UNIVERSITY OF TWENTE.

Did you really understand it?

Subjective and objective understanding of health claims

Master thesis

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ABSTRACT

Consumers are becoming more aware of their eating habits and they want to buy foods that help them manage their consumption. The use of health claims is one approach to assist consumers in a healthy food selection. However, these claims are only effective when consumers understand them. At this moment, consumer understanding of health claims is low.

This study aims to find out which factors affect the understanding of health claims and is built around the research question: "*Which health claims are easier to understand?"*. The experiment is based on a 2 (accepted or not accepted health claim carrier product) x 4 (simple or complex verbal health claim, pictorial health claim or no health claim) x 3 (high, middle or low education) design. The influences of these variables are examined on subjective and objective understanding, product evaluation and purchase intention.

Regarding the type of claim, the conducted study shows that consumers think they understand simple verbal health claims better than complex verbal health claims. However, no difference was found between the two formats of health claims in objective understanding. Simple verbal health claims are better subjectively understood than pictorial claims and simple and complex verbal health claims are better objectively understood than pictorial health claims. Regarding the type of product, health claims placed on products that are accepted as carrier of these claims are better objectively, however not subjectively, understood. Health claims placed on accepted carrier products lead to higher product evaluation and purchase intention. For education, results show consumers with a high level of education objectively understand verbal health claims placed on accepted carrier products better than consumers with a lower education. They also showed higher purchase intentions for these products than consumers with a middle and low level of education. Finally, less objective understanding of pictorial health claims leads to less purchase intentions.

This study is relevant for marketers and research. It provides scientific and empirical support for designing understandable health claims, which leads to more effective and informed consumer purchases and the achievement of health gains. In addition, it gives insight in the relation between health claims and product evaluation and purchase intentions.

Keywords: health claim understanding, complexity of health claims, pictorial health claims, verbal health claims, carrier products of health claims

CONTENT

INTRODUCTION

Over the last few years, healthy eating has become a notable trend. Consumers are more aware of their consuming habits and they want to buy foods that help them manage their consumption (Scott, Nowlis, Mandel & Morales, 2008). By improving the diet it is possible to achieve health gains for diseases such as diabetes, hypertension and obesity (Hiddink, 2000; Truswell, Hiddink & Blom, 2003).

A supportive environment helps consumers in making healthy food choices (Cowburn & Stockley, 2005). The use of health claims is one approach aimed at helping consumers with a healthy food selection. Health claims provide information to consumers about several food characteristics and they influence consumer preferences, which lead to an increased perceived healthiness of the products and facilitate well- informed food choices (Leathwood, Richardson, Strater, Todd & van Trijp, 2007). There is evidence that the use of health claims has the potential to contribute to the quality of dietary choices by assisting consumers during food choices, which contributes to the improvement of public health (Williams, 2005; van Trijp & van der Lans, 2007; Leathwood et al., 2007). Health claims can therefore exert a positive influence on public health. Alongside the positive aspects, a negative side of health claims is that they can be misleading. Many countries have developed laws and guidelines for constructing health claims (Leathwood et al., 2007). The use of health claims is only permitted if the average consumer can be expected to understand the expressions in the claim. The average consumer is one who is reasonably well informed and cautious (Leathwood et al., 2007).

However, despite legislation, consumer understanding of health claims is low (Lähteenmäki, 2013). Consumers are therefore limited in basing their purchases on their understanding of the health claims on packages (Svederberg, 2002). Next to this, a lack of understanding of health claims leads to a diminished perceived credibility of the claim (Williams, 2005) and a potential for consumer confusion (Svederberg, 2002). Consumers also become more sceptical about health claims since they are well aware of the manufacturers' selling techniques (Food Standards Agency, 2007).

The effect of health claims is mediated by understanding and this explains why the impact of health claims is at this moment small (Grunert, Fernández-Celemín Wills, Bonsmann, & Nureeva, 2010). Based on their understanding, consumers use the information on a claim to make inferences about the healthiness of a product. However, if understanding

is low, consumers cannot use the benefits of the health claims on the products as aimed by the manufacturer.

This study will therefore examine which factors affect the understanding of health claims and is built around the following research question: "*Which health claims are easier to understand?"*. Understanding of health claims is affected by product and consumer characteristics (Wills et al., 2012). This study will focus on the product characteristics 'type of claim' and 'type of product'. Health claims can be designed either verbal or pictorial: both designs will be compared, whereby for the verbal health claims different wordings of the claim will be analyzed. In addition, it will be examined whether understanding differs for accepted or not accepted health claim carrier products categories. For the consumer characteristics, the educational level of the consumers will be taken into account. Finally, the impact of health claims on product evaluation and purchase intentions will be examined.

This area of research has received limited attention (Williams, 2005; Grunert, Scholderer & Rogeaux, 2011). Regarding product characteristics, research is usually carried out with one product, especially yoghurt (Wills et al.2012). Limited comparisons are made between different types of health claims (Viswanathan, Hastak & Gau, 2009). No comparisons are made between verbal and pictorial health claims and understanding. For the consumer characteristics, the dated findings (Geiger & Parent, 1991) of the impact of education on understanding should be updated.

The aim of this study is providing scientific and empirical support for designing understandable health claims. This leads to more effective health claims and informed consumer purchases, which will lead to the achievement of health gains. In addition, with the results product evaluations and purchase intentions of products which carry a health claim can be improved.

THEORETICAL FRAMEWORK

In this chapter, theories of inference making will be discussed and the influence of the type of claim, type of product and consumer characteristics in relation to understanding will be analyzed. Finally, the relation between health claims and purchase evaluation and purchase intention will be discussed.

2.1 Theories of inference making

Understanding of health claims can be defined as follows: *'If consumers correctly interpret the beneficial effects in the claim and do not over-generalise or make inappropriate inferences, they can be considered to understand the claim'* (Leathwood et al., 2007, p.478). Svederberg (2002) and Wills et al. (2012) indicate a barrier during the first step in the purchase process; consumers do not always understand health claims as they are intended. Inference making is a process which leads to a lack of understanding. Grunert et al. (2011) state that when consumers perceive new information, they unconsciously relate new information to information already stored in memory, which is called "spreading activation" (Leathwood et al., 2007). Spreading activation can be related to the amount of prior knowledge (Grunert et al.,2011) and causes inference making of health claims, whereby the consumers' understanding of the claim will be influenced by the existing knowledge and the spreading of activation through the stored knowledge (Leathwood et al., 2007).

There are three types of potential biases in consumer inferences from health claims. First, a mere-label effect exists when consumers' over- rate products' positivity on all food attributes (van Trijp & van der Lans, 2007). Second, claims on a particular ingredient can lead to a halo effect. Consumers generalise a positive effect caused by the claim to other things not implicit in the claim (Grunert et al., 2011). Third, a magic bullet effect occurs when consumers generalize health claims and believe that the product in general is healthy (van Trijp & van der Lans, 2007). However, this does not have to be true, while the claim is only about a specific benefit of the product (van Trijp & van der Lans, 2007; Grunert et al., 2011).

Research shows different outcomes with respect to making inferences. Grunert et al., (2011) state that consumers generalize messages in health claims or perceive products as generally superior. They indicate the existence of a magic bullet and halo effect. Leathwood et al. (2007) and Williams (2005) also indicate the existence of inference making of positive health benefits. However, Lähteenmäki et al. (2010) did not find a halo effect of claims.

2.2 Subjective and objective understanding

Researchers differentiate between two types of understanding; subjective and objective understanding. Subjective understanding is how easy or difficult consumers perceive the claim to be understood (Wills, Storcksdieck genannt Bonsmann, Kolka & Grunert, 2012). Objective understanding is whether consumer understanding is in accordance with the real meaning of the claim (Wills et al., 2012).

In this research there will be referred to both subjective and objective understanding when 'understanding' is discussed, unless stated otherwise. Below, the influence of type of claim, type of product and consumer characteristics on understanding will be examined.

2.2.1 Type of claim

Understanding health claims can be affected by product and consumer characteristics. Product characteristics are, among other things, the type of claim and the type of product (Wills et al., 2012).

There are different types of health claims, which can be designed either verbal or pictorial. For verbal health claims, the wording can be seen in terms of short and easy or long and complex. Grunert, Lähteenmäki & Boztug (2009) suggest that two groups of consumers can be distinguished: one group prefers short messages, concentrating on the health benefit without explaining why this health benefit occurs. The other group prefers more detailed information on health claims, providing the full story. To which group a consumer belongs is related to consumer characteristics. Consumers who are more exposed to health claims become more familiar with this information and are able to process more information. Longer health claims would be better understood by them, since they develop an understanding of the underlying architecture of health claims and can therefore better understand the specific differences of working ingredients and their promised health benefit.

Wills et al. (2012), however, indicate that the naming of complex, scientific evidence on health claims is poorly understood by all types of consumers. His results are supported by various other researches (Williams, 2005; Wansink, 2003). Complex health claims generate more specific attribute-related thoughts and more inferences (Wansink, Sonka, Morganosky & Hasler, 2001). Consumers are more reluctant to read longer claims and this result in inaccurate information processing because of limited time and short-term memory capacity and an overload in consumers' information processing capacity (Wansink et al., 2001). Therefore, consumers understand these claims less (Williams, 2005).

Literature findings are not uniform, however, the major part of the studies shows that simple health claims are better understood than complex health claims. This is contrary to Grunert et al. (2009) findings. However, familiarity might play a role in their findings. Hypothesized will be:

H1: Verbal health claims with simple wordings are better understood by consumers than health claims with complex, scientific wordings.

In recent years, there is a focus on simplified messages or pictorial health claims on the front of packages (Wills, Schmidt, Pillo-Blocka & Cairns, 2009). Grunert, Wills and Fernández-Celemín (2010) indicate that consumers have little difficulty in understanding pictorial health claims. The interpretation of a pictorial claim does not require detailed nutritional knowledge and can therefore be useful for all consumer groups, especially for lower socio-economic groups (Vyth et al., 2009 ; Consumer Association, 2006 as described in Food Standards Agency, 2007). A negative consequence can be, however, a possible conflict with other coding systems (Federal Trade Commision, 2006, as described in Food Standards Agency, 2007). Since most research show positive findings of pictorial health claims, this study states that:

H2: Pictorial health claims will be better understood by consumers than verbal health claims.

However, van Trijp and van der Lans (2007) state that there is an interaction effect. The type of claim and related understanding differs by benefit. This implies that the product which contains the health claim has an effect at the perceived understanding

2.2.2 Type of product

For the type of product in relation to understanding, van Trijp and van der Lans (2007) indicate an interaction with the benefit being claimed. In their study, health claims placed on products which helps for weight and concentration are more easily understood, than health claims placed on products which helps for cardiovasculair diseases. This is a result of the familiarity with the ingredient and their natural link of the benefits contained in the claim to the carrier product. These findings implicate a relation between understanding and the type of product. When the link of benefits contained in the claim to the carrier product is further

analyzed, van Kleef, van Trijp and Luning (2005) state that products that already have a healthy image are easier to accept as carriers of health claims. In their study, Dutch consumers indicate that health claims are perceived as most attractive on yoghurt and brown bread and least attractive on meat replacers and chewing gum. However, Lampila, van Lieshout, Gremmen and Lähteenmäki (2009) indicate that health claims on healthy products which are accepted as carriers of health claims can be evaluated as unnecessary, since the product is already healthy.

In most of the findings, health claims are more accepted when linked to products with a positive health claim. To analyze if there is a relation between acceptance and understanding, we state that:

H3: Verbal and pictorial health claims placed on brown bread will be better understood than verbal and pictorial health claims placed on meat replacers.

While most previous research focussed on yoghurt products, this research will analyze understanding of health claims on brown bread as accepted carriers and on meat replacer as less accepted carrier of health claims.

2.2.3 Consumer characteristics

Understanding health claims can be affected by product and consumer characteristics. Consumer characteristics are related to, among other things, interest in healthy food and the educational level (Wills et al, 2012).

Consumers who are interested in healthy food are more knowledgeable about food and health (Ares, Giménez & Gámbaro, 2008). The impact of knowledge on understanding is not uniform. Grunert et al. (2011) stated consumers with more knowledge find it easier to process and understand health claim information. However, in their research, individuals with more knowledge made more inappropriate inferences. These findings are in accordance with spreading activation theory, whereby understanding is influenced by existing knowledge and causes inappropriate inference making (Leathwood et al., 2007). In turn, Ares et al. (2008) indicates a lack of nutrition knowledge limit consumers' understanding of a claim. This implicates the opposite effect. Since literature findings are not uniform, the effect of health interest should be controlled for in this study. In addition, in this study, the chosen subject

matter might not be appealing for all respondents. To control for this, the control variable 'General Health Interest' will be added.

For the educational level, Fullmer, Geiger and Parent (1991) found consumers with higher levels of education had a better understanding of health claims. To strengthen existing, however dated, findings, it will be stated that:

H4: Consumers with higher educational levels understand verbal and pictorial health claims better than consumers with middle and low educational levels.

2.3 Product evaluation and purchase intention

The relation between product evaluation and purchase intention and health claims will be examined. A distinction will be made between the influence of type of claim, type of product and consumer characteristics.

2.3.1 Type of claim

The type of claim can influence consumers' pre-purchase expectations and post-trial evaluations. Too much information causes consumers to make poorer decisions and confusion (Mahotra, 1982 as described in Wansink et al., 2001). It can be assumed that in simple verbal claims and pictorial claims, not too much information is presented. In this study it will therefore be stated that:

H5: Simple verbal health claims and pictorial health claims will result in a higher product evaluation than complex verbal health claims.

The impact of health claims on purchase intention is not uniform. Research shows health claims can lead to a positive effect on purchase intention, since these claims influence positive perceptions of the product (Food Standards Agency, 2007). However, other research reported lower purchase intentions for products with a health claim, due to lower perceived credibility (Verbeke, Scholderer, Lahteenmaki, 2009). In addition, the 'unhealthy is tasty' intuition can have an influence on purchase intention. Health claims underline the positive aspect of a product. Raghunathan, Naylor and Hoyer (2006), indicate the less healthy the product is portrayed, the better is its inferred taste. Consumers therefore show a higher preference to choose the less healthy product. When a health claim is present, consumers

might see the product as healthy and therefore do not prefer to choose the product. Purchase intention will then decrease.

Literature findings for the impact of health claims on purchase intentions are mixed. However, literature indicates a positive relation between product evaluation and purchase intention (Siegrist et al., 2008). In this study, a higher product evaluation is expected when health claims are present, at least for simple verbal and pictorial health claims. Therefore, it will be stated that:

H6: The presence of health claims leads to higher purchase intentions than when health claims are not present.

In addition, Saba et al. (2010) showed that the type of health claim did not have an influence on purchase intentions. The used formats in their study were general or disease risk, and differ from the formats used in this study. It is implicated that the main effect found in their study can be generalized to other health claim formats and therefore it will be stated that:

H7: The format of the health claim has no influence on purchase intention.

2.3.2 Type of product

When a consumer understands a health claim, he or she will develop an attitude toward the claim and eventually to the product (Wills et al., 2012). This attitude can be formed by evaluating a product by looking at the perceived taste and quality of a product. Perceived taste is an experience quality (Oude Ophuis & van Trijp, 1995) and is according to Siegrist, Stampfli and Kastenholz (2008) one of the strongest predictors whether a customer will or will not buy a food product. Cardello (1995) states that the perceived quality refers to the acceptance of the perceived characteristics of a product. As stated before, Van Kleef et al. (2005) indicate products that already have a healthy image are easier to accept as carriers of health claims. Therefore, it will be implicated that products that are accepted as a carrier of health claims show a higher perceived quality and thereby a higher product evaluation:

H8: Verbal and pictorial health claims placed on brown bread will result in a higher product evaluation than verbal and pictorial health claims placed on meat replacers.

Further, the product type affects attitudes towards health claims and thereby purchases intentions (Wills et al., 2011). Products which are more accepted as a carrier of health claims show a higher buying intention (Grunert et al., 2009). To strengthen existing findings, it will be stated that:

H9: Verbal and pictorial health claims placed on brown bread will show a higher purchase intention than verbal and pictorial health claims placed on meat replacers.

2.3.3 Consumer characteristics

For consumer characteristics, no research has been conducted on the relation between the level of education and purchase intention of products carrying a health claim. Wills et al. (2012) point out research conducted by Pothoulaki and Chryssochoidis (2009), who found a relation between less purchase intentions and a lack of understanding of the information being read. This implicates that when health claims are present, understanding health claims has a positive effect on purchase intentions. Fullmer, Geiger and Parent (1991) stated consumers with higher educational levels had a better understanding of health claims. Understanding has a positive effect on purchase intention; therefore consumers with higher educational levels will show higher purchase intentions, since assumed can be that they understand health claims better than consumer with lower educational levels. It will be stated that:

H10: Consumers with a high level of education will show higher levels of purchase intention of products which carry a health claim, than consumers with middle and low educational levels.

