a lot of time and effort (Cho et al., 2020).

6.1.3 National brand versus private label

Based on the results of this study, it was found that the effect of price-cuts versus no promotion or premiums on the perceived convenience or perceived healthiness of meal-kits is not higher for national brands than for private labels. This is not in line with previous literature regarding promotions on national brands and private labels. According to the study by Ailawadi et al. (2001), well-known, ubiquitous national brands are attractive targets for monetary promotions, because they can increase convenience by attracting customers to stores. In addition, Olbrich et al. (2017) states that a high price promotion share of national brands may lead to lower market shares and to lower perceived healthiness. Furthermore, it was also found that the effect of premiums versus no promotion or price-cuts on the perceived convenience or perceived healthiness of meal-kits is not higher for private labels than for national brands. No effect was found in this study. This is not in line with the study by Foubert et al. (2018), where they found that consumers who buy private labels tend to be more influenced by premiums because they

do not want varying prices. However, in this study, there was no difference between a national brand and a private label regarding the relationship between promotions and the perceived healthiness or perceived convenience. This can be explained by the fact that Albert Heijn may also be experienced as a large and well-known brand. In the perception of customers, Albert Heijn is innovative and service-oriented (Bavagnoli & Köster, 2012). People associate Albert Heijn with exclusive and high-quality products and services (Bavagnoli & Köster, 2012). This could therefore be the reason why there is no difference in this study between Albert Heijn and HelloFresh.

6.1.4 Perceived healthiness and perceived convenience

Based on the results of this study, it was found that the effect of nutritional knowledge on the purchase intention of meal-kits is mediated by perceived healthiness and perceived convenience. This is in line with the study by Cho et al. (2020), in which they argued that people with a high level of nutritional knowledge tend to classify meal-kits as convenience products. In addition, according to Nielsen (2020), meal-kits are marketed as a healthy alternative to away-from-home-meal for consumers who have limited time but are health conscious. Moores et al. (2021) argued that the nutritional quality of meal-kits has recently been questioned. Therefore, it was expected that the relationship between nutritional knowledge and the purchase intention of meal-kits would be mediated by perceived healthiness and perceived convenience. This study shows that there is indeed a mediation effect between nutritional knowledge and the purchase intention of meal-kits, which is in line with previous literature.

Furthermore, the effect of promotions on the purchase intention of meal-kits is not mediated by perceived healthiness or perceived convenience. This is not in line with previous studies regarding promotions in which they stated that consumers often associate promotions with less healthy products and with more convenience (e.g., McKeown & Thomas, 2013; Samoggia et al., 2019). Finally, there is an effect of perceived convenience and perceived healthiness on the purchase intention of meal-kits. Perceived healthiness has a negative effect on the purchase intention of meal-kits which is remarkable and not in line with previous research (Moores et al., 2021). On the other hand, perceived convenience has a positive effect on the purchase intention of meal-kits. One explanation for these effects could be that the convenience of meal-kits outweighs the health of meal-kits and is more important for purchase intention.

6.2 Managerial implications

Based on the results and findings of this study, the following managerial implications can be drawn.

First, it appeared that consumers with a high level of nutritional knowledge consider meal-kits to be less healthy. This can be explained by the fact that, on average, meal-kit recipes contain excess quantities of dietary fat, salt, and protein (Moores et al., 2021; Gibson & Partridge, 2019). Moreover, people with a high level of nutritional knowledge may have doubts about the nutritional composition of meal-kits (Spronk et al., 2014). Managers can remove these doubts through straightforward and transparent communication. It is essential to become more accessible for consumers to see at a glance what is in a meal-kit and what its nutritional value is. Managers have to pay attention to people who consist of a high level of nutritional knowledge and prefer to decide for themselves which products they will buy. Managers can respond to this through marketing activities that will persuade people with a high level of nutritional knowledge to buy meal-kits. This can be done, for example, by using nutrient profiles that categorize foods according to their nutritional composition (Lobstein & Davies, 2009).

Furthermore, it became clear within this study that convenience is an important driver for purchasing meal-kits. However, it is important to note for meal-kit suppliers, that the perceived healthiness of meal-kits leads to lower purchase intention, which is a remarkable result. It is therefore important that meal-kit suppliers do not overemphasize the health of meal-kits in their marketing activities and campaigns, as this may lower purchase intention. In general, it is important for meal-kits suppliers to take the driver convenience into consideration while designing touchpoints and mapping the customer journey. Customer journey mapping is important for managers to better understand customer expectations and it is crucial for optimizing the customer experience (Lemon & Verhoef, 2016). One of the most important aspects of mapping the customer journey is personalization (Micheaux & Bosio, 2019). Recent research found that 84% of consumers feel that being treated like a human rather than a number is crucial to winning their business (Lemon & Verhoef, 2016). Therefore, it is important for meal-kit suppliers to create personas and understand the differences between buyer personas as they move from prospect to conversion through the buying funnel of meal-kits.

