



Consumer Perception of functional foods (CocoaVia)



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Abstract

Nowadays, consumers are more conscious about their health, therefore, their interest and demand for healthy products has increased rapidly. It is expected to increase continuously in the future as well. Functional foods are novel generation of foods with additional health benefits.

The objective of this study is to investigate how Dutch consumers perceive CocoaVia. CocoaVia is a functional food, which contains flavanol and promotes healthy heart. To find out more about consumer's opinions and motivations two focus groups were conducted. Participants were selected among students from Wageningen University consisted of 5 males and 11 females. The results of the present study clearly show that CocoaVia is negatively evaluated by respondents. They do not consider chocolate as a healthy product. The claim is unreliable and the price is expensive. It seems that they are two main reasons for participants that negatively influence their intention to buy CocoaVia in the future. They have a positive attitude about the package but it needs improvement in some aspects for example stress more on health benefit and addition of logs: Vegan, Mars and Fairtrade. Results further show that, a majority of respondents evaluate CocoaVia's capsule more effective for heart than powders.

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Chapter 1. Introduction

In this chapter, an introduction to this research is provided. The problem situation is outlined, as well as, research objectives, research questions, the scope of research and the structure of the report.

1.1. Introduction to the problem situation

In recent years, there has been a great deal of attention toward functional foods (Milner, 2000). Term functional food means food that not only meets the nutritional requirement for the human body but also provides a beneficial effect (Milner, 2002). They can be used for curing and preventing some chronic diseases (Jimenez-Colmenero & Cofrades, 2001). As consumers are more conscious about their health (Van Kleef et al., 2002) their need for healthy products is growing significantly (Siro et al., 2008 ; Kamrat, Bidkar & Boring, 2019). In the US near 70% of individuals declare that health aspects have an influence on food selection during shopping (Sloan, 2018). It has been predicted that the functional foods have a great market share in the future due to the continuous demand from consumers for healthier food alternatives (Khan et al., 2013; Gul, Singh & Jabeen, 2016). Probably, by 2020 roughly \$300 billion products can be sold all around the world (Plasek & Temesi, 2019).

However, designing functional food is a complex and difficult process with a high failure rate (Verbeke, 2005). A great majority of low market performance is related to inadequate information about the consumer's requirement (Betoret et al., 2011) or lack of attention to the voice of the consumer (Verbeke, 2005). Consequently, it is crucial in the food industry to have a good market and consumer research (Verbeke, 2005). A deep understanding of consumer behavior is a major factor that increases the chance of product success in the market (Verbeke, 2006). When manufacturers have more knowledge about consumers, they have a better understanding of their needs and wishes. As a result, they are able to produce products with high market acceptance (Urala & Hteenmaki, 2007).

“CocoaVia” is the first functional food produced by Mars. It is a dark chocolate powder that promotes a healthy heart. It contains a high amount of cocoa flavanols which helps

the cardiovascular system deliver oxygen and nutrients throughout the body. Therefore, it improves the functioning of vital parts of the body. (Appendix 1)

1.2. Research objective and research question

The aim of this study is to explore Dutch consumer's perception of a functional food (CocoaVia), to investigate underlying attitudes and their willingness to buy in the future. With the result of this research, it can be determined how CocoaVia is perceived by consumers, and what improvements are required in the Dutch market for similar products.

The main question of this study is:

- How do Dutch people perceive CocoaVia?

The following sub-questions were addressed in this study:

- Which factors influence the willingness to use CocoaVia?
- To what extent are Dutch people willing to compromise on taste for health respect to CocoaVia?
- What is the influence of the form of CocoaVia (powder or capsule) on the preferences and perceived functionality?

1.3. Scope of research

In order to reach the objective of this study, in the first step of this research, literature study carried out to gain better understanding of functional foods and most important factors that possibly influence consumer's perception. In the second phase group discussion conducted in order to explore how young Dutch people perceive CocoaVia.

1.4. Structure of the report

After the introduction, a literature review chapter will follow by providing much clear and deeper information about this project. Then in Chapter 3 method will describe in detail how the qualitative study was carried out. After all information, result, and discussion, the conclusion of the study will be stated and at the end limitation of this study and a recommendation for further study will be given.

Chapter 2. Literature review

In order to answer the main research question and the sub-questions, a literature review of the functional food concept, food choice, and factors influence them were presented.