To strengthen the premise that understanding and purchase intentions are positively correlated, it will be stated that:

H11: A higher understanding of health claims will lead to a higher purchase intention than a lower understanding of health claims.

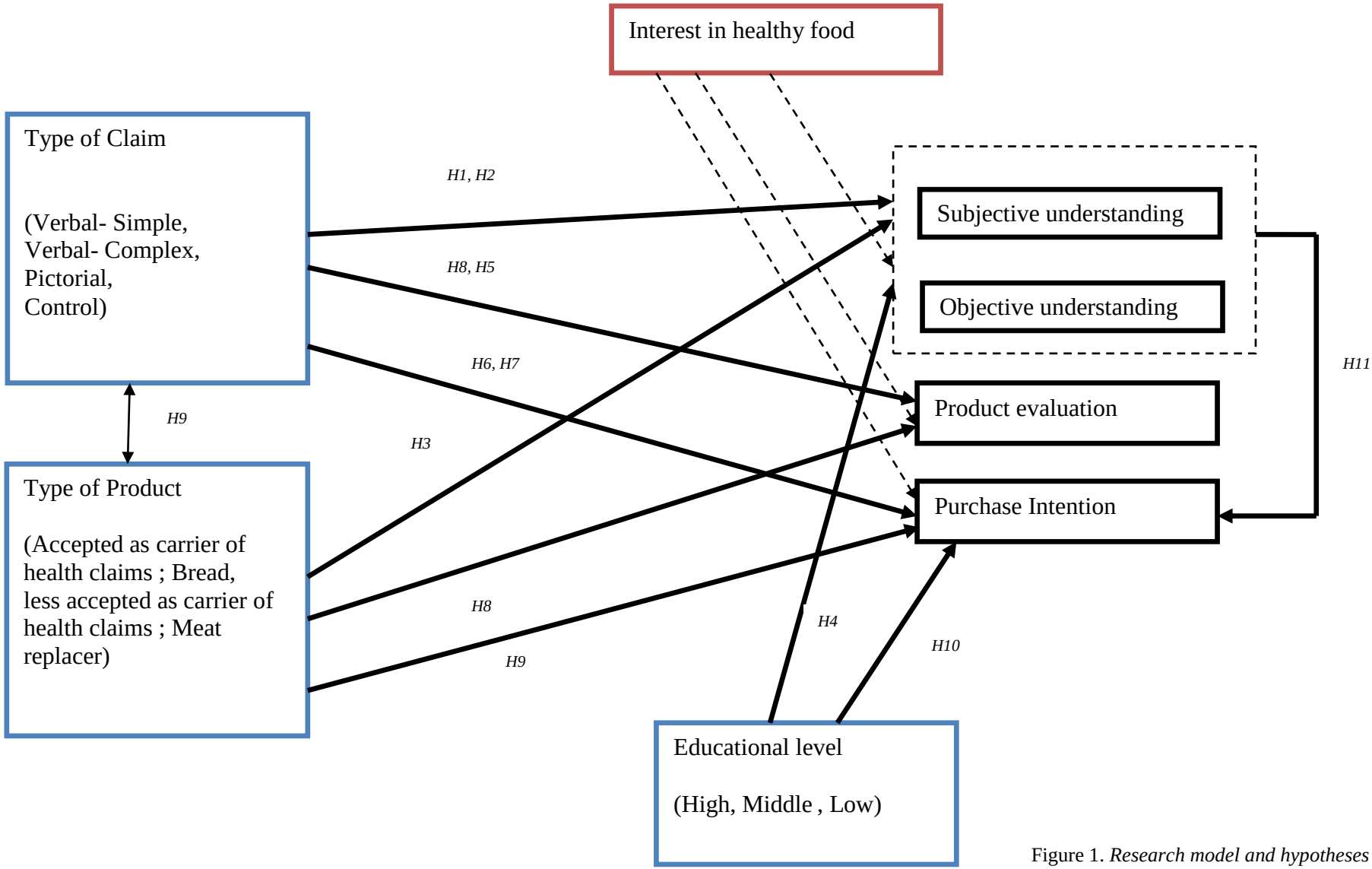

Figure 1. *Research model and hypotheses*

METHOD

A quantitative study with an experimental design is conducted in order to gain insight in the factors that have an impact on the understanding of health claims. In this chapter, the pretest, the design of the study and the questionnaires will be described.

3.1 Pretest

Prior to the main data gathering of this study, a pre-test was conducted in order to select the verbal claims used in the main experiment. Nine claims, varying in difficulty, have been presented to 22 respondents with different educational backgrounds. All claims are constructed around the ingredient 'bioactive peptides'.

The ingredient bioactive peptide was chosen, since it can be credibly linked to a number of health functions and benefits (Grunert et al., 2009). Bioactive peptides are short chains of amino acids that are inactive in the native protein, but which, after release from the protein, produce a physiological effect in the body. They have an anti-inflammatory action, immune moderation, and antisepsis and antibiotic activity (Owusu-Apenten, 2010). Among other products, bioactive peptides can be derived from bread and soy beans.

There are four different versions of the pre-test distributed, in which the order of the claims varied per version. This was done to avoid order bias. Respondents were asked how easy or difficult they found the claims. Based on this pre-test, the 'simple' verbal claim: *"Contains substances which strengthens the body's resistance"*, was chosen, (*M=4.73; SD*=.46). The claim *"Contains bioactive peptides with immunomodulatory effects, which causes a physiological effect of activated resistance in the body"*, (*M=1.27; SD*=.55), was selected as 'complex'.

As a reference, the pre-test can be found in Appendix B.

3.2 Procedure

The objective of the study is to understand the comprehensiveness of different health claims. First, the research proposal was approved by the Ethics Committee of the Faculty of Behavioural Sciences of the University of Twente. The main experiment was carried out in April and May 2015 and was conducted with a web-based questionnaire developed with 'thesistool.com' and an offline questionnaire. An online questionnaire was chosen because in this way many respondents can be questioned and a wide distribution was achieved. Next to this, Couper (2008) states online questionnaires provide valid results, with a small risk of social desirability. However, potential problems can occur due to incomplete questionnaires.

These incomplete questionnaires were excluded from use. Offline questionnaires were used in order to come into contact with the more difficult target groups, for example people with a lower education.

Respondents were recruited for this study face-to-face, by e-mail or with the use of social media.There were no restrictions regarding gender and education. The language of the survey was in Dutch, therefore participants should understand this language. The respondents were randomly assigned to one of the four experimental conditions: the Simple, Complex, Pictorial or Control condition. During the experiment, participants were informed about the duration and the purpose of the research. In addition, it was told no answer was good or wrong, that the results would be treated anonymously and they got the option to stop with the survey at every moment. The questionnaires for the four conditions can be found in Appendix C.

3.3 Participants and Study Design

For the main study, a total of 338 questionnaires were started, 241 are completed. All respondents participated voluntarily and without any rewards. Of the participants 75 (31.1%) were male, 166 (68.9%) female. The age ranged from the age group '18-30' (51.9 %) till the age group '61+' (7.5%). 160 (66.4%) consumers were familiar with eating meat replacers, 81 (33.6%) were not. The participants' characteristics per condition are shown in Table 1.

The conditions are designed in a 2 x 4 x 3 between groups design. This research design first investigated the influence of the type of product on understanding. Two products, perceived as attractive or not attractive for health claims, are used as stimulus material, respectively bread and meat replacer. Every respondent received questions about both the product bread and meat replacer. Second, the influence of the type of claim on understanding is examined. A distinction was made between simple or complex verbal health claims and a pictorial health claim. A control condition with products without a health claim is used to analyze the effect of health claims on purchase intention. Finally, the educational level of the respondents was measured and split in three groups, respectively 'low', 'middle' and 'high'. The dependent variables were subjective and objective understanding, purchase intention and product evaluation. The chosen subject might not be equally appealing for all respondents and to control for this, general health interest served as a covariate.

Table 1

Participant's characteristics per condition

		Type of claim									
		Complex Verbal		Simple Verbal		Pictorial		Control		Total	
Age		N	%	N	%	N	%	N	%	N	%
	18-30	30	54.5	28	50.9	27	50.9	40	51.3	125	51.9
	31-40	12	21.8	8	14.5	7	13.2	9	11.5	36	14.9
	41-50	4	7.3	6	10.9	7	13.2	15	19.2	32	13.3
	51-60	5	9.1	7	12.7	6	11.3	12	15.4	30	12.4
	61+	4	7.3	6	10.9	6	11.3	2	2.6	18	7.5
Gender											
	Male	15	27.3	20	36.4	15	28.3	25	32.1	75	31.1
	Female	40	72.7	35	63.6	38	71.7	53	67.9	166	68.9
Education											
	Low	14	25.5	12	21.8	12	22.6	24	30.8	62	25.7
	Middle	21	38.2	17	30.9	14	26.4	20	25.6	72	29.9
	High	20	36.4	26	47.3	27	50.9	34	43.6	107	44.4
Total		55	22.82	55	22.82	53	21.99	78	32.37	241	100

3.4 Stimulus Materials

Below, a visual overview and rational will be given of the used manipulations and primes for the pictorial logo and the type of claims.

Pictorial logo. The pictorial "Choices Logo" is displayed to analyze any differences between pictorial and verbal health claims. In the Netherlands there are two well-known pictorial claims in use, of which the Choices logo, displayed in Figure 5, is most broadly used (Vyth et al., 2009). Since 2006, this logo can be found in various supermarket chains on different brands. It should facilitate people to make informed food choices. In addition, it should lead to an innovation toward eating healthier products (Vyth et al., 2009). The logo is aimed to be used internationally. At this time, it is used in the Netherlands, the Czech Republic and Poland.

The choices logo consists of a blue and green version. This study used the green logo, 'Gezonde keuze', which can be found on healthier products from the 'Schijf van Vijf'. The 'Schijf van Vijf', created by the Nutrition Center, gives information about healthy eating. Examples of products with this logo include whole wheat bread with less salt and enough

fibre and low-fat cheese with little saturated fat. Products with this logo are not necessarily healthy or unhealthy. They are the healthier products within a product group. The logo helps you to choose a product with less saturated fat, sugar or salt. However, you cannot eat these products unlimited. Whether products without the logo are just as healthy as products with the logo depends on the composition of the product. There are healthier products carrying no check mark, because the producer has not joined the foundation. Vyth et al. (2009) state there is a high credibility rate of this logo. Therefore, and due to its wide application in Dutch supermarkets, this logo is used during the research.

Figure 5. *Used pictorial logo "Gezonde Keuze'*

Type of claim. To analyze if there is an influence of acceptance of the product as a carrier of a health claim and understanding, bread and meat replacers will be used as stimulus material. Pictures of bread and meat replacers and their health claims were digitally redesigned for the four conditions. A visual overview of the used stimulus materials for both products will be displayed below. The stimulus materials used in their real size can be found in Appendix D.

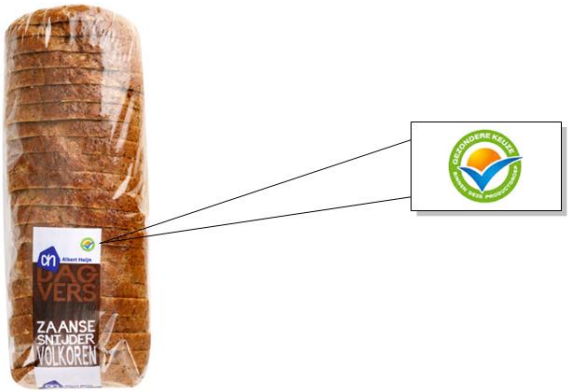

Figure 6. *Bread pictorial health claim*

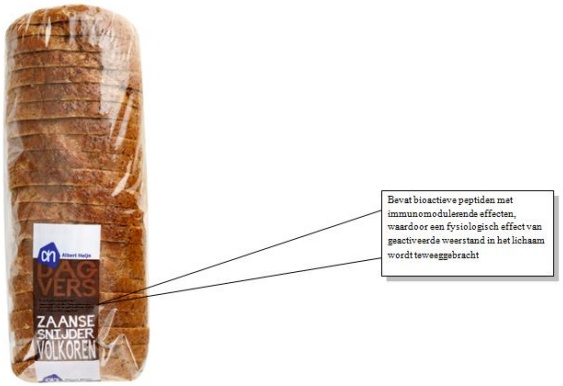

Figure 7. *Bread complex verbal health claim*

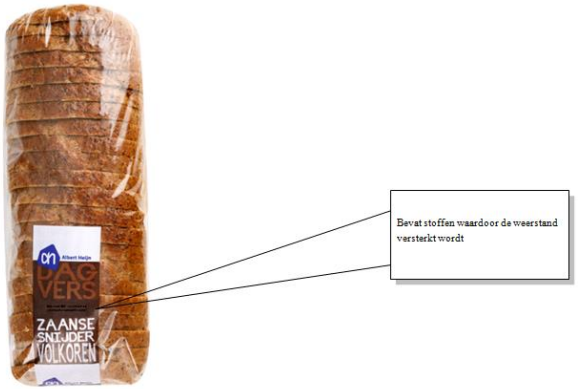

Figure 8. *Bread simple verbal health claim*

Figure 9. *Bread control*

Figure 10. *Meat replacer pictorial health claim*

Figure 11. *Meat replacer complex verbal health claim*

Figure 12. *Meat replacer simple verbal health claim*

Figure 13. *Meat replacer control*

3.5 Measures

The participants completed a questionnaire, in which the independent, dependent and covariate variables were measured. The method of measurement will be further explained for each variable below. With a discussion of the reliability of the used scales will be concluded.

3.5.1 Measurement of variables

Dependent variable Understanding. The questionnaire examined both objective and subjective understanding. Objective understanding is examined with closed questions. Five statements about the health claim that are regarded as scientifically correct and five statements that are regarded as misleading were displayed. Participants could indicate their agreement with the statements on a 5-point Likert Scale, ranging from 1 *(totally disagree)* to 5 *(totally agree)*. Statements are based on research of Grunert et al. (2011) for the verbal claims and self-constructed for the pictorial health claim. An example question for the verbal claims is "*This product helps the body against minor infections" (scientifically correct) or "This product prevents any kind of infection" (misleading)*. For the pictorial claim, questions such as "*This product contains less salt*" *(scientifically correct)* and *"This product is healthy*" (*misleading)* are used.

Subjective understanding is examined with two closed questions, based on research of Van Trijp and van der Lans (2007). An example questions is *"How difficult or easy is it for you to understand this claim"*. Statements could be answered on a 5-points-Likert Scale.

Dependent variable Purchase Intention. Next to understanding, the questionnaire contains five questions regarding consumers buying intention of the product. These questions are based on the willingness to buy indicators by Dodds, Monroe and Grenwal (1991), containing items such as *"There is a high chance of purchasing this product*". Participants could answer the questions on a 5-points-Likert Scale.

Dependent variable Product Evaluation. To measure product evaluation, questions based on perceived quality and taste indicators by Dodds, Monroe and Grenwal (1991) and Liem, Aydin and Zandstra (2012) are included. This scale consists of 6 items such as "This product should be of very good quality", which could be answered on a 5-points-Likert Scale.

Independent variable Type of Claim. The in this study used verbal health claims varied in difficulty. A simple and a complex claim are displayed, derived from the pre-test. The used simple claim is "*Contains substances which strengthens the body's resistance*". The used complex claim is "*Contains bioactive peptides with immunomodulatory effects, which*

causes a physiological effect of activated resistance in the body". Furthermore, the products are displayed without a claim. This forms the control condition to analyze the effect of health claims on purchase intention. The pictorial "Choices Logo" will be displayed to analyze any differences between pictorial and verbal health claims.

Independent variable Type of Product. Health claims are perceived as most attractive on yoghurt and brown bread and least attractive on meat replacers and chewing gum (Wills et al. 2012). To analyze if there is an influence of acceptance of the product as a carrier of a health claim and understanding, bread and meat replacers are used as stimulus material.

Independent variable Education. The educational level is questioned with demographical questions at the end of the survey.

Covariate Interest in healthy food. To analyze the effect of the covariate 'Interest in healthy food', the questionnaire will contain eight items based on the 'General Health Interest' scale developed and validated by Roinen (2001), such as *"I am very particular about the healthiness of food*". A high score on this scale is associated with more healthy food choices. Questions will be measured on a 5-point Likert scale.

3.5.2 Reliability of the used scales

Moore McCabe (2011) and Huizingh (2010) argue a minimum Alpha should be set at 0.60. Per sub-scale, Alpha's are computed. These are shown in Table 2. When an Alpha came under the set limit, checked is whether the removal of an item contributed to an increase in Alpha. This was the case for a number of sub-scales: questions have been removed from the four subscales of Objective understanding. In conclusion, all sub-scales are homogenous enough to be used for further analyses.