Additionally, it is also important for managers to adopt a truly customer-oriented outside-in perspective. For meal-kit suppliers it is important to start with the needs and desires of the customers (outside-in), rather than the internal systems and processes (inside-out). This will increase the chance to deliver a service that the customers find valuable. Moreover, it is important for meal-kit providers to highlight the convenience of the subscription model. Tzuo

and Weisert (2018) proposed the subscription economy that states that its inherent outcomes are convenience and time saving. They also suggested that the subscription economy model can be successful because of a company's ability to continually identify and promote new outcomes in the rapidly changing world (Tzuo & Weisert, 2018). This should be applied to the meal-kit subscription model. During the COVID-19 pandemic, for example, the result of promoting meal-kit subscription services could emphasize a feeling of safety removed from the possibility of pandemic transmission (Cho et al., 2020). Supporting this, Manu (2017) also suggested that a successful subscription platform will guide subscribers to navigate the emerging present and gain intrinsic value to satisfy their desire for personalized services. Thus, companies offering meal-kits might consider creating a platform where subscribers can engage and share their recipes with others and suggest alternative ingredients available in their local area. Meal-kit managers can offer strategies to increase retention by allowing consumers to suspend their subscriptions or to skip deliveries. If a consumer chooses a meal-kit supplier that does not fulfill their expectations and/or preferences, the specific company and the subscription come into question (Cho et al., 2020). Therefore, customer decisions based on advertising can jeopardize the lifetime value of the relationship between the consumer and the meal-kit company. Nowadays, many meal-kit companies have started a collaboration with grocery stores, where consumers can experiment with meal-kits without committing for a long time (Tzuo & Weisert, 2018). These meal-kits marketed in grocery stores offer flavor combinations with which consumers are already familiar. Therefore, it may be more pragmatic for meal-kit suppliers to offer consumers the option of a weekly subscription rather than a longer-term subscription.

Next, nutritional knowledge has a positive direct effect on the purchase intention of meal-kits. In addition, this effect is mediated by perceived healthiness and perceived convenience. If meal-kit suppliers want to increase the demand for a meal-kit, they can respond to the nutritional knowledge of a consumer. Managers should be aware that the mediation effect of nutritional knowledge is negative regarding perceived healthiness. This may cause consumers to perceive meal-kits as unhealthy and will therefore lower their purchase intention. Therefore, companies that want to emphasize the health of meal-kits should be careful when approaching people with a high level of nutritional knowledge, as this decreases the perceived healthiness and purchase intention.

Finally, brand characteristics will not have direct implications for the amount of sales that will be generated, since it does not differ for national brands or private labels. Consumers do not switch between brands because of a promotion. Managers should keep this in mind when offering promotions.

6.3 Limitations and future research

This paragraph will briefly discuss some limitations and recommendations for future research.

First of all, sample size may affect the finding of (non)significant effects. It could be more difficult to detect an effect if the sample size is too small (Hair et al., 2018). However, according to Hair et al. (2018), the desired sample size for regression analysis is between 15 to 20 observations for each independent variable. Within this study, a sample size of N=223 was reached which is sufficiently large enough to find significant effects. Therefore, the sample size would not be a direct cause for the non-significant effects within this study.

Second, another possible explanation for the non-significant results focuses on the predictors used in this study. It is possible that there are external or unknown factors (extraneous variables) that explain the dependent variable purchase intention of meal-kits, but are not included in the current model (Hair et al., 2018). The most important predictors in this study were determined based on the current literature regarding the purchase intention of healthy food and convenience food. It could be possible that other factors are considered more important for the purchase intention of meal-kits than the selected predictors in this study.

Third, the design of this study consisted of a between-subjects design. Respondents were randomly assigned to one of the six different scenarios. Therefore, it was not possible for respondents to make a comparison between the different scenarios because they were presented with only one scenario. Within this between-subjects design, existing brands have been used to represent the national brand and private label (HelloFresh and Albert Heijn). Consumers might have negative attitudes towards these existing brands which can affect the results. Therefore, it is important to include other brands or brands that do not exist in future research. In addition, the price of the presented meal-kit was included in the questionnaire, which could influence respondents' answers. Therefore, it might be interesting to include other prices in future research.