2.1. Functional food

Functional food was introduced for the first time twenty years ago in the East of Asia, Japan (Hasler, 1998 ; Stanton et al., 2005), when Japanese scientists studied the relationships between nutrition, sensory satisfaction, fortification of products and modulation of physiological systems (Menrad, 2003). There is no clear definition of functional foods (Arvanitoyannis & Van Houwelingen-Koukaliaroglou, 2005 ; Doyon & Labrecque, 2008). Part of the definition considers functional foods as food with added value (Kleinschmidt, 2003). Others refer to food with specific health-related claims (Weststrate, Van Poppel, & Verschuren, 2002) and some defined functional foods when it has a certain target group or specific position in the market place (Hollingsworth, 1999). Basically, functional foods are foods that beyond provide nutritional value, have a beneficial effect on one or more parts of the human body. This beneficial effect could be maximized physical/psychological well-being or disease prevention (Hasler, 1998 ; Stanton et al., 2005 ; Lobo, 2010). Shifting people lifestyle and their tendency to increase their quality of life, in spite of increasing longevity and health care costs, create a widespread attention toward functional foods from consumers, food manufacturers, and governments (Milner, 2000 ; Frewer, Scholderer & Lambert, 2003 ; Fogliano, & Vitaglione, 2005; Doyon & Labrecque, 2008).

2.2. Food Health claim

A health claim is any written explanation that links food components with health and wellbeing (Küster-Boluda, & Vidal-Capilla, 2017). They are discriminated from nutritional related claims such as “low fat”, “High fiber”, “low calories” as they reveal the cause and effect relationship between specific food consumption and improving general health or preventing disease (Arvanitoyannis & Van Houwelingen-Koukaliaroglou, 2005).

Food health claims provide a tool to communicate and transfer messages between producers and consumers. They can provide information about the ingredients and benefits of consuming food product to the consumers (Van Trijp & Lans, 2007 ; Nocella & Kneddy, 2012). Marketers consider health claims as a way for superior and differentiate the product from other competitors in the market. As a result, they can increase prices and gain more financial benefits for their company (Granoto et al., 2010).

Regulation (EC) No. 1924/2006 is special for nutrition and health claim. According to European Parliament and Council of the European Union (2006), there are three different types of health claims: Functional claims, disease risk reduction claims, and claims related to children's growth, Articles 13, 14(1)(a), 14(1)(b) respectively (European Parliament and Council of the European Union, 2006).

Functional claims explain the impact of ingredients on the function of the human body, both psychologically and physiologically, to reduce weight or keep fit (European Parliament and Council of the European Union, 2006).

Claims which refer to the consumption of food can reduce the threat of specific disorder or illness are called "Disease risk reduction claims". Using plant stanol (saturated sterol) in different products such as margarine can reduce cholesterol level in the blood, contributes to decreasing cardiovascular disease (European Parliament and Council of the European Union, 2006).

"Children's growth-related claims" refer to specific micro and macronutrients which are essential for the development of children, for example, vitamin D can help to build strong bones (European Parliament and Council of the European Union, 2006).

In Europe, EFSA (European Food Safety Authority) is responsible for evaluating claims. EFSA evaluates certain substances, its functions and the given claims that suggest the relationship between a food component and its health effect. All three criteria should be accurate and well-defined, otherwise, the evaluation process will be stopped (Lensen, Bast & Boer, 2018).

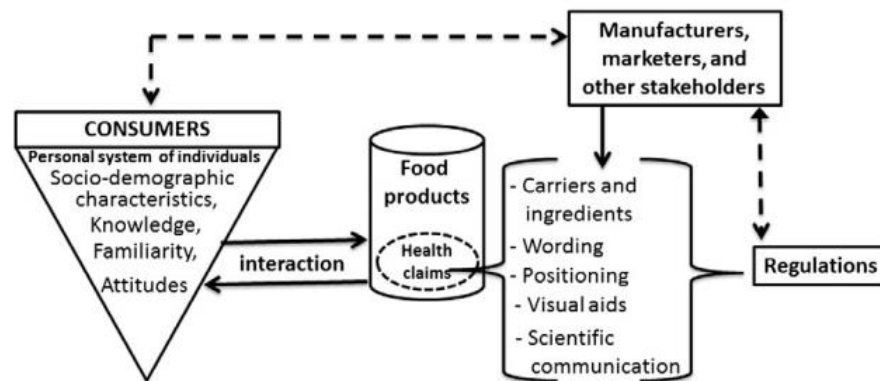


Figure 1: Factors influence consumer evaluation of food claim (Nocella & Kennedy, 2012)

Figure 1. shows the factors that influence consumer evaluation of health-related claims. In general, two main groups affect the processing of information. The first group is individual factors such as socio-demographic factors, consumer's awareness about product and attitude. These factors build during the years and producers have no control over them (Nocella & Kennedy, 2012).

The second group is product-based characters. They focus on product and the way of communication of product with consumers such as carrier and ingredients, terminology, location of food claims on the packaging, use of dialogue or picture and finally scientific and non-scientific communication. A manufacturer can control these factors properly (Nocella & Kennedy, 2012).