Table 2

Alpha for the sub-scales

Sub-scale		Question size/type	Items deleted	Alpha
Objective Understanding				
	-Bread Verbal	10-item scale Likert	1	.65*
	-Meat Replacer Verbal	10-item scale Likert	1	.67*
	-Bread Pictorial	10-item scale Likert	3	.61*
	-Meat Replacer Pictorial	10-item scale Likert	3	.60*
Subjective Understanding				
	-Bread	2-item scale Likert	0	.91*
	-Meat Replacer	2-item scale Likert	0	.91*
Purchase Intention				
	-Bread	5-item scale Likert	0	.81*
	-Meat Replacer	5-item scale Likert	0	.86*
Product Evaluation				
	-Bread	6-item scale Likert	0	.78*
	-Meat Replacer	6-item scale Likert	0	.78*
General Health Interest		8-item scale Likert	0	.80*

* = Reliable alpha at 0.6 level (Moore & McCabe, 2011; Huizingh, 2010)

3.6 Data analysis

First, two-way ANCOVAS with Claim (Complex, Simple and Pictorial) and Education (Low, Middle, High) were performed on Subjective Understanding for two products separately (Bread versus Meat Replacer). General Health Interest served as a covariate. A repeated measures ANOVA with product (Bread versus Meat Replacer) was performed on Subjective Understanding.

Second, two-way ANCOVAS with Claim (Complex versus Simple) and Education (Low, Middle, High) were performed on Objective Understanding for Verbal Claims for two products separately (Bread versus Meat Replacer). General Health Interest served as a covariate. A repeated measures ANOVA with product (Bread versus Meat Replacer) was performed on Objective Understanding for Verbal Claims.

Third, since questions for pictorial objective understanding differ from questions for verbal objective understanding, a repeated measures ANCOVA with Education (Low, Middle, High) was performed on Objective Understanding for Pictorial Claims for two products (Bread versus Meat Replacer). General Health Interest served as a covariate.

Fourth, a MANCOVA with Claim (Complex, Simple, Pictorial, Control) and Education (Low, Middle, High) was performed on Purchase Intention and Product Evaluation for two products separately (Bread versus Meat Replacer). General Health Interest served as covariate. A repeated measures ANOVA with Product (Bread versus Meat Replacer) was performed on Purchase Intention and Product Evaluation.

Fifth, a linear regression analysis is performed to examine the relationship between the dependent variables Subjective and Objective Understanding and the dependent variable Purchase Intention. For every analysis, Purchase Intention was appointed as the dependent variable, while the independent variable varied per product (Bread versus Meat Replacer), per type of claim (Verbal versus Pictorial) and per type of understanding (Subjective versus Objective).

In Appendix A, tables with mean scores and standarddeviations for the different analyses can be found.

RESULTS

4.1 Subjective Understanding

Two-way ANCOVAS with Claim (Complex, Simple, Pictorial) and Education (Low, Middle, High) were performed on Subjective Understanding for two products separately (Bread versus Meat Replacer). General Health Interest was used as covariate. Below, results will be presented per product.

4.1.1 Subjective Understanding Bread

A two-way ANCOVA with Claim (Complex, Simple, Pictorial) and Education (Low, Middle, High) was performed on Subjective Understanding for Bread. General Health Interest was used as covariate to control for existing personal interest towards the subject matter. In the Appendix, Table 3 shows mean scores and standard deviations for Subjective Understanding Bread.

After adjusting for General Health Interest, F (1,148) =3.89, p = .051, partial η2 = .03, ANCOVA shows a statistically significant main effect of Claim on Subjective Understanding for Bread, $F(2, 148)=11.69$, $p<.001$, partial η2 =.14.

Post hoc tests using the Bonferroni correction indicate Simple claims (*M=3.63; SD*=.16) are significantly better subjectively understood than Complex claims (*M=2.60 ; SD*=.15), $p < .001$ and Pictorial claims (*M=2.93 ; SD*=.16), $p = .007$. Figure 14 illustrate this effect.

No statistically significant main effect for Education, F (2.00, 148.00) = .21, p =.810, partial η2 =.00 or an interaction effect of Claim and Education, F (4.00, 148.00) = .94, p =.445, partial η2 =.03, were found.

4.1.2 Subjective Understanding Meat Replacer

A two-way ANCOVA with Claim (Complex, Simple, Pictorial) and Education (Low, Middle, High) was performed on Subjective Understanding for Meat Replacers. Health Interest was used as covariate to control for existing personal interest towards the subject matter. In the Appendix, Table 4 shows mean scores and standard deviations for Subjective Understanding Meat Replacer.

After adjusting for General Health Interest, F (1,149)=2.25, p = .136, partial η2 = .02, ANCOVA shows a statistically significant main effect of Claim on Subjective Understanding for Meat Replacer, F (2, 149)=13.14, p<.001, partial η2 =.15.

Post hoc tests using the Bonferroni correction indicate Simple Claims (*M=3.73; SD*=.15) are significantly better subjectively understood than Complex Claims (*M=2.63; SD*=.15), p < .001 and Pictorial Claims (*M=3.04; SD*=.16), p = .007. Figure 14 illustrate this effect.

No statistically significant main effect for Education, F (2.00, 149.00) = .10, p =.901, partial η2 =.00 or an interaction effect of Claim and Education, F (4.00, 149.00) = .57, p =.687, partial η2 =.02, were found.

4.1.3 Within subject comparisons Bread and Meat Replacer

A repeated measures ANOVA with product (Bread versus Meat Replacer) was performed on Subjective Understanding. In the Appendix, Table 5 shows mean scores and standard deviations for Subjective Understanding for Bread and Meat Replacer.

Results indicated Subjective Understanding differed statistically significantly for products, F (1.00, 158.00) = 4.00, p = 0.047, partial η2 =.03.

Post hoc tests using the Bonferroni correction revealed health claims on Meat Replacers (*M=3.15; SD*=.08) were significantly subjectively better understood than health claims on Bread (*M=3.06; SD*=.08). Figure 14 illustrate this effect.

No interaction effect of Product and Claim has been found, F (2.00, 158.00) = .26, p =.775, partial η2 =.00.

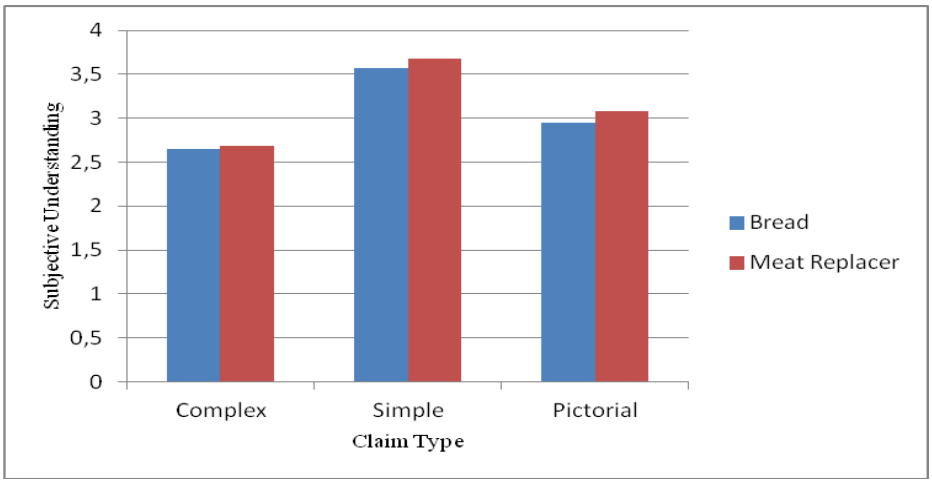

Figure 14. Mean scores Subjective Understanding Bread and Meat Replacer as a function of Claim type and Product.

4.2 Objective Understanding verbal claims

Two-way ANCOVAS with Claim (Complex versus Simple) and Education (Low, Middle, High) were performed on Objective Understanding for Verbal Claims for two products separately (Bread versus Meat Replacer). General Health Interest served as a covariate. Below, results will be presented per product.

4.2.1 Objective Understanding Verbal Bread

A two-way ANCOVA with Claim (Complex versus Simple) and Education (Low, Middle, High) was performed on Objective Understanding for Verbal Claims for Bread. General Health Interest was used as covariate to control for existing personal interest towards the subject matter. In the Appendix, Table 6 shows mean scores and standard deviations for Objective Understanding Bread.

After adjusting for General Health Interest, F (1, 92) =.62, p = .432, partial η2 = .01, ANCOVA shows no significant main effects: Claim, F (1, 92) = 2.46, p =.120, partial η2 =.03, Education, F (2,92) = 1.49, p =.230, partial η2 =.03. In addition, no interaction effect of Claim and Education was found, F (2, 92) = .14, p =.867, partial η2 =.00

4.2.2 Objective Understanding Verbal Meat Replacer

A two-way ANCOVA with Claim (Complex versus Simple) and Education (Low, Middle, High) was performed on Objective Understanding for Verbal Claims for Meat Replacer. General Health Interest was used as covariate. In the Appendix, Table 7 shows mean scores and standard deviations for Objective Understanding Meat Replacer.

After adjusting for General Health Interest, $F(1,95)=.00$, $p = .959$, partial $\eta 2 = .00$, ANCOVA shows a statistically significant main effect of Education on Objective Understanding for Verbal claims for the product Meat Replacer: $F(2, 95)=3.58$, $p= .031$, partial $\eta 2 =.07$.

Post hoc tests using the Bonferroni correction indicate consumers with a High level of Education (*M=3.47; SD*=.07) objectively understood verbal health claims better than consumers with a Low level of Education (*M=3.13; SD*=.10). For consumers with a Middle level of Education (*M=3.38; SD*=.08), no statistically significant difference was found. Figure 15 illustrate this effect.

No statistically significant main effect for Claim, $F(1, 95) =.86$, $p= .356$, partial $\eta 2 =.07$, or an interaction effect of Claim and Education, $F(2, 95) =.101$, $p= .904$, partial $\eta 2 =.00$, were found.

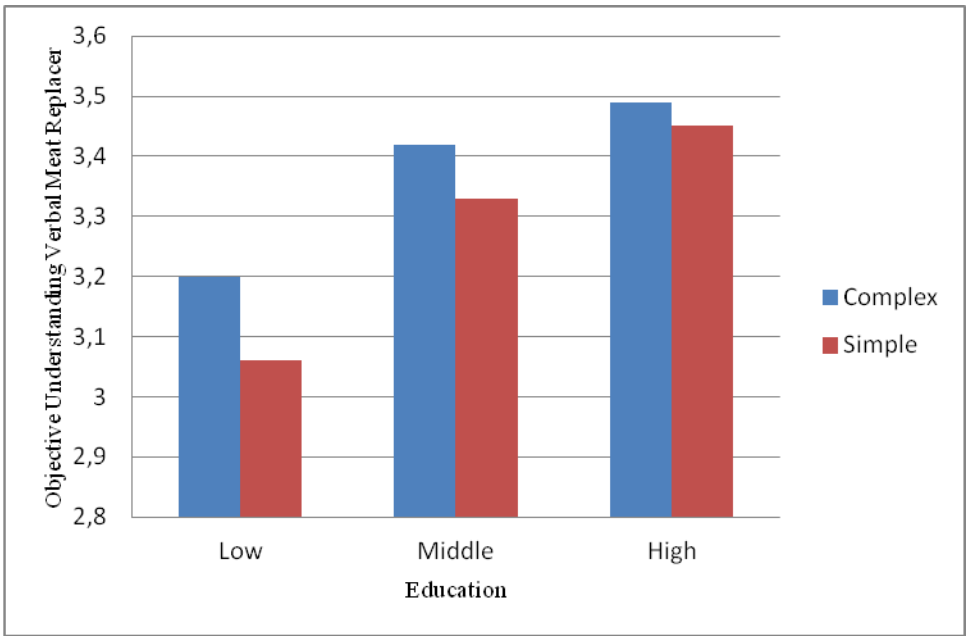

Figure 15. Mean scores Objective Understanding Verbal Meat Replacer as a function of Education and Claim type

4.2.3 Within subject comparisons Bread and Meat Replacer

A repeated measures ANOVA with product (Bread versus Meat Replacer) was performed on Objective Understanding for verbal claims. In the Appendix, Table 8 shows mean scores and standard deviations for Objective Understanding for verbal claims for Bread and Meat Replacer.

Results indicated Objective Understanding for verbal claims differed statistically significantly for products ($F(1, 92) = 29.57$, $P < .001$, partial $\eta 2 = .24$). Post hoc tests using the Bonferroni correction revealed verbal claims on Bread (*M=3.50; SD*=.05) were significantly objectively better understood than claims on Meat Replacers (*M=3.37; SD*=.05).

Also, an interaction effect of Type of product and Type of claim has been found, ($F(1, 92) = 9.53$, $P < .001$, partial $\eta 2 = .09$). Complex claims on Bread were better understood (*M=3.42; SD*=.07) than complex claims on Meat Replacers (*M=3.37; SD*=.07). Simple claims on Bread were also better understood (*M=3.57; SD*=.07) than Simple claims on Meat Replacers (*M=3.37; SD*=.07). Figure 16 shows these effects.

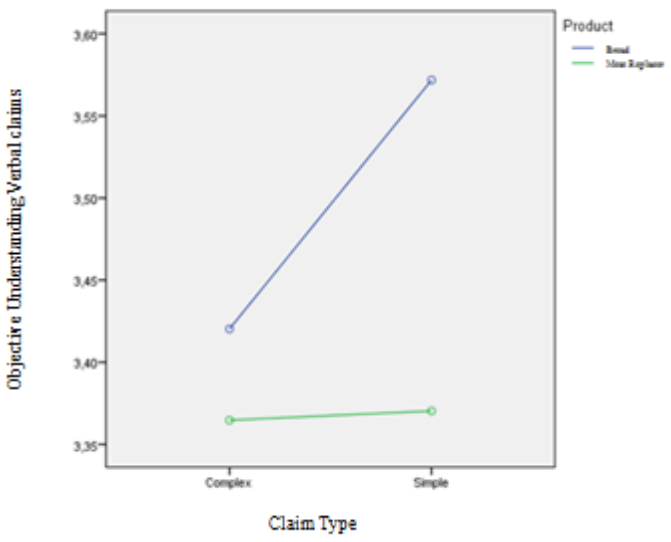

Figure 16. Mean scores of Objective Understanding Verbal claims as a function of Claim type and Product.

4.3 Objective Understanding Pictorial claims for Bread and Meat Replacer

Since questions for pictorial Objective Understanding differ from questions for verbal Objective Understanding, a repeated measures ANCOVA with Education (Low, Middle, High) was performed on Objective Understanding for Pictorial Claims for two products (Bread versus Meat Replacer). General Health Interest served as a covariate. In the Appendix, Table 9 shows mean scores and standard deviations for Objective Understanding Pictorial claims for Bread and Meat Replacer.

After adjusting for General Health Interest, $F(1, 47) = 1.26$, $p = .268$, partial $\eta 2 = .03$), tests of between- subjects effects show no statistically significant effect of Education on Objective Understanding for Pictorial Claims, $F(2, 47) = 2.16$, $p = .126$, partial $\eta 2 = .08$.

In addition, Objective Understanding for Pictorial claims shows no statistically significant difference for products, $F(1, 47) = .11$, $p = .732$, partial $\eta 2 = .00$. No interaction effects of Objective Understanding and Education has been found, $F(2, 47) = .28$, $p = .757$, partial $\eta 2 = .01$. Also, no interaction effect of Objective Understanding and General Health Interest has been found, $F(1, 47) = .42$, $p = .519$, partial $\eta 2 = .00$.

4.4 Product Evaluation and Purchase Intention

A MANCOVA with Claim (Complex, Simple, Pictorial, Control) and Education (Low, Middle, High) was performed on Purchase Intention and Product Evaluation for two products separately (Bread versus Meat Replacer). General Health Interest was used as covariate. Per product, results will be discussed below.

4.4.1 Product Evaluation and Purchase Intention Bread

A MANCOVA with Claim (Complex, Simple, Pictorial, Control) and Education (Low, Middle, High) was performed on Product Evaluation and Purchase Intention for Bread. General Health Interest was used as covariate to control for existing personal interest towards the subject matter. In the Appendix, Table 10 and 11 shows mean scores and standard deviations for Product Evaluation and Purchase Intention for Bread.

After adjusting for General Health Interest, $F(2,219)=.08$, $p = .923$, there was a statistically significant main effect for Claim on the data variance, $F(6,438)=2.47$, $p = .023$, Wilks' Lambda = .94, partial $\eta 2 = .03$.

When the results for the dependent variables were considered separately, only Purchase Intention Bread shows statistically significant results for the main effect Claim: Purchase Intention Bread, $F(3, 220) = 3.57$, $p = .015$, partial $\eta 2 = .05$; Product Evaluation Bread, $F(3,220) = 2.39$, $p = .069$, partial $\eta 2 = .03$. Figure 19 illustrates this effect. However, post-hoc comparisons for Purchase Intention Bread using t Tests with Bonferroni correction indicated that these differences were not statistically significant.