Fourth, this study used price-cuts to represent monetary promotions and premiums to represent non-monetary promotions. However, it may be interesting to examine the effects of other types of promotions on the purchase intention of meal-kits. Price-cuts were chosen to represent monetary promotions because many meal-kit suppliers use this type of promotion. It should be noted that the price-cut used in this study (50%) is slightly high and can influence the results. Therefore, it could be interesting to include other percentages of price-cuts in future research. Furthermore, non-monetary promotions can be divided into 'supportive promotions' and 'true promotions'. In this study, true promotions were selected to investigate the effect of a premium on the purchase intention. In future research, it could be interesting to study the

effect of supportive promotions as well. Additionally, a kitchen tool kit was used in this study to represent the non-monetary promotion. However, the type of premium used in this study may affect the results due to consumer preferences regarding the premium. Therefore, it might be interesting for future research to include different types of premiums. Furthermore, according to existing literature, the effects of promotions may vary over time (Chandon et al., 2000; Martínez et al., 2007; Bennett et al., 2020). This implies that monetary promotions may have smaller positive effects in the long term compared to non-monetary promotions with regard to brand image and brand associations. This study did not include the long-term effects of promotions due to time limitations. Therefore, it might be interesting for future research to examine the effects of promotions on meal-kits over time. The outcomes of the long-term effects could be beneficial to managers in designing and developing strategic marketing programs.

Fifth, this research was based upon a sampling of online consumers that was focused on the Dutch meal-kit market. However, every country has its own cultural values which may lead to differences between countries in valuing the drivers for the purchase intention of meal-kits. Therefore, it is necessary to replicate this study using a more geographically, scientific and rigid method of sampling.

Finally, the COVID-19 pandemic has created additional opportunities for the marketing and sales of meal-kits. The restrictions placed upon restaurant operations in terms of their ability to offer in-dining experiences have created even greater opportunities for meal-kit suppliers and their future products and services. This evolution offers exciting opportunities for future research on meal-kit and consumer behavior issues.

Despite these limitations, this study contributes to the existing literature regarding healthy convenience food. The findings of this study provide evidence to suggest that the drivers of purchase intention for meal-kits are substantially different from those of other forms of food, such as healthy food or convenience food. However, future research is required to validate these results and should further identify which predictors are considered most important when it comes to the purchase intention of meal-kits.

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Appendices

Appendix I. Scenarios

Scenario 1

*Picture 1. National brand * no promotion*

U bevindt zich op de website van HelloFresh, een online aanbieder van maaltijdboxen. U ziet daar een maaltijdbox voor 2 personen met 3 maaltijden. Deze maaltijdbox kost €38,00. Geef aan in welke mate u het eens bent met de volgende stellingen.

Scenario 2

*Picture 2. Private label * no promotion*

U bevindt zich op de website van de supermarkt Albert Heijn. U ziet daar een maaltijdbox voor 2 personen met 3 maaltijden. Deze maaltijdbox kost €38,00. Geef aan in welke mate u het eens bent met de volgende stellingen.

Scenario 3

*Picture 3. National brand * monetary promotion*

U bevindt zich op de website van HelloFresh, een online aanbieder van maaltijdboxen. U ziet daar een maaltijdbox voor 2 personen met 3 maaltijden. De maaltijdbox kost normaal gesproken €38,00. Deze maaltijdbox is nu verkrijgbaar met 50% korting. Geef aan in welke mate u het eens bent met de volgende stellingen.

Scenario 4

*Picture 4. Private label * monetary promotion*

U bevindt zich op de website van de supermarkt Albert Heijn. U ziet daar een maaltijdbox voor 2 personen met 3 maaltijden. De maaltijdbox kost normaal gesproken €38,00. Deze maaltijdbox is nu verkrijgbaar met 50% korting. Geef aan in welke mate u het eens bent met de volgende stellingen.

Scenario 5:

*Picture 5. National brand * non-monetary promotion*

U bevindt zich op de website van HelloFresh, een online aanbieder van maaltijdboxen. U ziet daar een maaltijdbox voor 2 personen met 3 maaltijden. De maaltijdbox kost normaal gesproken €38,00. Bij de aankoop van deze maaltijdbox krijgt u een gratis 8-delige set van keukenhulpen. Geef aan in welke mate u het eens bent met de volgende stellingen.

Scenario 6:

*Picture 6. Private label * non-monetary promotion*

U bevindt zich op de website van de supermarkt Albert Heijn. U ziet daar een maaltijdbox voor 2 personen met 3 maaltijden. De maaltijdbox kost normaal gesproken €38,00. Bij de aankoop van deze maaltijdbox krijgt u een gratis 8-delige set van keukenhulpen. Geef aan in welke mate u het eens bent met de volgende stellingen.

Appendix II. Questionnaire

Pagina 1) Allereerst bedankt dat u de tijd neemt om deel te nemen aan dit onderzoek. Ter afsluiting van mijn Master Business Administration aan de Radboud Universiteit in Nijmegen voer ik een onderzoek uit omtrent maaltijdboxen. Het invullen van de vragenlijst zal maximaal 5 minuten van uw tijd in beslag nemen en alle antwoorden zullen vertrouwelijk en anoniem behandeld worden. De resultaten worden uitsluitend voor dit onderzoek gebruikt en worden niet gedeeld met derden.

Indien u nog vragen heeft, kunt u mailen naar:
Lonneke.baetsen@ru.nl

Alvast bedankt voor het invullen van deze vragenlijst!

Lonneke Baetsen

Pagina 2) In het volgende onderdeel zullen er een aantal stellingen worden voorgelegd die betrekking hebben op uw huidige voedingskennis. U kunt hierbij aangeven in hoeverre u van mening bent dat de stelling juist is, onjuist is of dat u het niet weet.

Stelling 1:
'Linzen bevatten slechts een paar nuttige voedingsstoffen; daarom is hun gezondheidsvoordeel niet groot'.

a. Waar
b. Niet waar
c. Weet ik niet

Stelling 2:
'Het gezondheidsvoordeel van groenten en fruit komt alleen door de vitaminen en mineralen die groenten en fruit bevatten'.

a. Waar
b. Niet waar
c. Weet ik niet

Stelling 3:

‘Een gezonde voeding betekent niets anders dan het consumeren van vitaminen’.

a. Waar
b. Niet waar
c. Weet ik niet

Stelling 4:

‘Vet is altijd slecht voor je gezondheid; je moet het daarom zoveel mogelijk vermijden’.

a. Waar
b. Niet waar
c. Weet ik niet

Stelling 5:

‘Een gezonde maaltijd moet bestaan uit 50% vlees, 25% groenten en 25% bijgerechten’.

a. Waar
b. Niet waar
c. Weet ik niet

Stelling 6:

‘Als je vetrijke voedingsmiddelen hebt gegeten, kun je de effecten verminderen door appels te eten’.

a. Waar
b. Niet waar
c. Weet ik niet

Stelling 7:

‘Volkoren voedingsmiddelen bevatten vezels die niet nuttig zijn voor de spijsvertering’.

a. Waar
b. Niet waar
c. Weet ik niet

Stelling 8:

‘Om gezond te eten, moet je minder eten. Het maakt daarbij niet uit van welk voedsel je minder gaat eten’.

a. Waar
b. Niet waar

c. Weet ik niet

Stelling 9:

‘Als chips niet zoveel zout zou bevatten, zou je er zonder problemen meer van kunnen eten’.

a. Waar
b. Niet waar
c. Weet ik niet

Pagina 3) Intro scenario → beschrijving inclusief afbeelding

<u>Purchase intention</u>

Hoe waarschijnlijk is het dat u deze maaltijdbox wilt proberen?

Zeer onwaarschijnlijk 0 0 0 0 0 0 0 Zeer waarschijnlijk

Zou u bereid zijn om meer informatie over dit product te zoeken?

Absoluut niet 0 0 0 0 0 0 0 Absoluut wel

Hoe waarschijnlijk is het dat u deze maaltijdbox zou gaan kopen?

Zeer onwaarschijnlijk 0 0 0 0 0 0 0 Zeer waarschijnlijk

<u>Perceived healthiness</u>

‘Deze maaltijdbox zal me helpen thuis gezond te koken’.

Sterk mee oneens 0 0 0 0 0 0 0 Sterk mee eens

‘Deze maaltijdbox vermijdt additieven (toevoegingen zoals kleurstoffen of emulgatoren) en gebruikt ingrediënten zonder conserveringsmiddelen’.

Sterk mee oneens 0 0 0 0 0 0 0 Sterk mee eens

‘Deze maaltijdbox is een gezonder alternatief dan kant-en-klaar voedsel uit supermarkten of restaurants’.

Sterk mee oneens 0 0 0 0 0 0 0 Sterk mee eens

<u>Perceived convenience</u>

‘Deze maaltijdbox levert ingrediënten met eenvoudig te volgen recepten rechtstreeks aan de deur’.

Sterk mee oneens 0 0 0 0 0 0 0 Sterk mee eens

‘Met deze maaltijdbox kan ik snel en efficiënt eten koken’.

Sterk mee oneens 0 0 0 0 0 0 0 Sterk mee eens

‘Deze maaltijdbox zorgt ervoor dat ik minder tijd hoef te besteden aan het voorbereiden, koken en opruimen van een maaltijd’.

Sterk mee oneens 0 0 0 0 0 0 0 Sterk mee eens

Pagina 4) Persoonlijke vragen

Wat is uw leeftijd? (In jaren)

Wat is uw geslacht?

a. Man
b. Vrouw
c. Genderneutraal

Wat is uw hoogst genoten opleiding?

a. Geen
b. Basisonderwijs
c. Middelbare school (VMBO, HAVO, VWO)
d. Middelbaar beroepsonderwijs (MBO)
e. Hoger beroepsonderwijs (HBO)
f. Wetenschappelijk onderwijs (WO)

In hoeverre bent u bekend met maaltijdboxen?

a. Helemaal niet bekend
b. Enigszins bekend
c. Redelijk bekend
d. Zeer bekend
e. Buitengewoon bekend

Uit hoeveel personen bestaat uw huishouden?

a. 1 persoon
b. 2 personen
c. 3 of meer personen

Pagina 5) Bedankt voor uw medewerking aan dit onderzoek!