There was no statistically significant main effect for Education, $F(4,438) = 1.73$, $p = .142$, Wilks' Lambda = .97, partial $\eta 2 = .02$. Also there was no statistically significant interaction effect of Claim and Education, $F(12,438) = 1.24$, $p = .250$, Wilks' Lambda = .94, partial $\eta 2 = .03$.

4.4.2 Product Evaluation and Purchase Intention Meat Replacer

A MANCOVA with Claim (Complex, Simple, Pictorial, Control) and Education (Low, Middle, High) was performed on Purchase Intention and Product Evaluation for Meat Replacers. General Health Interest was used as covariate to control for existing personal interest towards the subject matter. In the Appendix, Table 12 and 13 shows mean scores and standard deviations for Product Evaluation and for Purchase Intention Meat Replacer.

After adjusting for General Health Interest, $F(2,221) = .51$, $p = .601$, Wilks' Lambda = .99, partial $\eta 2 = .01$, there was a statistically significant main effect for Education on the data variance, $F(4,442) = 4.37$, $p = .002$, Wilks' Lambda = .93, partial $\eta 2 = .04$.

When the results for the dependent variables were considered separately, only Purchase Intention Meat Replacer shows statistically significant results for the main effect Claim: Purchase Intention Meat Replacer, $F(2, 222) = 8.01$, $p < .001$, partial $\eta 2 = .07$; Quality Meat Replacer, $F(2,222) = 1.13$, $p = .326$, partial $\eta 2 = .01$.

Post-hoc comparisons for Purchase Intention Meat Replacer using t Tests with Bonferroni correction indicated that respondents with a High level of education have a higher Purchase Intention (*M=2.70; SD*=.09), than respondents with a Middle level of education (*M=2.31; SD*=.11) and a Low level of education (*M=2.14; SD*=.12), $p<.001$. Figure 17 illustrates this effect.

There was no statistically significant main effect for Claim type, $F(6,442) = .25$, $p = .959$, Wilks' Lambda = .99, partial $\eta 2 = .00$. Also there was no statistically significant interaction effect, $F(12,442) = .57$, $p = .863$, Wilks' Lambda = .97, partial $\eta 2 = .02$.

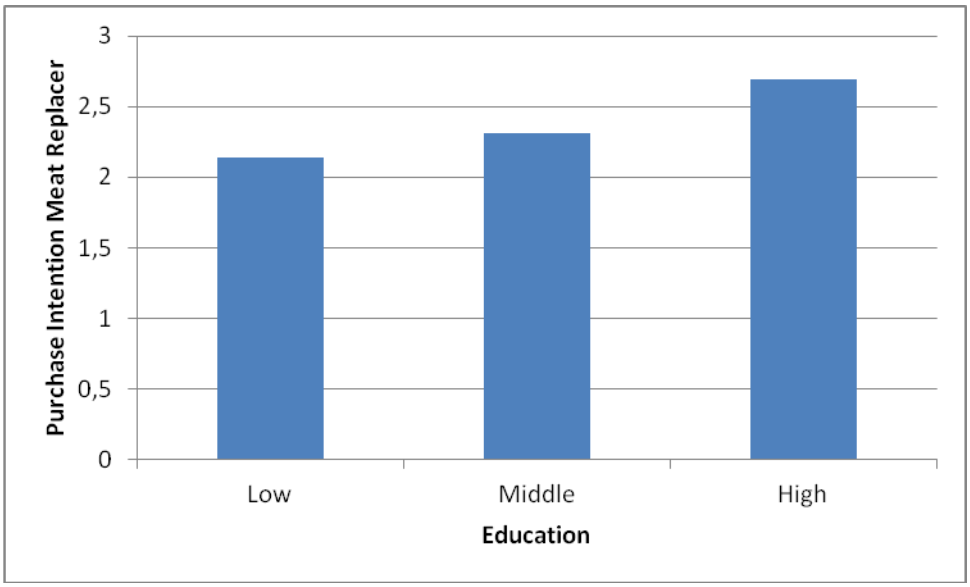

Figure 17. Mean scores of Purchase Intention Meat Replacer as a function of Education

A repeated measures ANOVA with Product (Bread versus Meat Replacer) was performed on Purchase Intention and Product Evaluation. Below, results for Product Evaluation and Purchase Intention are reported separately.

4.4.3 Product Evaluation Within subject comparisons Bread and Meat Replacer

A repeated measures ANOVA with Product (Bread versus Meat Replacer) was performed on Product Evaluation. In the Appendix, Table 14 shows mean scores and standard deviations for Product Evaluation for Bread and Meat Replacer

Product Evaluation differed statistically significantly for products, F (1.00, 231.00) = 31.35, $P < 0.001$, partial η2 =.12.

Post hoc tests using the Bonferroni correction revealed Bread with health claims (*M=3.19; SD*=.04) have a higher Product Evaluation than Meat Replacers with health claims (*M=2.92; SD*=.05), $p < .001$. Figure 18 illustrate this effect.

No interaction effect of Product and Claim on Purchase Intention has been found, F (3.00, 231.00) = .82, p =.484, partial η2 =.01.

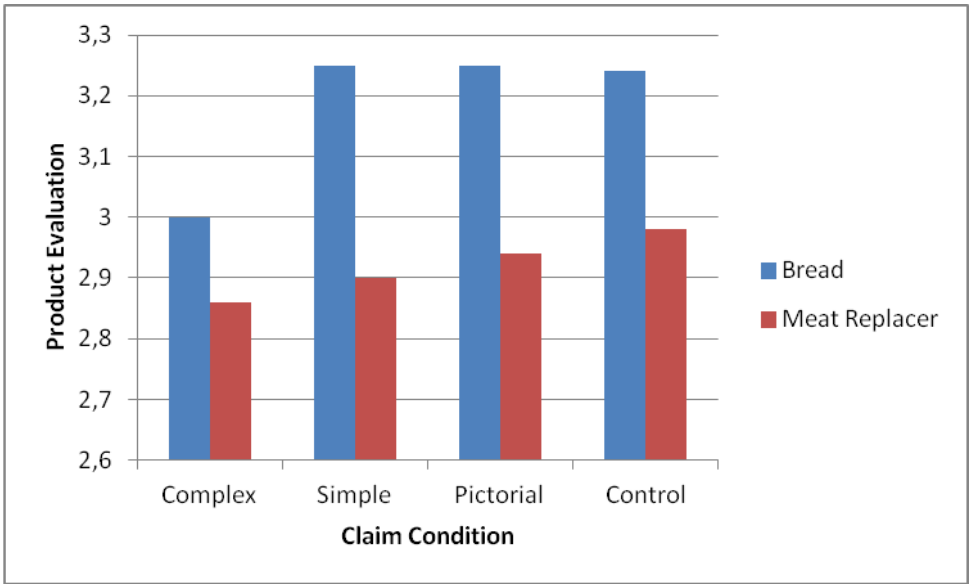

Figure 18. Mean scores of Product Evaluation Bread and Meat Replacer as a function of Claim Condition and Product

4.4.4 Purchase Intention Within subject comparisons Bread and Meat Replacer

A repeated measures ANOVA with Product (Bread versus Meat Replacer) was performed on Purchase Intention. In the Appendix, Table 14 shows mean scores and standard deviations for Purchase Intention for Bread and Meat Replacer

Repeated measures ANOVA revealed statistically significantly differences for products, $F(1.00, 233.00) = 32.055$, $P < 0.001$, partial $\eta 2 = .121$.

Post hoc tests using the Bonferroni correction indicated Bread with health claims ($M=2.83$; $SD=.05$) have a higher Purchase Intention than Meat Replacers with health claims ($M=2.43$; $SD=.06$), $p < .001$. Figure 19 illustrate this effect.

No interaction effect of Product and Claim type on Purchase Intention has been found, $F(3.00, 233.00) = 1.04$, $p = .377$, partial $\eta 2 = .01$.

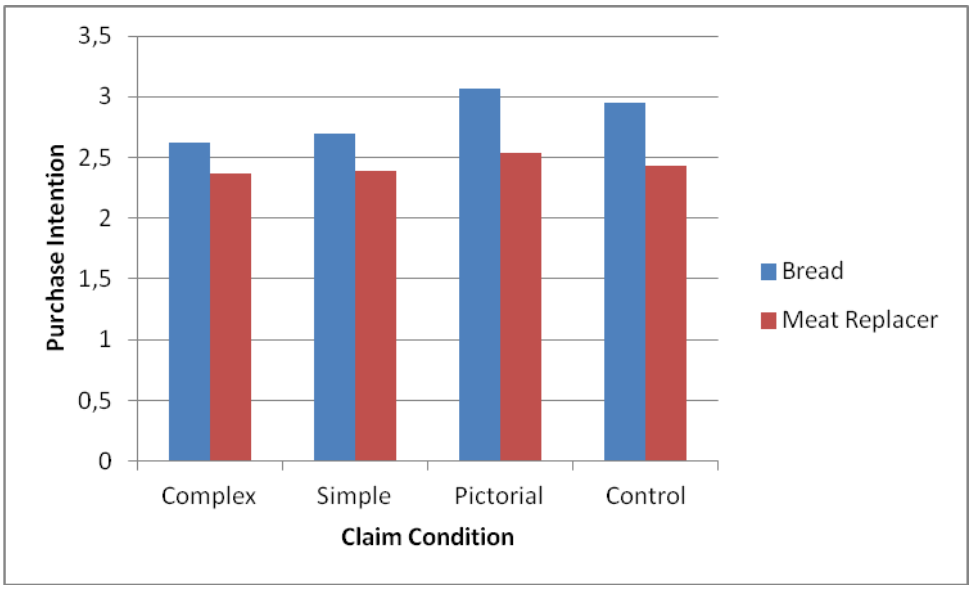

Figure 19. Mean scores of Purchase Intention Meat Replacer and Bread as a function of Claim Condition and Product

4.5 Regression analysis Understanding and Purchase Intention

To examine the relationship between the dependent variables Subjective and Objective Understanding and the dependent variable Purchase Intention, linear regression analysis is performed. For every analysis, Purchase Intention per product was appointed as the dependent variable, while the independent variable varied per product for type of understanding (Subjective versus Objective), in interaction with the claim type (Verbal versus Pictorial).

Linear regression with Subjective Understanding was performed on Purchase Intention for Bread. No statistically significant effect were found, F (1,180) = .31, p= .579. For Meat Replacers, also no statistically significant effect was found, F (1,158) = .16, p= .689.

Linear regression with Objective Understanding Verbal claims was performed on Purchase Intention for Bread. No statistically significant effect was found, F(1,111) = 2.33, p= .130. For Meat Replacers, also no statistically significant effect was found, F(16,86) = 1.21, p = .277.

Linear regression with Objective Understanding Pictorial claims was performed on Purchase Intention for Bread. A statistically significant effect was found, F(1,59) = 13.88 p< .001. For Meat Replacers, also a statistically significant result was found, F(1,51) = 4.70, p= .035. 19% Of the variability in Purchase Intention is accounted for by Understanding Pictorial claims for Bread, and respectively 8.4% for Understanding Pictorial claims for Meat Replacers.

Summary of the results

The Tables 15- 19 give an overview of the main findings of this study.

Table 15

Results for type of claim, divided per product

		Product							
		Bread				Meat Replacer			
		Type of Claim				Type of Claim			
		Verbal Complex	Verbal Simple	Pictorial	Control	Verbal Complex	Verbal Simple	Pictorial	Control
Subjective understanding		*p* <.001	*p*<.001	*p*<.001	n.a.	*p* <.001	*p*<.001	*p* <.001	n.a.
	Post-hoc comparisons	*M=2.60 ; SD*=.15	*M=3.63; SD*=.16	*M=2.93 ; SD*=.16		*M=2.63; SD*=.15	*M=3.73; SD*=.15	*M=3.04; SD*=.16	
Objective Understanding Verbal claims		n.s.	n.s.	n.a.	n.a.	n.s.	n.s.	n.a.	n.a.
Objective Understanding Pictorial claims		n.a.	n.a.	n.s.	n.a.	n.a.	n.a.	n.s.	n.a.
Product Evaluation		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Purchase Intention		*p* = .015	*p* = .015	*p* = .015	*p*=.015	n.s.	n.s.	n.s.	n.s.
	Post-hoc comparisons	*n.s.*	*n.s.*	*n.s.*	*n.s.*				

Table 16

Results for type of product

		Product	
		Bread	Meat Replacer
Subjective understanding		*p* = 0.047	*p* = 0.047
	Post-hoc comparisons	*M=3.06; SD*=.08	*M=3.15 ; SD*=.08
Objective Understanding Verbal claims		*p* < .001*	*p* < .001*
	Post-hoc comparisons	*M=3.50 ; SD*=.05	*M=3.37; SD*=.05
Objective Understanding Pictorial claims		n.s.	n.s.
Product Evaluation		*p* < 0.001	*p* < 0.001
	Post-hoc comparisons	*M=3.19 ; SD*=.04	*M=2.92; SD*=.05
Purchase Intention		*p* < 0.001	*p* < 0.001
	Post-hoc comparisons	*M=2.83 ; SD*=.05	*M=2.43; SD*=.06

*= interaction effect with Claim type

Table 17

Results for Education, divided per product

		Product					
		Bread			Meat Replacer		
		Education			Education		
		Low	Middle	High	Low	Middle	High
Subjective understanding		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Objective Understanding Verbal claims		n.s.	n.s.	n.s.	p= .031	p= .031	p= .031
	Post-hoc comparisons				*M=3.13; SD*=.10	*n.s.*	*M=3.47; SD*=.07
Objective Understanding Pictorial claims		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Product Evaluation		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Purchase Intention		n.s.	n.s.	n.s.	p < .001	p < .001	p < .001
	Post-hoc comparisons				*M=2.14; SD*=.12	*M=2.31; SD*=.11	*M=2.70; SD*=.09

Table 18

Relation Understanding and Purchase Intention

		Purchase Intention	
		Product	
		Bread	Meat Replacer
Subjective Understanding		n.s.	n.s.
Objective Understanding Verbal claims		n.s.	n.s.
Objective Understanding Pictorial claims		p< .001	p= .035
	R2	0.19	0.084

Table 19
Hypotheses

Hypothesis	Confirmed by statistically significant results?
H1: Verbal health claims with simple wordings are better understood by consumers than health claims with complex, scientific wordings.	Partially confirmed (for subjective understanding)
H2: Pictorial health claims will be better understood by consumers than verbal health claims.	Not confirmed
H3: Verbal and pictorial health claims placed on brown bread will be better understood than verbal and pictorial health claims placed on meat replacers.	Partially confirmed (for objective understanding; verbal health claims)
H4: Consumers with higher educational levels understand verbal and pictorial health claims better than consumers with middle and low educational levels.	Partially confirmed (for objective understanding, verbal claims, meat replacer)
H5: Simple verbal health claims and pictorial health claims will result in a higher product evaluation than complex verbal health claims.	Not confirmed
H6: The presence of health claims leads to higher purchase intentions than when health claims are not present.	Not confirmed
H7: The format of the health claim has no influence on purchase intention.	Not confirmed
H8: Verbal and pictorial health claims placed on brown bread will result in a higher product evaluation than verbal and pictorial health claims placed on meat replacers.	Confirmed
H9: Verbal and pictorial health claims placed on brown bread will show a higher purchase intention than verbal and pictorial health claims placed on meat replacers.	Confirmed
H10: Consumers with a high level of education will show higher levels of purchase intention of products which carry a health claim, than consumers with middle and low educational levels.	Partially confirmed (for meat replacer)
H11: A higher understanding of health claims will lead to a higher purchase intention than a lower understanding of health claims	Partially confirmed (for objective understanding pictorial health claims, for both bread and meat replacer)

DISCUSSION

This study has been set up around the research question:
"*Which health claims are easier to understand?"* In addition, a relation with product evaluation and purchase intention is made. First, findings will be discussed and the research question answered. Concluded will be with limitations, recommendations for future research and managerial implications.

5.1 Subjective and objective understanding

The influence of type of claim, type of product and consumer characteristics on subjective and objective understanding is analyzed. Below, findings will be discussed separately.

5.1.1 Type of claim

With regard to subjective understanding this study found simple verbal health claims are better subjectively understood than complex verbal health claims, for both bread and meat replacers. These results are in line with the literature findings. Consumers are more reluctant to read long, complex health claims and this result in inaccurate information processing, an overload in consumers processing capacity and less understanding (Wansink et al., 2001). During the survey respondents might have felt resistance against reading the complex claims and thereby self-estimate these claims were more difficult to understand.

This study found no statistically significant effects for wording of the health claim in relation to objective understanding for both bread and meat replacers. Literature indicates wording of a health claim affects the perceived and actual understanding, however findings are not uniform. Research conducted by Grunert et al. (2009) indicates consumer characteristics affect how a health claim should be formulated. Other researches however argue simple claims are better understood than complex claims, with no distinction in consumer characteristics (Williams, 2005; Wansink, 2003). We expect stronger results for the type of claim in relation to objective understanding can be found when this study is replicated with a larger sample size.

Hypotheses 1 is partially confirmed; regarding subjective understanding findings are in line with literature findings, for objective understanding no statistically significant results are found.

When in this study a comparison is made between verbal and pictorial health claims, findings indicate simple verbal health claims are better subjectively understood than pictorial health claims.

For objective understanding, averages show both simple verbal health claims and complex claims are better objectively understood for bread and meat replacers, than the pictorial health claims. These findings are not in line with the literature, which suggests that consumers should have little difficulty in understanding pictorial health claims (Grunert et al., 2010). In addition, Vyth et al. (2009) indicate the interpretation of a pictorial health claim does not require detailed nutritional knowledge to be understood. Though, literature did not make a comparison between the amounts of understanding regarding verbal versus pictorial claims. This study indicates both formats of health claims are relatively good understood, however simple verbal claims are better understood. This might be due to not understanding the particularly used pictorial claim, 'Gezonde Keuze' or there might be a conflict with other coding systems (Federal Trade Commission, 2006, as described in Food Standards Agency, 2007). The logo has a high credibility rate (Vyth et al., 2009), though maybe its meaning is less understood or confused with the blue version of the logo. Hypothesis 2 is thereby not confirmed.

5.1.2 Type of product

With regard to the type of product, this study found health claims placed on meat replacers are better subjectively understood than health claims placed on bread. For objective understanding, verbal health claims placed on bread were better understood than health claims placed on meat replacers.

Wills et al. (2012) state health claims are perceived more positively when linked to products with a positive health image. Products that have a healthy image are easier to accept as carriers of health claims (Van Kleef et al., 2005). In this study, for objective understanding a link can be made between acceptance of carriers of health claims and understanding. Health claims placed on products which are accepted as carrier of a health claim, in this case bread, lead to better objective understanding scores. For subjective understanding, no such link can be made. Health claims displayed on products which are not accepted as a carrier of health claims have higher scores for subjective understanding. This can be due to the fact that

consumers think health claims for these products are unnecessary (Lampila et al., 2009) and therefore do not make an attempt to understand the claim.

It can be concluded that the fact that consumers find health claims more acceptable on certain products does not imply they think they understand these claims better. However, it does imply that they objectively understood these claims better. Hypothesis 3 is therefore partially confirmed.

5.1.3 Educational level

The conducted research shows that consumers with a high level of education better objectively understood verbal health claims for meat replacers than consumers with a low level of education. These findings are in line with literature findings (Fullmer et al., 1991). Consumers with a higher educational level have a better understanding of health claims. In addition, in this study, education can serve as an external validation of the understanding scale. Education was objectively measured and with education, understanding increases. Hypothesis 4 is partially confirmed, since for the other constructs no statistically significant effects were found.

5.2 Product evaluation and purchase intention

The influence of type of claim, type of product and consumer characteristics on product evaluation and purchase intention is analyzed. Below, findings will be discussed.

5.2.1 Type of claim

Regarding the influence of the type of claim on product evaluation, this study found no statistically significant results. Literature indicates simple verbal health claims and pictorial health claims show higher scores of product evaluation. Simplified messages have an impact on the perceived attractiveness of the health claim (Grunert et al., 2009). Too much complex information leads to confusion and poorer decisions for among other things post-trial evaluations (Mahotra, 1982 as described in Wansink et al., 2001). This trend was also found in this study, however due to a weak effect, hypothesis 5 cannot be confirmed.

For purchase intention, results showed a statistically significant effect for the type of claim and the presence of health claims on purchase intention for the product bread, however these differences were not significant. With regard to the presence of health claims, literature findings are not uniform. Some research proposes health claims lead to a positive effect on

purchase intention since they positively influence perceptions of the product (Food Standards Agency, 2007). Other research reported lower purchase intentions for products with a health claim due to lower perceived credibility (Verbeke et al., 2009). However, literature states that the format of the health claim should not have an influence on purchase intentions (Saba et al., 2010). These findings cannot be confirmed by this research, hypotheses 6 and 7 are therefore rejected.

5.2.2 Type of product

Results showed, products which are accepted as carrier of health claims, in this case bread, have a higher product evaluation than products which are not accepted as carrier of health claims, in this case meat replacers.

These findings are in line with the literature. A product evaluation can be made by looking at the perceived taste and quality. Taste is an experience quality (Oude Ophuis and van Trijp, 1995) and is a strong predictor of whether a consumer will or will not buy a food product (Siegrist et al., 2008). The perceived quality can be seen as the acceptance of characteristics of a product by consumers. Van Kleef et al. (2005) indicated a difference can be made between products that are and are not accepted as carriers of health claims. This study shows health claims placed on products that are accepted as a carrier provide higher product evaluations. Hypothesis 8 is confirmed.

In addition, this study indicates that the product type affects purchase intention. Health claims placed on bread have a higher purchase intention than health claims placed on meat replacers. This is in line with Grunert et al. (2009) findings, who state products which are accepted as a carrier of health claims show higher buying intentions. Hypothesis 9 is confirmed.

5.2.3 Educational level

When in this study the effects of education on purchase intention are analyzed, no statistically significant effects for the product bread are found. For health claims placed on meat replacers was found that consumers with a high education have a higher purchase intention than consumers with a middle and low education.

These findings are consistent with literature findings. Wills et al. (2012) pointed out research conducted by Pothoulaki and Chryssochoidis (2009), which indicate a relation between less understanding and less purchase intentions. In this study was found that consumers with a high level of education better objectively understood verbal health claims

placed on meat replacers. This leads, as literature already stated, to higher purchase intentions. Hypothesis 10 is confirmed for the product meat replacer.

5.3 Purchase Intention and understanding

The relation between purchase intention and understanding is analyzed. Results show a higher objective understanding for pictorial health claims placed on bread and meat replacers, leads to a higher purchase intention. However, a higher subjective understanding and objective understanding for verbal health claims does not lead to a higher purchase intention.

The relationship between understanding and purchase intention mentioned in the literature is partly visible in this study; a higher objective understanding for pictorial health claims leads to a higher purchase intention. Hypothesis 11 is therefore partially confirmed: for objective understanding pictorial health claims, for bread and meat replacer.

5.4 Research question

The central research question of this study was: "*Which health claims are easier to understand?"*. The characteristics of understanding are analyzed, whereby a focus was on the type of claim, the type of product and consumer characteristics. All results taken together, it can be concluded that several factors have an effect on subjective and objective understanding. The three constructs will be separately discussed below, and an additional remark for product evaluation and purchase intention will be made.

5.4.1 Type of claim

Regarding the type of claim, consumers think they understand simple verbal health claims better than complex verbal health claims. Objectively, there is no difference in understanding between these two formats of health claims. Verbal health claims are better objectively understood than pictorial health claims and simple verbal claims are better subjectively understood than pictorial health claims. In conclusion, when understanding is taken into account during the design of health claims, best can be chosen for simple verbal health claims. For product evaluation and purchase intention, no effect of type of claim was found.

5.4.2 Type of product

The fact that consumers find health claims more acceptable on certain products does not imply they think they understand these claims better. Maybe they think that health claims placed on products such as bread are unnecessary and therefore do not make an attempt to understand them. Verbal health claims placed on products that are accepted as carrier of health claims, in this case bread, lead to higher levels of objective understanding than when they are placed on products which are not accepted as a carrier, in this case meat replacers. In addition, the product type has an effect on the product evaluation and purchase intention. Health claims placed on products which are accepted as a carrier of health claims, are better evaluated and show higher purchase intentions than health claims placed on products which are not accepted as a carrier of health claims.

5.4.3 Consumer characteristics

For consumer characteristics, this study showed that consumers with a high level of education objectively understand verbal health claims placed on meat replacers better than consumers with low levels of education. These consumers also showed higher purchase intentions for health claims placed on meat replacers than consumers with a middle and low education.

Finally, when the relation between understanding and purchase intention is analyzed, results indicate that a higher objective understanding for pictorial health claims leads to a higher purchase intention.

5.5 Limitations and future research

The study was prepared and executed with the greatest care. Still, there are some points that can contribute to optimize future research. Regarding the design of the experiment, one limitation was that it was not conducted in a real shopping situation. During the experiment, respondents had the time to think about the meaning of the health claim. In reality, this will not always be the case. When respondents normally go shopping and then evaluate a health claim, external factors such as time pressure and crowdedness will probably have an additional influence. Further, respondents had to evaluate the product and indicate their purchase intention, without having seen the product in reality. Therefore the results are

subject to the imagination of the respondents. Further research could be carried out within a real supermarket. Then it can be evaluated how respondents react in a real life environment.

In addition, the survey was conducted with the products bread and meat replacers from one brand. This was done to create a realistic environment. Future research could focus on the use of other products, from perhaps a different brand or without mentioning a brand. In this way, the effect of the brand or type of product in the product evaluation and purchase intention can be excluded.

During the study, many effects were found, only they were often not strong enough to take into account for further analyses. When the sample is increased, we expect more of the variables have an impact on the understanding, product evaluation and purchase intention and more statistically significant influences can be demonstrated. Also, age of the respondents was biased to a younger group. Most of the respondents were between 18 and 30 years old. Perhaps this age group is less concerned with wanting to understand health claims because they experience fewer health problems. Future research with more different age groups will lead to a more representative sample which might result in more significant results.

Education served as an external validation for the 'understanding scale', since with education understanding increased. However, for the scale 'objective understanding pictorial claims' there was initially a low internal reliability. After removing some questions, the reliability increased. Also for the scale ´objective understanding verbal claims´, the internal reliability is acceptable, but not high. This indicates there is a need for developing objective understanding scales with a high internal reliability. Further research should be aimed at developing a more reliable and validated scale for measuring understandability of pictorial and verbal health claims. This can be a challenge, since objective understanding differs per product and ingredient. In addition, at the moment there is a discussion, even among professionals, about what is and is not healthy (www.optimalegezondheid.com). In the Netherlands, the 'Schijf van Vijf', created by the Nutrition Center, gives information about healthy eating. The classification is based on the average Dutch consumer. The 'Schijf van Vijf' can be compared to 'The Healthy Food Pyramid' in America. Frequently heard criticism is that the Nutrition Center is a slow organ that works on the basis of outdated information and research. With the increasing heterogeneity of the society, the 'Schijf van Vijf' is no longer representative for the average Dutch consumer. Also, there is a discussion about the use of saturated fats and classification of products and product groups.

Finally, this study used quantitative measurements. Leathwood et al. (2007) suggest both qualitatively and quantitatively testing is required to analyze whether consumers really understand health claims. This study could be expanded with qualitative analyses. When respondents can also be qualitatively questioned, there can be analyzed why for example the simple verbal claims are better understood than pictorial claims. Maybe it is due to not knowing the pictorial claim. This can lead to assessing another area of research, namely familiarity. In research conducted by Grunert et al. (2009), the importance of familiarity was pointed out. Consumers, who are more exposed to health claims, become more familiar with this information and are able to process more information. This impact of familiarity can implicate a learning mechanism. This mechanism can be further examined.

This study found a number of factors which have an impact on the understandability of health claims. These findings lead to other questions, which will be further discussed. First, this study indicates purchase intention show an interaction with the format of the health claim and the product at which the health claim is displayed. Further research could examine this interaction effect. Second, for subjective understanding no relation with purchase intention was found. It could be that when people think they understand a health claim, they are more sceptical with regard to the claim. Further research could examine this possible relationship. Third, consumers with a high education objectively understood verbal health claims placed on meat replacers better. Examined can be whether this is due to a higher education alone, or that these consumers are more knowledgeable about healthy food. If the latter is the case, this would provide an opportunity to provide more information about a healthy food intake, so understanding can be increased. Finally, the fact that consumers find health claims more acceptable on certain products does not imply they think they understand these claims better. A possible explanation is that they think health claims for these products are unnecessary and therefore do not make an attempt to understand the claim. Further research should explore this area.

5.6 Managerial implications

Health claims can be used to assist in making healthy choices. By improving the diet by means of nutritional education with the use of health claims, health gains can be achieved. However, consumer understanding of these claims is low. This enables consumers to get information while choosing a product. Additionally, it leads to less faith in the claim and

confusion. Designers of health claims should take into account the understandability of health claims. This can be achieved by several factors, such as the type of claim, the type of product and consumer characteristics.

Regarding the type of claim can be seen that simple verbal health claims are better subjectively understood than pictorial claims. Objectively, there is no difference found in the type of claim on understanding. Designers can use these results in the design of health claims to promote healthy eating. This research has not found an effect of type of claim on product evaluation and purchase intention. When further research can strengthen the results of type of claim, there can be statistical proof for marketers to enhance their product evaluation and selling's with the type of claim.

For a more objective understanding, health claims would have to be placed on products that are accepted as carriers of health claims. Consumers understand health claims placed on these products better. Also for marketing reasons, health claims can best be placed on products which are accepted as a carrier of health claims, since this will lead to a better product evaluation and purchase intention. On the basis of these results, marketers should focus on the acceptance of health claims on certain products. This will lead to an increased understanding and the promotion of healthy eating can thereby be more effective. This will also lead to a higher product evaluation and purchase intention.

Consumers with a high level of education objectively understand verbal health claims placed on meat replacers better than consumers with a low level of education. They also showed higher purchase intentions for health claims placed on meat replacers than consumers with a middle and low education. Marketers could focus on making consumers more knowledgeable in healthy food topics and making health claims as understandable as possible.

For marketing reasons it is important consumers understand health claims, since less objective understanding of pictorial health claims leads to less purchase intentions.

If these factors are taken into account, health claims will be more effective and will lead to more informed purchases. In addition, product evaluations and purchase intentions of products which carry a health claim will be improved.

CONCLUSION

The main conclusions of this study can be summarized as follows:

- For subjective understanding, simple verbal health claims are better understood than complex verbal health claims, for both bread and meat replacer.
- Verbal health claims are better objectively understood than pictorial health claims and simple verbal health claims are better subjectively understood than pictorial health claims.
- Health claims placed on products that are accepted as carrier of these claims are better objectively, however not subjectively, understood.
- Health claims placed on accepted carrier products lead to higher product evaluations and purchase intentions.
- Consumers with a high level of education objectively understand verbal health claims placed on products which are accepted as carrier of health claims better than consumers with a lower education.
- Consumers with a high level of education show higher purchase intentions for health claims placed on products which are accepted as carrier of health claims than consumers with a middle and low education.
- Less objective understanding of pictorial health claims leads to less purchase intentions.
- Further research should focus on optimalizing the design of the experiment and explore the possible relationships between the analyzed variables. Most importantly, a valid and reliable scale for objective understanding should be developed.
- This study is relevant for marketers and research. It provides scientific and empirical support for designing understandable health claims. In addition, with these results product evaluations and purchase intentions of products which carry a health claim can be improved.

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APPENDIX A

Tables

Table 3

Mean scores of Subjective Understanding Bread taken on a 5-point scale, as a function of Claim type and Education and covariate General Health Interest, higher scores indicating higher levels of Subjective Understanding Bread

	Education											
	Low			Middle			High			Total		
Claim type	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Complex	2,27	1,20	13	2,83	1,25	21	2,70	,99	20	2,65	1,15	54
Simple	3,59	,584	11	3,56	,98	16	3,67	1,04	26	3,62	,93	53
Pictorial	3,18	1,06	11	2,75	,64	14	2,96	1,30	26	2,95	1,10	51
Total	2,97	1,12	35	3,04	1,07	51	3,15	1,19	72	3,07	1,13	158

Table 4

Mean scores of Subjective Understanding Meat Replacer taken on a 5-point scale, as a function of Claim type and Education and covariate General Health Interest, higher scores indicating higher levels of Subjective Understanding Meat Replacer

	Education											
	Low			Middle			High			Total		
Claim type	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Complex	2,39	1,35	14	2,89	1,32	21	2,63	,99	20	2,66	1,21	55
Simple	3,82	,78	11	3,57	,86	15	3,77	,92	26	3,72	,87	52
Pictorial	3,09	1,04	11	3,00	,877	14	3,09	1,20	27	3,07	1,07	52
Total	3,05	1,23	36	3,12	1,10	50	3,22	1,14	73	3,15	1,14	159

Table 5

Mean scores of Subjective Understanding Bread and Meat Replacer, taken on a 5-point scale, as a function of Claim type, higher scores indicating higher levels of Subjective Understanding

	Product					
	Bread			Meat Replacer		
Claim type	*M*	*SD*	*N*	*M*	*SD*	*N*
Complex	2,65	1,15	54	2,69	1,20	54
Simple	3,57	,93	54	3,68	,90	54
Pictorial	2,95	1,09	53	3,08	1,06	53
Total	3,06	1,12	161	3,15	1,13	161

Table 6

Mean scores of Objective Understanding Bread, taken on a 5-point scale, as a function of Claim and Education and covariate General Health Interest, higher scores indicating higher levels of Objective Understanding

	Education											
	Low			Middle			High			Total		
Claim type	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Complex	3,25	,47	11	3,43	,49	19	3,46	,41	20	3,40	,45	50
Simple	3,37	,25	9	3,64	,63	15	3,59	,43	26	3,56	,48	50
Total	3,31	,38	20	3,52	,56	34	3,53	,42	46	3,48	,47	100

Table 7

Mean scores of Objective Understanding Meat Replacer, taken on a 5-point scale, as a function of Claim type and Education and covariate General Health Interest, higher scores indicating higher levels of Objective Understanding

	Education											
	Low			Middle			High			Total		
Claim type	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Complex	3,20	,41	13	3,42	,53	20	3,49	,41	18	3,39	,46	51
Simple	3,06	,34	10	3,33	,65	15	3,45	,44	26	3,34	,51	51
Total	3,14	,38	23	3,38	,58	35	3,46	,42	44	3,36	,49	102

Table 8

Mean scores and standard deviations for Objective Understanding for verbal claims for Bread and Meat Replacer.