Met vriendelijke groet,

Lonneke Baetsen

Appendix III. Reliability analysis

In the table below, the output of the reliability analysis is displayed for the two mediators in this study: 'perceived healthiness' and 'perceived convenience' and the dependent variable: 'purchase intention'. Perceived healthiness was measured using a scale developed by Jang et al. (2011) and Kim et al. (2018). The reliability of this scale is reported to have an alpha of 0.76. Perceived convenience was measured using a scale developed by Jang et al. (2011) and Pham et al. (2018). The reliability of this scale is reported to have an alpha of 0.90. Purchase intention was measured using a scale developed by Ko et al. (2015). This scale has also been used in other studies on purchase intention and has been tested on reliability ($\alpha = 0.83$). Within this study, Cronbach's alpha was calculated for three variables: perceived healthiness $\alpha = 0.789$, perceived convenience $\alpha = 0.719$ and purchase intention $\alpha = 0.839$ (Table 12).

Construct	**Number of items**	**Cronbach's alpha**
Perceived healthiness	3	0.789
Perceived convenience	3	0.719
Purchase intention	3	0.839

Table 12. Reliability analysis

Appendix IV. Correlation matrix

		Purchase intention	Nutritional knowledge	No promotion	Price-cut	Premium	National brand vs private label	Perceived healthiness	Perceived convenience
Pearson Correlation	Purchase intention	1	0.174**	-0.389**	-.358**	0.021	0.065	-0.202**	0.418**
	Nutritional knowledge	0.174**	1	-0.131	0.157*	-0.028	0.073	-0.540**	-0.093
	No promotion	-0.389**	-0.131	1	-0.516**	-0.470**	-0.044	0.120	-0.161*
	Price-cut	-.358**	0.157*	-0.516**	1	-0.515**	-0.008	-0.091	0.180**
	Premium	0.021	-0.028	-0.470**	-0.515**	1	0.049	-0.029	-0.025
	National brand versus private label	0.065	0.073	-0.044	-0.008	0.049	1	-0.040	0.045
	Perceived healthiness	-0.202**	-0.540**	0.120	-0.091	-0.029	-0.040	1	-0.004
	Perceived convenience	0.418**	-0.093	-0.161*	0.180**	-0.025	0.045	-0.004	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 13. Correlation matrix

Appendix V. Assumptions model 1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	0.584	0.341	0.296	1.232	1.744

Table 14. Model summary model 1

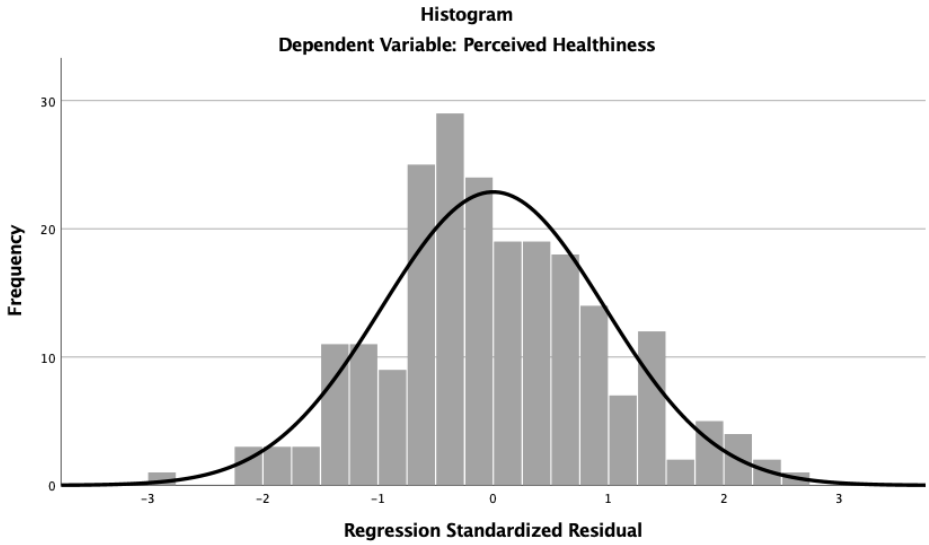

Figure 2. Histogram model 1

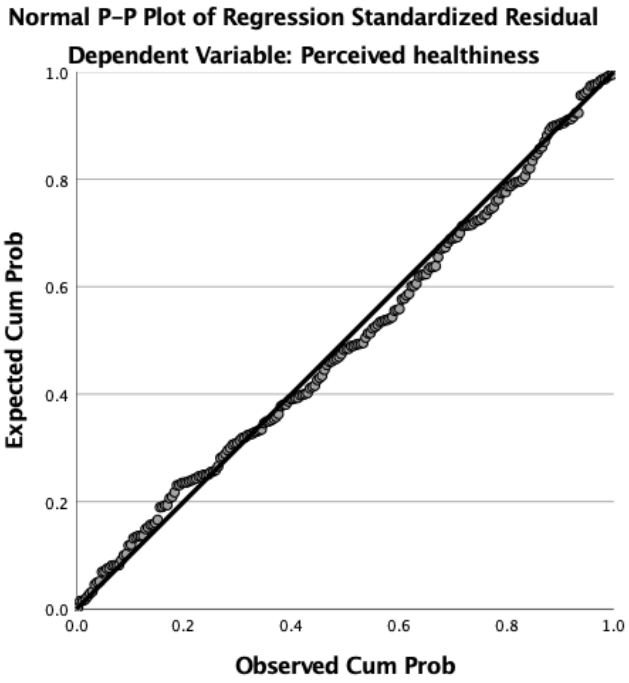

Figure 3. Normal probability plot model 1

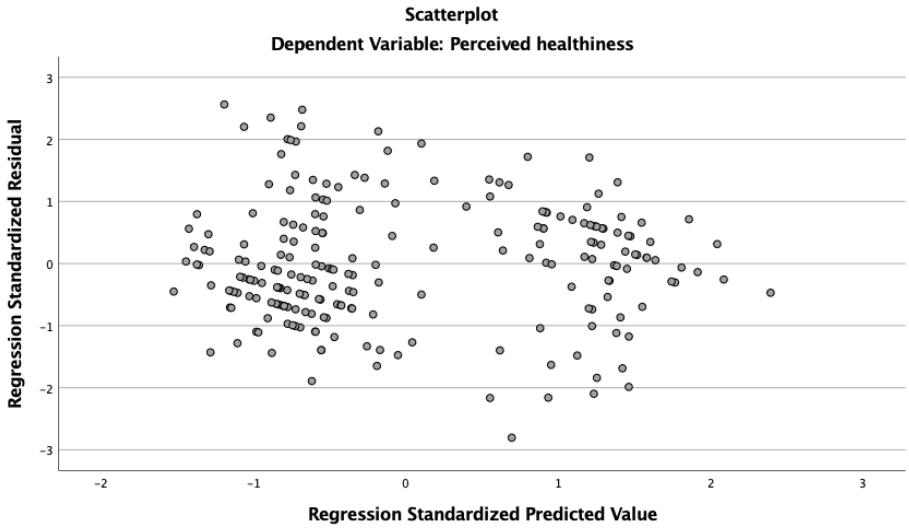

Figure 4. Scatterplot model 1

Variable	Tolerance	VIF
Constant		
Nutritional knowledge	0.864	1.157
Price-cut	0.340	2.943
Premium	0.339	2.951
National brand	0.294	3.402
Interaction effects		
Price-cut * National Brand	0.265	3.778
Premium * National Brand	0.257	3.884
Control variables		
Primary education	0.907	1.103
Secondary education	0.780	1.282
Higher professional education	0.696	1.437
University education	0.760	1.316
Age	0.844	1.185
Gender	0.932	1.073
Familiarity	0.873	1.146
Household size	0.900	1.111

Dependent variable: Perceived healthiness

Table 15. Tolerance and VIF values model 1

Appendix VI. Assumptions model 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	0.376	0.141	0.083	0.862	1.822