	Product					
	Bread			Meat Replacer		
Claim type	*M*	*SD*	*N*	*M*	*SD*	*N*
Complex	3,42	.47	46	3.36	.47	46
Simple	3,57	,48	48	3,37	,51	48
Total	3,50	.48	94	3,37	.49	94

Table 9

Mean scores and standard deviations for Objective understanding Pictorial claims for Bread and Meat Replacer.

	Education											
	Low			Middle			High			Total		
Product	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Bread	3,08	,31	11	3,15	,32	13	3,35	,59	27	3,24	,49	51
Meat Replacer	2,90	,36	11	3,08	,43	13	3,28	,61	27	3,14	,54	51

Table 10

Mean scores of Product Evaluation Bread, taken on a 5-point scale, as a function of Claim type, Education and covariate General Health Interest, higher scores indicating higher levels of Product Evaluation.

	Education											
	Low			Middle			High			Total		
Claim type	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Complex	3,05	,80	14	3,03	,73	20	2,93	,51	20	3,00	,67	54
Simple	3,32	,41	10	3,17	,52	16	3,27	,55	25	3,25	,51	51
Pictorial	3,18	,68	11	3,63	,44	14	3,09	,61	27	3,25	,62	52
Control	3,48	,61	22	3,09	,75	20	3,18	,66	34	3,24	,68	76
Total	3,29	,654	57	3,20	,67	70	3,13	,60	106	3,19	,63	233

Table 11

Mean scores of Purchase Intention Bread, taken on a 5-point scale, as a function of Claim type, Education and covariate General Health Interest, higher scores indicating higher levels of Purchase Intention.

	Education											
	Low			Middle			High			Total		
Claim type	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Complex	2,34	,98	14	2,71	,81	20	2,72	,66	20	2,62	,81	54
Simple	2,66	,77	10	2,71	,88	16	2,69	,86	25	2,69	,83	51
Pictorial	2,84	,56	11	3,14	,55	14	3,11	,89	27	3,06	,74	52
Control	3,09	,56	22	2,89	,86	20	2,93	,94	34	2,97	,82	76
Total	2,78	,76	57	2,85	,80	70	2,88	,87	106	2,85	,82	233

Table 12

Mean scores of Product Evaluation Meat Replacer, taken on a 5-point scale, as a function of Claim type, Education and covariate General Health Interest, higher scores indicating higher levels of Quality.

	Education											
	Low			Middle			High			Total		
Claim type	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Complex	2,76	,51	14	2,77	,70	21	3,02	,47	20	2,86	,58	55
Simple	2,88	,49	11	2,71	,79	16	3,03	,62	26	2,90	,66	53
Pictorial	2,94	,78	11	3,10	,75	13	2,86	,79	27	2,94	,77	51
Control	2,99	,74	23	2,78	,82	19	3,10	,65	34	2,98	,72	76
Total	2,90	,65	59	2,82	,76	69	3,01	,5	107	2,93	,69	235

Table 13

Mean scores of Purchase Intention Meat Replacer, taken on a 5-point scale, as a function of Claim type, Education and covariate General Health Interest, higher scores indicating higher levels of Purchase Intention.

	Education											
	Low			Middle			High			Total		
Claim type	M	SD	N	M	SD	N	M	SD	N	M	SD	N
Complex	2,06	,71	14	2,17	,63	21	2,83	,73	20	2,38	,76	55
Simple	2,20	,49	11	2,31	,99	16	2,57	,72	26	2,42	,78	53
Pictorial	2,18	,82	11	2,48	,74	13	2,70	1,08	27	2,53	,96	51
Control	2,15	,84	23	2,27	1,00	19	2,68	1,12	34	2,42	1,03	76
Total	2,14	,74	59	2,29	,84	69	2,69	,95	107	2,43	,90	235

Table 14

Mean scores of Purchase Intention Bread and Meat Replacer, taken on a 5-point scale, as a function of Claim type, higher scores indicating higher levels of Purchase Intention.

	Product					
	Bread			Meat Replacer		
Claim type	*M*	*SD*	*N*	*M*	*SD*	*N*
Complex	2,62	,81	54	2,37	,76	54
Simple	2,70	,82	53	2,39	,75	53
Pictorial	3,07	,74	53	2,54	,94	53
Control	2,95	,81	77	2,43	1,02	77
Total	2,84	,81	237	2,43	,89	237

APPENDIX B

Pre-test

VERSION 1

Beste deelnemer,

Onlangs is er een nieuw product op de markt gekomen. Het gaat hierbij om een vegetarische vleesvervanger. Dit product heeft gezondheidsvoordelen. Daarom zijn we nu bezig met het ontwerpen van een gezondheidslabel voor op dit product. Op de volgende bladzijde ziet u een aantal mogelijke gezondheidsclaims voor op dit label. We willen nu aan u vragen of u kunt aangeven hoe begrijpelijk u elke claim vindt.

Alvast bedankt voor uw medewerking.

Universiteit Twente, Nikki Boekhoorn, opleiding Communicatiewetenschap.

	Zeer moeilijk	Een beetje moeilijk	Niet moeilijk, niet makkelijk	Een beetje makkelijk	Zeer makkelijk
'Bevat bioactieve peptiden met een anti-oxidatieve activiteit, waardoor de weerstand wordt geactiveerd. '	O	O	O	O	O
'Bevat bioactieve peptiden met antimicrobiële effecten, waardoor de weerstand wordt geactiveerd.'	O	O	O	O	O
'Bevat stoffen waardoor de weerstand versterkt wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden waardoor een fysiologisch effect van geactiveerde weerstand in het lichaam wordt teweeggebracht'	O	O	O	O	O
'Bevat bioactieve peptiden met immunomodulerende effecten, waardoor een fysiologisch effect van geactiveerde weerstand in het lichaam wordt teweeggebracht.'	O	O	O	O	O
'Bevat bioactieve peptiden waardoor de weerstand optimaal wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden, waardoor de natuurlijke defensie van het lichaam versterkt wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden met anti-oxidatieve effecten , waardoor de weerstand wordt geactiveerd.'	O	O	O	O	O
'Bevat stoffen waardoor de natuurlijke defensie van het lichaam versterkt wordt.'	O	O	O	O	O

Wat is uw hoogst genoten opleiding?

Geen opleiding

Lagere onderwijs (basisschool)

LTS, LEAO, LHNO of VMBO

MAVO (M)ULO, of VMBO-t

MBO, MTS, MEAO, BOL, BBL

HAVO, VWO, HBS, MMS

HBO, HTS, HEAO

Universiteit

VERSION 2

Beste deelnemer,

Onlangs is er een nieuw product op de markt gekomen. Het gaat hierbij om een vegetarische vleesvervanger. Dit product heeft gezondheidsvoordelen. Daarom zijn we nu bezig met het ontwerpen van een gezondheidslabel voor op dit product. Op de volgende bladzijde ziet u een aantal mogelijke gezondheidsclaims voor op dit label. We willen nu aan u vragen of u kunt aangeven hoe begrijpelijk u elke claim vindt.

Alvast bedankt voor uw medewerking.

Universiteit Twente, Nikki Boekhoorn, opleiding Communicatiewetenschap.

	Zeer moeilijk	Een beetje moeilijk	Niet moeilijk, niet makkelijk	Een beetje makkelijk	Zeer makkelijk
'Bevat bioactieve peptiden met een anti-oxidatieve activiteit, waardoor de weerstand wordt geactiveerd. '	O	O	O	O	O
'Bevat stoffen waardoor de weerstand versterkt wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden met antimicrobiële effecten, waardoor de weerstand wordt geactiveerd.'	O	O	O	O	O
'Bevat bioactieve peptiden waardoor een fysiologisch effect van geactiveerde weerstand in het lichaam wordt teweeggebracht'	O	O	O	O	O
'Bevat bioactieve peptiden, waardoor de natuurlijke defensie van het lichaam versterkt wordt.'	O	O	O	O	O
'Bevat stoffen waardoor de natuurlijke defensie van het lichaam versterkt wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden met immunomodulerende effecten, waardoor een fysiologisch effect van geactiveerde weerstand in het lichaam wordt teweeggebracht.'	O	O	O	O	O
'Bevat bioactieve peptiden met anti-oxidatieve effecten , waardoor de weerstand wordt geactiveerd.'	O	O	O	O	O
'Bevat bioactieve peptiden waardoor de weerstand optimaal wordt.'	O	O	O	O	O

Wat is uw hoogst genoten opleiding?

Geen opleiding

Lagere onderwijs (basisschool)

LTS, LEAO, LHNO of VMBO

MAVO (M)ULO, of VMBO-t

MBO, MTS, MEAO, BOL, BBL

HAVO, VWO, HBS, MMS

HBO, HTS, HEAO

Universiteit

VERSION 3

Beste deelnemer,

Onlangs is er een nieuw product op de markt gekomen. Het gaat hierbij om een vegetarische vleesvervanger. Dit product heeft gezondheidsvoordelen. Daarom zijn we nu bezig met het ontwerpen van een gezondheidslabel voor op dit product. Op de volgende bladzijde ziet u een aantal mogelijke gezondheidsclaims voor op dit label. We willen nu aan u vragen of u kunt aangeven hoe begrijpelijk u elke claim vindt.

Alvast bedankt voor uw medewerking.

Universiteit Twente, Nikki Boekhoorn, opleiding Communicatiewetenschap.

	Zeer moeilijk	Een beetje moeilijk	Niet moeilijk, niet makkelijk	Een beetje makkelijk	Zeer makkelijk
'Bevat stoffen waardoor de weerstand versterkt wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden waardoor een fysiologisch effect van geactiveerde weerstand in het lichaam wordt teweeggebracht'	O	O	O	O	O
'Bevat bioactieve peptiden waardoor de weerstand optimaal wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden met een anti-oxidatieve activiteit, waardoor de weerstand wordt geactiveerd. '	O	O	O	O	O
'Bevat bioactieve peptiden, waardoor de natuurlijke defensie van het lichaam versterkt wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden met anti-oxidatieve effecten , waardoor de weerstand wordt geactiveerd.'	O	O	O	O	O
'Bevat bioactieve peptiden met immunomodulerende effecten, waardoor een fysiologisch effect van geactiveerde weerstand in het lichaam wordt teweeggebracht.'	O	O	O	O	O
'Bevat stoffen waardoor de natuurlijke defensie van het lichaam versterkt wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden met antimicrobiële effecten, waardoor de weerstand wordt geactiveerd.'	O	O	O	O	O

Wat is uw hoogst genoten opleiding?

Geen opleiding

Lagere onderwijs (basisschool)

LTS, LEAO, LHNO of VMBO

MAVO (M)ULO, of VMBO-t

MBO, MTS, MEAO, BOL, BBL

HAVO, VWO, HBS, MMS

HBO, HTS, HEAO

Universiteit

VERSION 4

Beste deelnemer,

Onlangs is er een nieuw product op de markt gekomen. Het gaat hierbij om een vegetarische vleesvervanger. Dit product heeft gezondheidsvoordelen. Daarom zijn we nu bezig met het ontwerpen van een gezondheidslabel voor op dit product. Op de volgende bladzijde ziet u een aantal mogelijke gezondheidsclaims voor op dit label. We willen nu aan u vragen of u kunt aangeven hoe begrijpelijk u elke claim vindt.

Alvast bedankt voor uw medewerking.

Universiteit Twente, Nikki Boekhoorn, opleiding Communicatiewetenschap.

	Zeer moeilijk	Een beetje moeilijk	Niet moeilijk, niet makkelijk	Een beetje makkelijk	Zeer makkelijk
'Bevat bioactieve peptiden met immunomodulerende effecten, waardoor een fysiologisch effect van geactiveerde weerstand in het lichaam wordt teweeggebracht.'	O	O	O	O	O
'Bevat bioactieve peptiden waardoor een fysiologisch effect van geactiveerde weerstand in het lichaam wordt teweeggebracht'	O	O	O	O	O
'Bevat bioactieve peptiden waardoor de weerstand optimaal wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden met een anti-oxidatieve activiteit, waardoor de weerstand wordt geactiveerd. '	O	O	O	O	O
'Bevat bioactieve peptiden met antimicrobiële effecten, waardoor de weerstand wordt geactiveerd.'	O	O	O	O	O
'Bevat bioactieve peptiden, waardoor de natuurlijke defensie van het lichaam versterkt wordt.'	O	O	O	O	O
'Bevat stoffen waardoor de weerstand versterkt wordt.'	O	O	O	O	O
'Bevat stoffen waardoor de natuurlijke defensie van het lichaam versterkt wordt.'	O	O	O	O	O
'Bevat bioactieve peptiden met anti-oxidatieve effecten , waardoor de weerstand wordt geactiveerd.'	O	O	O	O	O

Wat is uw hoogst genoten opleiding?

Geen opleiding

Lagere onderwijs (basisschool)

LTS, LEAO, LHNO of VMBO

MAVO (M)ULO, of VMBO-t

MBO, MTS, MEAO, BOL, BBL

HAVO, VWO, HBS, MMS

HBO, HTS, HEAO

Universiteit

APPENDIX C

Questionnaire

COMPLEX

Beste deelnemer,

Consumenten worden steeds meer bewust van hun eet gewoonten. Een manier om consumenten te helpen hierbij, is door het gebruik van zogenaamde 'gezondheidsclaims'. Ik ben bezig met het ontwerpen van gezondheidsclaims voor verschillende producten. Via deze vragenlijst wil ik graag uw interpretatie van en mening over bepaalde gezondheidsclaims weten.

U krijgt zo meteen een aantal stellingen te lezen. Het invullen van de vragenlijst duurt ongeveer 8 minuten en de antwoorden zullen anoniem verwerkt worden. U heeft altijd de mogelijkheid om te stoppen met de vragenlijst wanneer u om persoonlijke redenen uw deelname niet wilt voortzetten. Ik hoop dat u de vragenlijst volledig invult. Als u op de hoogte wilt worden gehouden van de resultaten, dan kunt u aan het einde van de vragenlijst uw e-mail adres invullen.

Dank voor uw medewerking.

Universiteit Twente, Nikki Boekhoorn, opleiding Communicatiewetenschap.

Ik stem geheel vrijwillig in met deelname aan dit onderzoek. Ik behoud me daarbij het recht voor om op elk moment, zonder opgaaf van redenen, deelname aan dit onderzoek te kunnen beëindigen

☐ Ik ga akkoord en ga verder naar de vragenlijst

☐ Nee, ik wil niet deelnemen aan het onderzoek

Afbeelding 1 is een brood met een gezondheidsclaim. Hier krijgt u enkele vragen over.. Geen enkel antwoord is goed of fout. Het is belangrijk dat u het antwoord invult dat past bij het eerste gevoel dat bij u opkomt.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product helpt het lichaam tegen kleine infecties.	O	O	O	O	O
Dit product helpt tegen verkoudheid.	O	O	O	O	O
Dit product voorkomt alle vormen van ziekten	O	O	O	O	O
Dit product geeft totale bescherming	O	O	O	O	O
Dit product ondersteunt de natuurlijke weerstand	O	O	O	O	O
Dit product helpt het lichaam beter voorbereid te zijn tegen veel voorkomende vormen van verkoudheid	O	O	O	O	O
Dit product voorkomt alle vormen van infecties	O	O	O	O	O
Dit product helpt het immuun systeem beter te reageren	O	O	O	O	O
Dit product helpt weerstand te hebben tegen ziekten	O	O	O	O	O
Dit product geeft totale immuniteit voor alle vormen van infectie	O	O	O	O	O

	Heel erg moeilijk	Een beetje moeilijk	Niet moeilijk, niet makkelijk	Een beetje makkelijk	Heel erg makkelijk
Hoe moeilijk of hoe makkelijk is het voor u om deze claim te begrijpen?	O	O	O	O	O

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Ik kon de claim goed begrijpen	O	O	O	O	O

De onderstaande vragen gaan over de kans dat u het product zou willen kopen

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Er is een grote kans dat ik dit product koop	O	O	O	O	O
Ik zou niet overwegen dit product te kopen	O	O	O	O	O
Ik zou dit product aanbevelen aan een ander om te kopen	O	O	O	O	O
Als ik dit product zou zien, zou ik het niet kopen	O	O	O	O	O
Ik zou actief zoeken naar dit product zodat ik het kon kopen	O	O	O	O	O

De volgende vragen gaan over uw beoordeling van het product. Het product kunt u niet werkelijk beoordelen, het gaat om wat u verwacht.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product is van hoge kwaliteit	O	O	O	O	O
Dit product ziet er niet aantrekkelijk uit	O	O	O	O	O
Ik wil dit product niet proeven	O	O	O	O	O
Wanneer ik dit product eet, verwacht ik een goede smaak	O	O	O	O	O
Dit is een superieur product	O	O	O	O	O
Dit product ziet er vers uit	O	O	O	O	O

Afbeelding 2 is een vleesvervanger met een gezondheidsclaim. Hier krijgt u enkele vragen over. Geen enkel antwoord is goed of fout. Het is belangrijk dat u het antwoord invult dat past bij het eerste gevoel dat bij u opkomt.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product helpt het lichaam tegen kleine infecties.	O	O	O	O	O
Dit product helpt tegen verkoudheid.	O	O	O	O	O
Dit product voorkomt alle vormen van ziekten	O	O	O	O	O
Dit product geeft totale bescherming	O	O	O	O	O
Dit product ondersteunt de natuurlijke weerstand	O	O	O	O	O
Dit product helpt het lichaam beter voorbereid te zijn tegen veel voorkomende vormen van verkoudheid	O	O	O	O	O
Dit product voorkomt alle vormen van infecties	O	O	O	O	O

Dit product helpt het immuun systeem beter te reageren	O	O	O	O	O

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product helpt weerstand te hebben tegen ziekten	O	O	O	O	O
Dit product geeft totale immuniteit voor alle vormen van infectie	O	O	O	O	O

	Heel erg moeilijk	Een beetje moeilijk	Niet moeilijk, niet makkelijk	Een beetje makkelijk	Heel erg makkelijk
Hoe moeilijk of hoe makkelijk is het voor u om deze claim te begrijpen?	O	O	O	O	O

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Ik kon de claim goed begrijpen	O	O	O	O	O

De onderstaande vragen gaan over de kans dat u het product zou willen kopen

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Er is een grote kans dat ik dit product koop	O	O	O	O	O
Ik zou niet overwegen dit product te kopen	O	O	O	O	O
Ik zou dit product aanbevelen aan een ander om te kopen	O	O	O	O	O
Als ik dit product zou zien, zou ik het niet kopen	O	O	O	O	O
Ik zou actief zoeken naar dit product zodat ik het kon kopen	O	O	O	O	O

De volgende vragen gaan over uw beoordeling van het product. Het product kunt u niet werkelijk beoordelen, het gaat om wat u verwacht.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product is van hoge kwaliteit	O	O	O	O	O
Dit product ziet er niet aantrekkelijk uit	O	O	O	O	O
Ik wil dit product niet proeven	O	O	O	O	O
Wanneer ik dit product eet, verwacht ik een goede smaak	O	O	O	O	O
Dit is een superieur product	O	O	O	O	O
Dit product ziet er vers uit	O	O	O	O	O

De volgende vragen gaan niet meer over de producten, maar over uw algemene houding ten opzichte van voeding

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Ik ben erg kieskeurig als het gaat over de gezondheid van voedsel	O	O	O	O	O
Ik volg altijd een gezond en gebalanceerd dieet	O	O	O	O	O
Ik vind het belangrijk dat mijn dieet laag is in vet	O	O	O	O	O
Ik vind het belangrijk dat mijn dagelijkse dieet veel vitaminen en mineralen bevat	O	O	O	O	O
Ik eet wat ik lekker vind en ik maak me geen zorgen over de gezondheid van voedsel	O	O	O	O	O

De laatste vragen bestaan uit enkele achtergrondvragen. Deze zijn nodig voor de statistische verwerking van het onderzoek en zullen volledig anoniem worden verwerkt.

Wat is uw geslacht?

O Man

O Vrouw

Wat is uw hoogst genoten opleiding? (U hoeft deze nog niet voltooid te hebben)

O Geen opleiding

O Lager onderwijs (basisschool)

O LTS, LEAO, LHNO of VMBO

O MAVO (M)ULO, of VMBO-t

O MBO, MTS, MEAO, BOL, BBL

O HAVO, VWO, HBS, MMS

O HBO, HTS, HEAO

O Universiteit

Wilt u op de hoogte worden gehouden van het onderzoek, laat dan hieronder uw e-mail adres achter:

……

Hartelijk dank voor uw medewerking

Wat is uw leeftijd?

O 18-30 jaar

O 31-40 jaar

O 41-50 jaar

O 51-60 jaar

O 61+ jaar

Heeft u wel eens vleesvervangers gegeten?

O Ja

O Nee

Heeft u een voedingsallergie?

O Nee

O Ja, tarwe allergie

O Ja, gluten allergie

O Ja, soja allergie

O Ja, melk allergie

O Ja, anders

SIMPLE

Beste deelnemer,

Consumenten worden steeds meer bewust van hun eet gewoonten. Een manier om consumenten te helpen hierbij, is door het gebruik van zogenaamde 'gezondheidsclaims'. Ik ben bezig met het ontwerpen van gezondheidsclaims voor verschillende producten. Via deze vragenlijst wil ik graag uw interpretatie van en mening over bepaalde gezondheidsclaims weten.

U krijgt zo meteen een aantal stellingen te lezen. Het invullen van de vragenlijst duurt ongeveer 8 minuten en de antwoorden zullen anoniem verwerkt worden. U heeft altijd de mogelijkheid om te stoppen met de vragenlijst wanneer u om persoonlijke redenen uw deelname niet wilt voortzetten. Ik hoop dat u de vragenlijst volledig invult. Als u op de hoogte wilt worden gehouden van de resultaten, dan kunt u aan het einde van de vragenlijst uw e-mail adres invullen.

Dank voor uw medewerking.

Universiteit Twente, Nikki Boekhoorn, opleiding Communicatiewetenschap.

Ik stem geheel vrijwillig in met deelname aan dit onderzoek. Ik behoud me daarbij het recht voor om op elk moment, zonder opgaaf van redenen, deelname aan dit onderzoek te kunnen beëindigen

☐ Ik ga akkoord en ga verder naar de vragenlijst

☐ Nee, ik wil niet deelnemen aan het onderzoek

Afbeelding 1 is een brood met een gezondheidsclaim. Hier krijgt u enkele vragen over.. Geen enkel antwoord is goed of fout. Het is belangrijk dat u het antwoord invult dat past bij het eerste gevoel dat bij u opkomt.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product helpt het lichaam tegen kleine infecties.	O	O	O	O	O
Dit product helpt tegen verkoudheid.	O	O	O	O	O
Dit product voorkomt alle vormen van ziekten	O	O	O	O	O
Dit product geeft totale bescherming	O	O	O	O	O
Dit product ondersteunt de natuurlijke weerstand	O	O	O	O	O
Dit product helpt het lichaam beter voorbereid te zijn tegen veel voorkomende vormen van verkoudheid	O	O	O	O	O
Dit product voorkomt alle vormen van infecties	O	O	O	O	O
Dit product helpt het immuun systeem beter te reageren	O	O	O	O	O
Dit product helpt weerstand te hebben tegen ziekten	O	O	O	O	O
Dit product geeft totale immuniteit voor alle vormen van infectie	O	O	O	O	O

	Heel erg moeilijk	Een beetje moeilijk	Niet moeilijk, niet makkelijk	Een beetje makkelijk	Heel erg makkelijk
Hoe moeilijk of hoe makkelijk is het voor u om deze claim te begrijpen?	O	O	O	O	O

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Ik kon de claim goed begrijpen	O	O	O	O	O

De onderstaande vragen gaan over de kans dat u het product zou willen kopen

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Er is een grote kans dat ik dit product koop	O	O	O	O	O
Ik zou niet overwegen dit product te kopen	O	O	O	O	O
Ik zou dit product aanbevelen aan een ander om te kopen	O	O	O	O	O
Als ik dit product zou zien, zou ik het niet kopen	O	O	O	O	O
Ik zou actief zoeken naar dit product zodat ik het kon kopen	O	O	O	O	O

De volgende vragen gaan over uw beoordeling van het product. Het product kunt u niet werkelijk beoordelen, het gaat om wat u verwacht.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product is van hoge kwaliteit	O	O	O	O	O
Dit product ziet er niet aantrekkelijk uit	O	O	O	O	O
Ik wil dit product niet proeven	O	O	O	O	O
Wanneer ik dit product eet, verwacht ik een goede smaak	O	O	O	O	O
Dit is een superieur product	O	O	O	O	O
Dit product ziet er vers uit	O	O	O	O	O

Afbeelding 2 is een vleesvervanger met een gezondheidsclaim. Hier krijgt u enkele vragen over. Geen enkel antwoord is goed of fout. Het is belangrijk dat u het antwoord invult dat past bij het eerste gevoel dat bij u opkomt.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product helpt het lichaam tegen kleine infecties.	O	O	O	O	O
Dit product helpt tegen verkoudheid.	O	O	O	O	O
Dit product voorkomt alle vormen van ziekten	O	O	O	O	O
Dit product geeft totale bescherming	O	O	O	O	O
Dit product ondersteunt de natuurlijke weerstand	O	O	O	O	O
Dit product helpt het lichaam beter voorbereid te zijn tegen veel voorkomende vormen van verkoudheid	O	O	O	O	O
Dit product voorkomt alle vormen van infecties	O	O	O	O	O

Dit product helpt het immuun systeem beter te reageren	O	O	O	O	O

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product helpt weerstand te hebben tegen ziekten	O	O	O	O	O
Dit product geeft totale immuniteit voor alle vormen van infectie	O	O	O	O	O

	Heel erg moeilijk	Een beetje moeilijk	Niet moeilijk, niet makkelijk	Een beetje makkelijk	Heel erg makkelijk
Hoe moeilijk of hoe makkelijk is het voor u om deze claim te begrijpen?	O	O	O	O	O

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Ik kon de claim goed begrijpen	O	O	O	O	O

De onderstaande vragen gaan over de kans dat u het product zou willen kopen

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Er is een grote kans dat ik dit product koop	O	O	O	O	O
Ik zou niet overwegen dit product te kopen	O	O	O	O	O
Ik zou dit product aanbevelen aan een ander om te kopen	O	O	O	O	O
Als ik dit product zou zien, zou ik het niet kopen	O	O	O	O	O
Ik zou actief zoeken naar dit product zodat ik het kon kopen	O	O	O	O	O

De volgende vragen gaan over uw beoordeling van het product. Het product kunt u niet werkelijk beoordelen, het gaat om wat u verwacht.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product is van hoge kwaliteit	O	O	O	O	O
Dit product ziet er niet aantrekkelijk uit	O	O	O	O	O
Ik wil dit product niet proeven	O	O	O	O	O
Wanneer ik dit product eet, verwacht ik een goede smaak	O	O	O	O	O
Dit is een superieur product	O	O	O	O	O
Dit product ziet er vers uit	O	O	O	O	O

De volgende vragen gaan niet meer over de producten, maar over uw algemene houding ten opzichte van voeding

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Ik ben erg kieskeurig als het gaat over de gezondheid van voedsel	O	O	O	O	O
Ik volg altijd een gezond en gebalanceerd dieet	O	O	O	O	O
Ik vind het belangrijk dat mijn dieet laag is in vet	O	O	O	O	O
Ik vind het belangrijk dat mijn dagelijkse dieet veel vitaminen en mineralen bevat	O	O	O	O	O
Ik eet wat ik lekker vind en ik maak me geen zorgen over de gezondheid van voedsel	O	O	O	O	O

De laatste vragen bestaan uit enkele achtergrondvragen. Deze zijn nodig voor de statistische verwerking van het onderzoek en zullen volledig anoniem worden verwerkt.

Wat is uw geslacht?

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Wat is uw hoogst genoten opleiding? (U hoeft deze nog niet voltooid te hebben)

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Hartelijk dank voor uw medewerking

Beste deelnemer,

Wat is uw leeftijd?

O 18-30 jaar

O 31-40 jaar

O 41-50 jaar

O 51-60 jaar

O 61+ jaar

Heeft u wel eens vleesvervangers gegeten?

O Ja

O Nee

Heeft u een voedingsallergie?

O Nee

O Ja, tarwe allergie

O Ja, gluten allergie

O Ja, soja allergie

O Ja, melk allergie

O Ja, anders

PICTORIAL

Beste deelnemer,

Consumenten worden steeds meer bewust van hun eet gewoonten. Een manier om consumenten te helpen hierbij, is door het gebruik van zogenaamde ‘gezondheidsclaims’. Ik ben bezig met het ontwerpen van gezondheidsclaims voor verschillende producten. Via deze vragenlijst wil ik graag uw interpretatie van en mening over bepaalde gezondheidsclaims weten.

U krijgt zo meteen een aantal stellingen te lezen. Het invullen van de vragenlijst duurt ongeveer 8 minuten en de antwoorden zullen anoniem verwerkt worden. U heeft altijd de mogelijkheid om te stoppen met de vragenlijst wanneer u om persoonlijke redenen uw deelname niet wilt voortzetten. Ik hoop dat u de vragenlijst volledig invult. Als u op de hoogte wilt worden gehouden van de resultaten, dan kunt u aan het einde van de vragenlijst uw e-mail adres invullen.

Dank voor uw medewerking.

Universiteit Twente, Nikki Boekhoorn, opleiding Communicatiewetenschap.

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☐ Ik ga akkoord en ga verder naar de vragenlijst

☐ Nee, ik wil niet deelnemen aan het onderzoek

Afbeelding 1 is een brood met een gezondheidsclaim. Hier krijgt u enkele vragen over.. Geen enkel antwoord is goed of fout. Het is belangrijk dat u het antwoord invult dat past bij het eerste gevoel dat bij u opkomt.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product bevat minder verzadigd vet	O	O	O	O	O
Dit product is gezond	O	O	O	O	O
Dit product bevat minder zout	O	O	O	O	O
Dit product mag je onbeperkt eten	O	O	O	O	O
Dit product bevat geen zout	O	O	O	O	O
Dit product bevat minder suiker	O	O	O	O	O
Dit product draagt bij aan een gevarieerd dieet	O	O	O	O	O
Dit product helpt mee het cholesterol te verlagen	O	O	O	O	O
Dit product bevat minder kleurstoffen	O	O	O	O	O
Dit product bevat het minste aantal calorieën binnen een productgroep	O	O	O	O	O

	Heel erg moeilijk	Een beetje moeilijk	Niet moeilijk, niet makkelijk	Een beetje makkelijk	Heel erg makkelijk
Hoe moeilijk of hoe makkelijk is het voor u om deze claim te begrijpen?	O	O	O	O	O

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Ik kon de claim goed begrijpen	O	O	O	O	O

De onderstaande vragen gaan over de kans dat u het product zou willen kopen

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Er is een grote kans dat ik dit product koop	O	O	O	O	O
Ik zou niet overwegen dit product te kopen	O	O	O	O	O
Ik zou dit product aanbevelen aan een ander om te kopen	O	O	O	O	O
Als ik dit product zou zien, zou ik het niet kopen	O	O	O	O	O
Ik zou actief zoeken naar dit product zodat ik het kon kopen	O	O	O	O	O

De volgende vragen gaan over uw beoordeling van het product. Het product kunt u niet werkelijk beoordelen, het gaat om wat u verwacht.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product is van hoge kwaliteit	O	O	O	O	O
Dit product ziet er niet aantrekkelijk uit	O	O	O	O	O
Ik wil dit product niet proeven	O	O	O	O	O
Wanneer ik dit product eet, verwacht ik een goede smaak	O	O	O	O	O
Dit is een superieur product	O	O	O	O	O
Dit product ziet er vers uit	O	O	O	O	O

Afbeelding 2 is een vleesvervanger met een gezondheidsclaim. Hier krijgt u enkele vragen over. Geen enkel antwoord is goed of fout. Het is belangrijk dat u het antwoord invult dat past bij het eerste gevoel dat bij u opkomt.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product bevat minder verzadigd vet	O	O	O	O	O
Dit product is gezond	O	O	O	O	O
Dit product bevat minder zout	O	O	O	O	O
Dit product mag je onbeperkt eten	O	O	O	O	O
Dit product bevat geen zout	O	O	O	O	O
Dit product bevat minder suiker	O	O	O	O	O
Dit product draagt bij aan een gevarieerd dieet	O	O	O	O	O

Dit product helpt mee het cholesterol te verlagen	O	O	O	O	O

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product bevat minder kleurstoffen	O	O	O	O	O
Dit product bevat het minste aantal calorieën binnen een productgroep	O	O	O	O	O

	Heel erg moeilijk	Een beetje moeilijk	Niet moeilijk, niet makkelijk	Een beetje makkelijk	Heel erg makkelijk
Hoe moeilijk of hoe makkelijk is het voor u om deze claim te begrijpen?	O	O	O	O	O

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Ik kon de claim goed begrijpen	O	O	O	O	O

De onderstaande vragen gaan over de kans dat u het product zou willen kopen

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Er is een grote kans dat ik dit product koop	O	O	O	O	O
Ik zou niet overwegen dit product te kopen	O	O	O	O	O
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De volgende vragen gaan over uw beoordeling van het product. Het product kunt u niet werkelijk beoordelen, het gaat om wat u verwacht.