Table 16. Model summary model 2

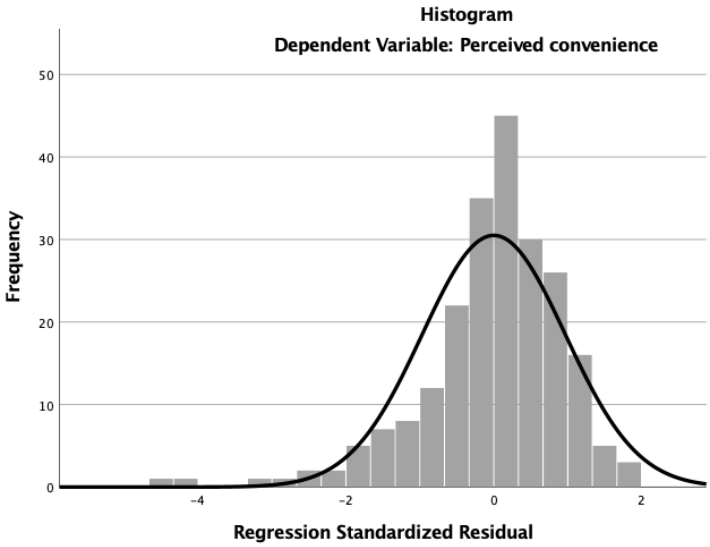

Figure 5. Histogram model 2

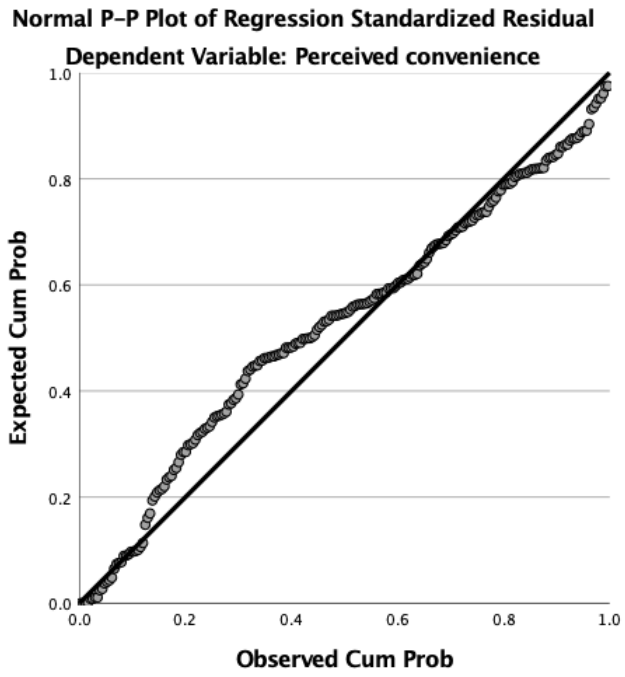

Figure 6. Normal probability plot model 2

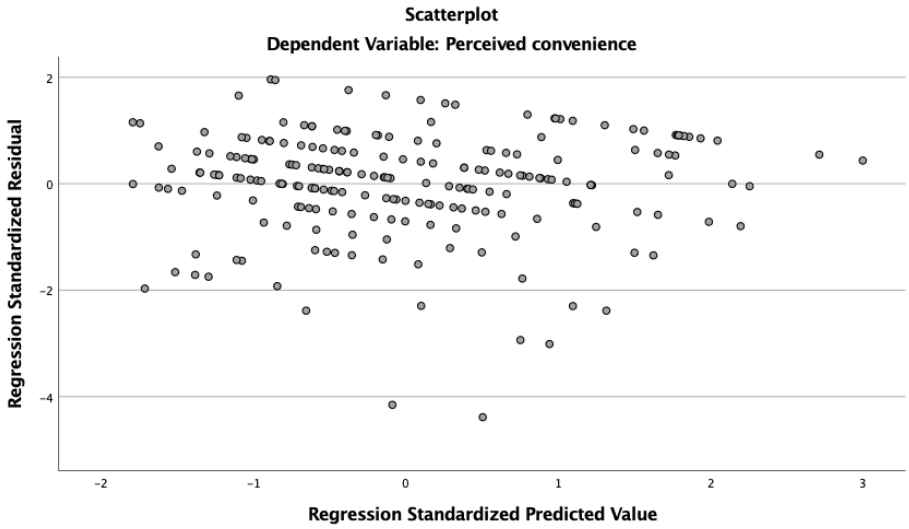

Figure 7. Scatterplot model 2

Variable	Tolerance	VIF
Constant		
Nutritional knowledge	0.864	1.157
Price-cut	0.340	2.943
Premium	0.339	2.951
National brand	0.294	3.402
Interaction effects		
Price-cut * National Brand	0.265	3.778
Premium * National Brand	0.257	3.884
Control variables		
Primary education	0.907	1.103
Secondary education	0.780	1.282
Higher professional education	0.696	1.437
University education	0.760	1.316
Age	0.844	1.185
Gender	0.932	1.073
Familiarity	0.873	1.146
Household size	0.900	1.111

Dependent variable: Perceived convenience

Table 17. Tolerance and VIF values model 2

Appendix VII. Assumptions model 3

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	0.496	0.246	0.211	1.237	2.241