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Dit product is van hoge kwaliteit	O	O	O	O	O
Dit product ziet er niet aantrekkelijk uit	O	O	O	O	O
Ik wil dit product niet proeven	O	O	O	O	O
Wanneer ik dit product eet, verwacht ik een goede smaak	O	O	O	O	O
Dit is een superieur product	O	O	O	O	O
Dit product ziet er vers uit	O	O	O	O	O

De volgende vragen gaan niet meer over de producten, maar over uw algemene houding ten opzichte van voeding

	Helemaal niet mee eens	Niet mee eens	Niet mee oneens, niet mee eens	Mee eens	Helemaal mee eens
Ik ben erg kieskeurig als het gaat over de gezondheid van voedsel	O	O	O	O	O
Ik volg altijd een gezond en gebalanceerd dieet	O	O	O	O	O
Ik vind het belangrijk dat mijn dieet laag is in vet	O	O	O	O	O
Ik vind het belangrijk dat mijn dagelijkse dieet veel vitaminen en mineralen bevat	O	O	O	O	O
Ik eet wat ik lekker vind en ik maak me geen zorgen over de gezondheid van voedsel	O	O	O	O	O

De laatste vragen bestaan uit enkele achtergrondvragen. Deze zijn nodig voor de statistische verwerking van het onderzoek en zullen volledig anoniem worden verwerkt.

Wat is uw geslacht?

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Wat is uw hoogst genoten opleiding? (U hoeft deze nog niet voltooid te hebben)

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O Universiteit

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Hartelijk dank voor uw medewerking

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O 18-30 jaar

O 31-40 jaar

O 41-50 jaar

O 51-60 jaar

O 61+ jaar

Heeft u wel eens vleesvervangers gegeten?

O Ja

O Nee

Heeft u een voedingsallergie?

O Nee

O Ja, tarwe allergie

O Ja, gluten allergie

O Ja, soja allergie

O Ja, melk allergie

O Ja, anders

CONTROL

Beste deelnemer,

Consumenten worden steeds meer bewust van hun eet gewoonten en ze gaan steeds meer variëren met hun voeding. Ik ben bezig om te kijken naar het eet- en koopgedrag van mensen. Via deze vragenlijst wil ik graag uw mening over bepaalde producten weten.

U krijgt zo meteen een aantal stellingen te lezen. Het invullen van de vragenlijst duurt ongeveer 8 minuten en de antwoorden zullen anoniem verwerkt worden. U heeft altijd de mogelijkheid om te stoppen met de vragenlijst wanneer u om persoonlijke redenen uw deelname niet wilt voortzetten. Ik hoop dat u de vragenlijst volledig invult. Als u op de hoogte wilt worden gehouden van de resultaten, dan kunt u aan het einde van de vragenlijst uw e-mail adres invullen.

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☐ Ik ga akkoord en ga verder naar de vragenlijst

☐ Nee, ik wil niet deelnemen aan het onderzoek

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Ik zou niet overwegen dit product te kopen	O	O	O	O	O
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Dit product is van hoge kwaliteit	O	O	O	O	O
Dit product ziet er niet aantrekkelijk uit	O	O	O	O	O
Ik wil dit product niet proeven	O	O	O	O	O
Wanneer ik dit product eet, verwacht ik een goede smaak	O	O	O	O	O
Dit is een superieur product	O	O	O	O	O
Dit product ziet er vers uit	O	O	O	O	O

Afbeelding 2 is een vleesvervanger. Hier krijgt u enkele vragen over. Geen enkel antwoord is goed of fout. Het is belangrijk dat u het antwoord invult dat past bij het eerste gevoel dat bij u opkomt.

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Ik wil dit product niet proeven	O	O	O	O	O
Wanneer ik dit product eet, verwacht ik een goede smaak	O	O	O	O	O
Dit is een superieur product	O	O	O	O	O
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Ik ben erg kieskeurig als het gaat over de gezondheid van voedsel	O	O	O	O	O
Ik volg altijd een gezond en gebalanceerd dieet	O	O	O	O	O
Ik vind het belangrijk dat mijn dieet laag is in vet	O	O	O	O	O
Ik vind het belangrijk dat mijn dagelijkse dieet veel vitaminen en mineralen bevat	O	O	O	O	O
Ik eet wat ik lekker vind en ik maak me geen zorgen over de gezondheid van voedsel	O	O	O	O	O

De laatste vragen bestaan uit enkele achtergrondvragen. Deze zijn nodig voor de statistische verwerking van het onderzoek en zullen volledig anoniem worden verwerkt.

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O 61+ jaar

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O Nee

Heeft u een voedingsallergie?

O Nee

O Ja, tarwe allergie

O Ja, gluten allergie

O Ja, soja allergie

O Ja, melk allergie

O Ja, anders

Hartelijk dank voor uw medewerking

APPENDIX D

Stimulus material

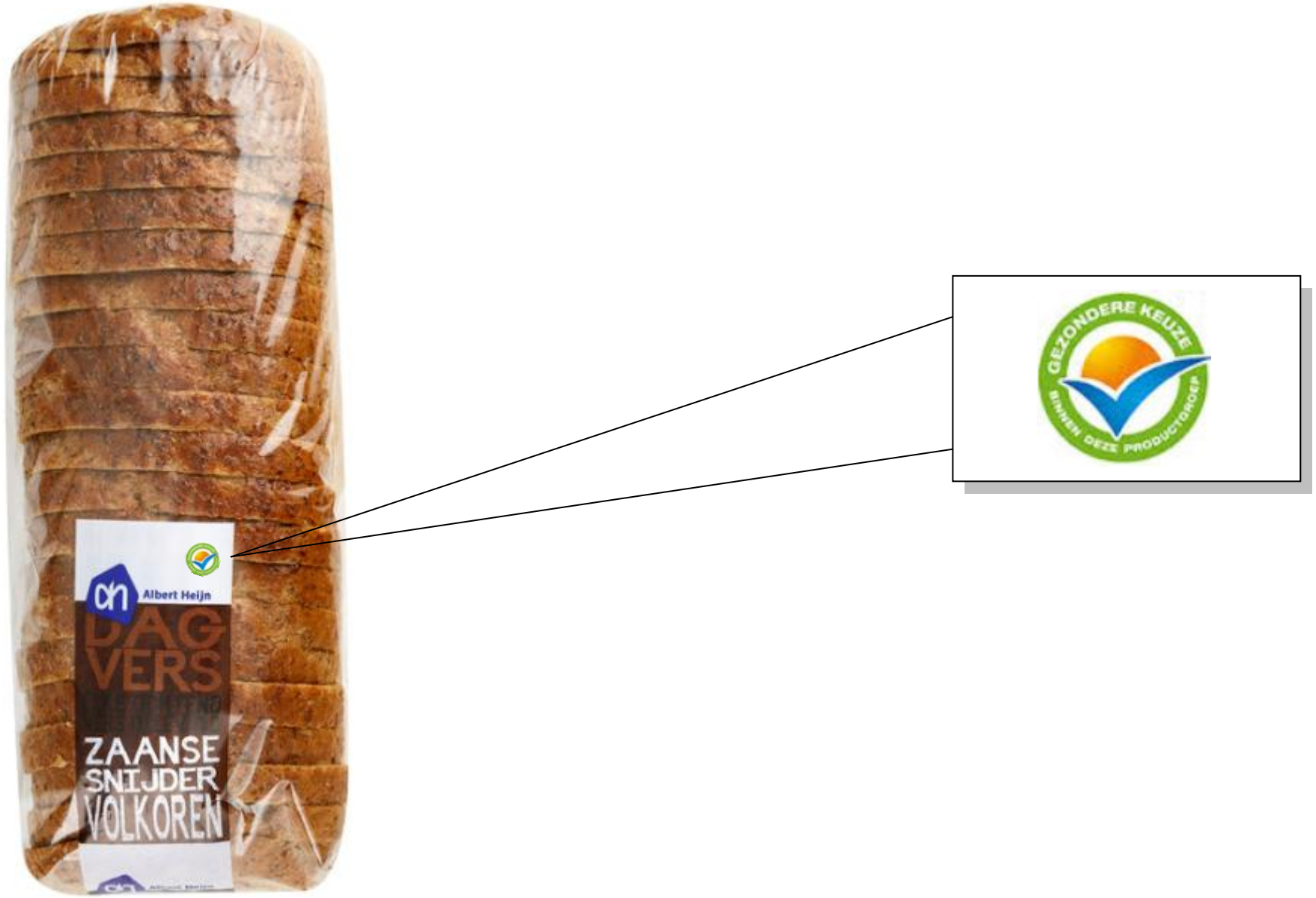

Figure 6. *Bread pictorial health claim*

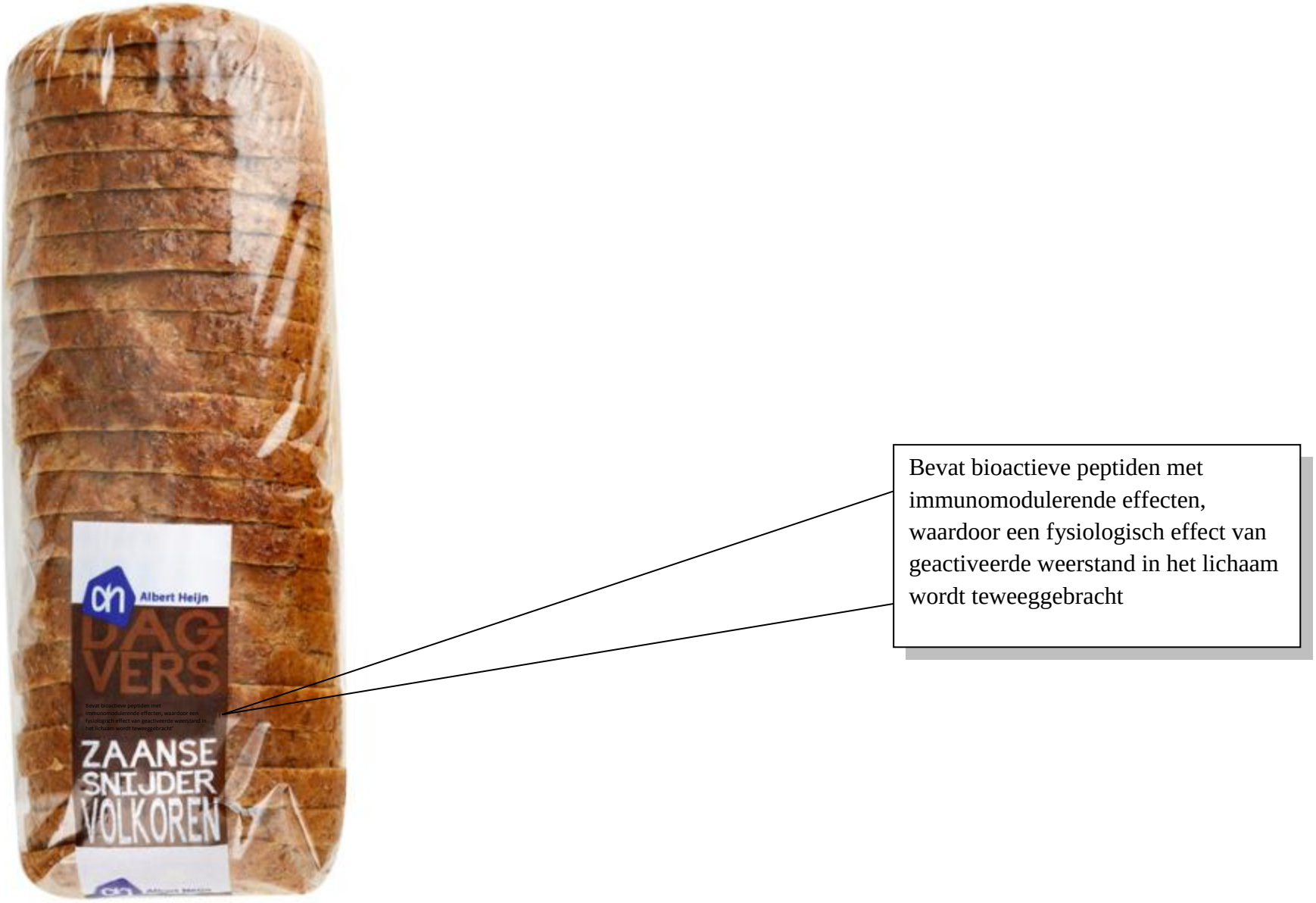

Figure 7. *Bread complex verbal health claim*

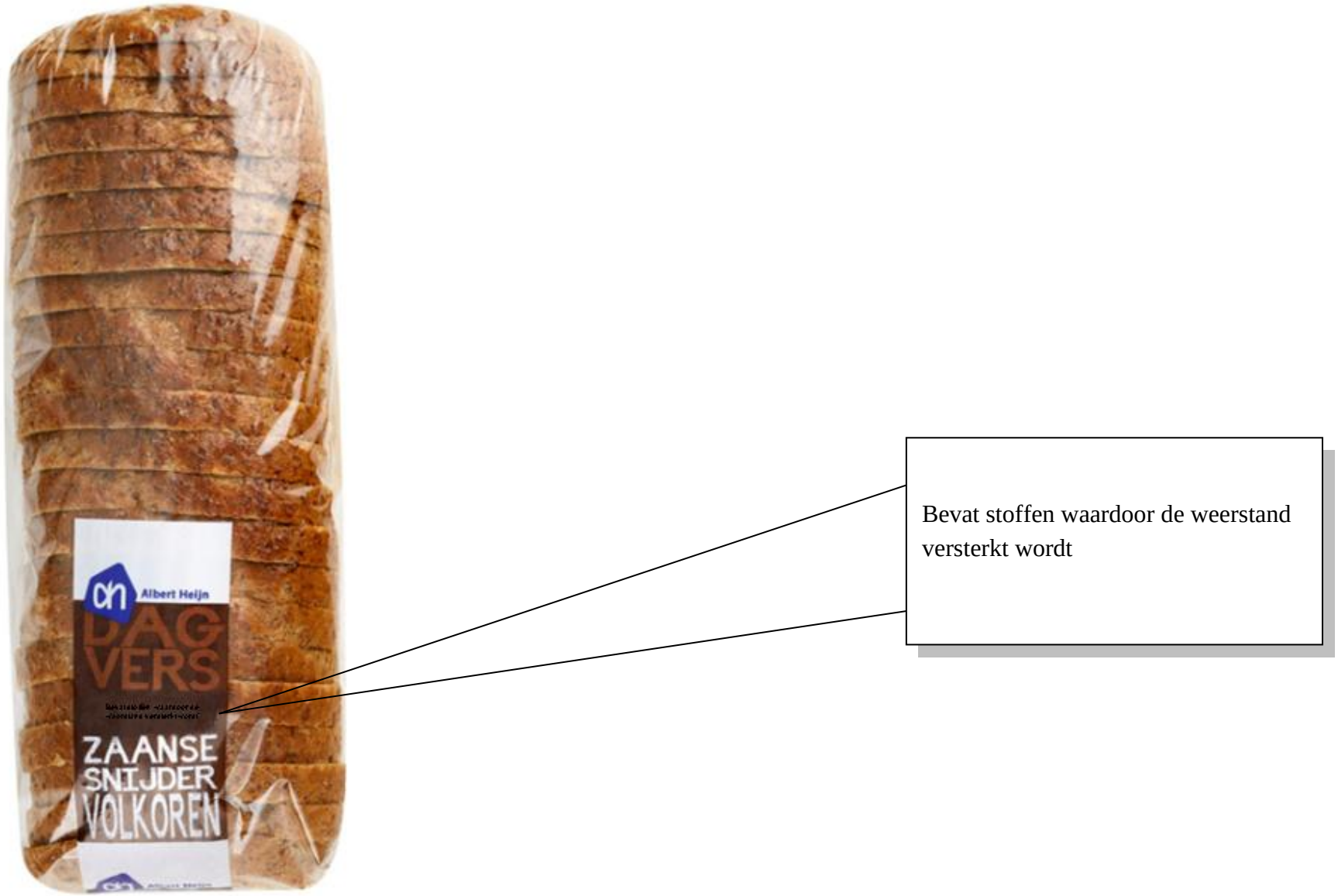

Figure 8. *Bread simple verbal health claim*

Figure 9. *Bread control*

Figure 10. *Meat replacer pictorial health claim*

Figure 11. *Meat replacer complex verbal health claim*

Bevat stoffen waardoor de weerstand versterkt wordt

Figure 12. *Meat replacer simple verbal health claim*

Figure 13. *Meat replacer control*