Table 18. Model summary model 3

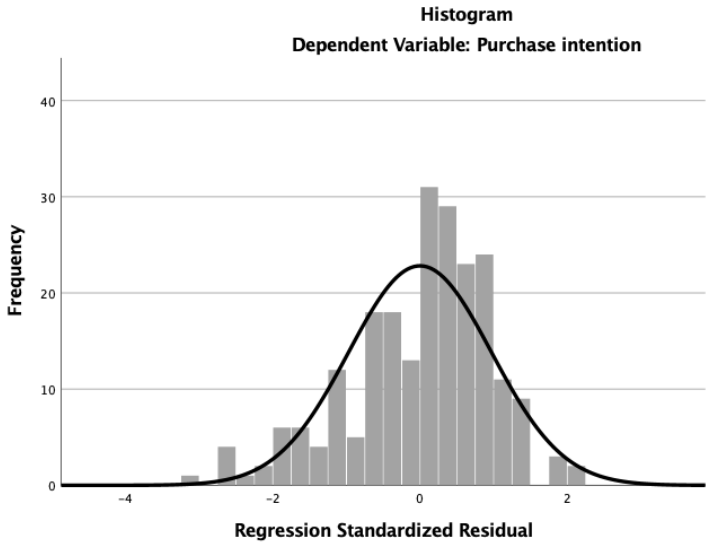

Figure 8. Histogram model 3

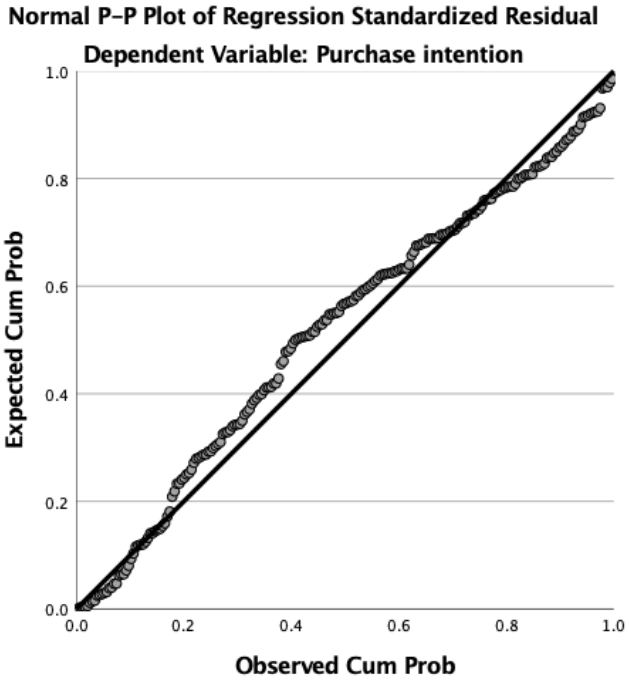

Figure 9. Normal probability plot model 3

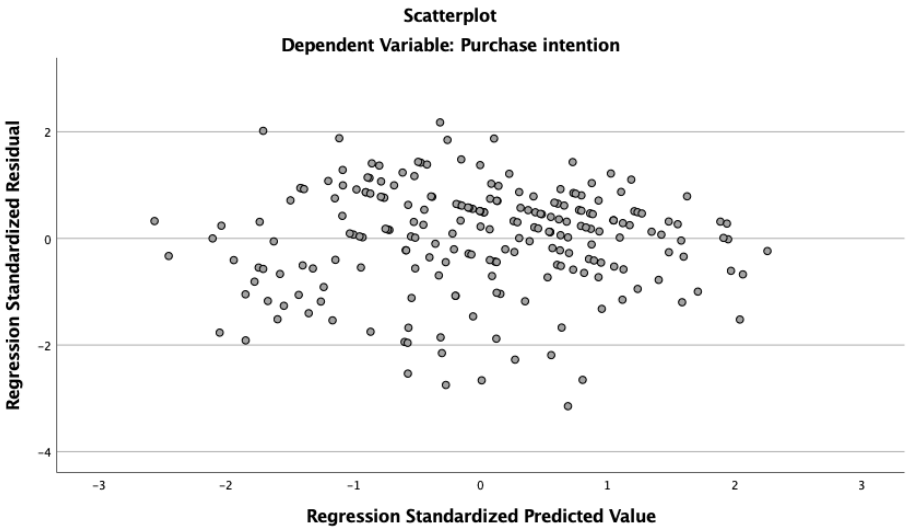

Figure 10. Scatterplot model 3

Variable	**Tolerance**	**VIF**
Constant		
Perceived healthiness	0.883	1.133
Perceived convenience	0.949	1.054
Control variables		
Primary education	0.949	1.054
Secondary education	0.794	1.260
Higher professional education	0.717	1.394
University education	0.781	1.280
Age	0.859	1.164
Gender	0.941	1.062
Familiarity	0.871	1.148
Household size	0.929	1.077

Dependent variable: Purchase intention

Table 19. Tolerance and VIF values model 3

Appendix VIII. Model 1 with reference category premiums

Variable	**β**	**SE B**	**t**	**Sig.**	**H**
Price-cut	-0.335	0.301	-1.110	0.268	H3c: -
No promotion	0.030	0.304	0.098	0.922	

Price-cut * National Brand	0.786	0.418	1.880	0.061	H6c: +
No promotion * National Brand	0.112	0.427	0.263	0.793	

Dependent variable: Perceived healthiness

Reference category: Premiums

Table 20. Model 1 with reference category premiums

Appendix IX. Model 2 with reference category premiums

Variable	**β**	**SE B**	**t**	**Sig.**	**H**
Price-cut	-0.213	0.205	-1.012	0.313	H4c: +
No promotion	-0.360	0.213	-1.694	0.092	
Price-cut * National Brand	0.893	0.289	1.617	0.107	H5c: +
No promotion * National Brand	0.422	0.299	1.414	0.159	

Dependent variable: Perceived convenience

Reference category: Premiums

Table 21. Model 2 with reference category premiums

Appendix X. Moderated mediation analysis

Moderated mediation effects	**Effect**	**BootSE**	**BootLLCI**	**BootULCI**
Perceived healthiness	-0.0126	0.0466	-0.1260	0.0699
Perceived convenience	0.0272	0.1818	-0.3142	0.4055

Independent variable: Promotions

Dependent variable: Purchase intention

Table 22. Moderated mediation effect nutritional knowledge