Socio-demographic factors such as age, gender, marital status, level of education, income, etc. are associated with functional food consumption (Verbeke, 2005 ; Ares & Gambaro, 2007). Men and women have vary eating habits; in general, females have a healthier diet than male and they are more concerned about health issues, therefore they have different food choice patterns (Chambers et al., 2008). Products with additional health values are more preferable for women (Frewer & Van Trijp, 2006), they have a positive attitude towards products with health-related claims and consider them more beneficial compared to men (Nocella & Kennedy, 2012). Furthermore, women are more curious about different products and always looking for a way to get more information about them (Frewer & Van Trijp, 2006). They have more tendency to pay a higher price

for foods with added value than men (Bruschi, Teuber & Dolgoplova, 2015). However, gender is not a reliable determiner of food choices. Because it can interpret less than 40% of people's food choice behavior (Frewer & Van Trijp, 2006).

Middle and overaged individuals are more health-conscious than younger people (Ares & Gambaro, 2007 ; Chambers et al., 2008) maybe because most of them suffer from one of the chronic or age-related diseases (Nocella & Kennedy, 2012). Milner (2002), found that elderly Americans choose functional food due to the beneficial effect of them in preventing disease and enhancing the quality of life. According to Verbeke (2005), fortified or enriched food products with different vitamins and minerals highly selected by aging people because they know the advantages of these products in personal health and discomfort prevention.

Well-educated pay more attention to the labeling and nutritional value of the product. They can assess messages easily. It is highly unlikely that they are misled by messages on the packaging (Nocella & Kennedy, 2012). In the U.S a vast majority of functional food users are middle-aged women with a high level of education and income class (Verbeke, 2005).

Evidence suggests that a health-related claim can influence consumer food decision making (Grunert, 2006). Consumers perceive products healthier when it is accompanying to health claims on the packaging in comparison with the absence of health-related claims (Kozup et al., 2003). Furthermore, they consider a product good for health when they see a red heart on the package (Kozup et al., 2003). Customers consider products more nutritious when they see the product is fortified with a different component such as vitamins and minerals (Van Kleef, Van Trijp & Luning, 2005).

The location of health-related claims on the package has an effect on consumer understanding and evaluation (Kozup et al., 2003 ; Singer et al., 2006). When it is presented at the top of the package, consumers can get and process information easily and quickly. As a result, they have positive responses to it (Singer et al., 2006).

A short and brief claim is more effective than long claims (Singer et al., 2006). Processing would be challenging if there are too many words with too much information (Nocella & Kennedy, 2012). According to Singer (2006), brief health claims communicate better with

the consumer. Consumers perceive short claims more reliable and have more passion to use them (Singer et al., 2006). Vocabularies which used should be transparent in order to prevent misperception and confusion of users (Nocella & Kennedy, 2012). Research that is conducted in South America represents that using comprehend language is an effective tool for preventing confusion of people. Because most of the respondents did not get the concept of probiotics and its beneficial impact (Granato et al., 2010).

Consumer's background and awareness are other significant factors, especially when they evaluate the trustworthiness of claims and the existence of confusing information (Kozup et al., 2003 ; Nocella & Kennedy, 2012). Previous information in the mind of consumers can help them to have better decision making (Nocella & Kennedy, 2012). Acceptation of a product increases when they see familiar ingredients like vitamin, iron, and fiber, rather than unknown ingredients such as omega 3, flavonoid, and carotenoids (Granato, et al., 2010). As a result, there is a necessity to enhance consumer knowledge about the advantages of the product (Siro et al., 2008). Transferring information should be in the apparent and understandable way for half of the consumers (Nocella & Kennedy, 2012). It is important that foods and health claims combine properly to work very well, as consumer evaluation influenced by a harmony between claims and products (Van Kleef, Van Trijp & Luning, 2005). When this combination is more attractive by consumers they evaluate it more positively. Consequently, the likelihood of purchasing and consuming the product increase significantly (Nocella & Kennedy, 2012).

2.3. Functional Food Market

A functional food market is dynamic, with annual growth of 8.5% (Huang, 2019). According to the institution of food technologists (IFT), only in 2018 consumers bought approximately \$250 billion functional and fortified foods (Sloan, 2018). Japan has the highest consumption of functional foods per capita and considered as a main functional food marketplace in the world. Japanese bought near 10 billion dollar functional foods in 2018 (Iwatani & Yamamota, 2019). The US and Europe have second and third places in the functional food market (Menrad, 2003). Yakult Honsha was the first functional food launched to the market in Japan in the mid of 90s. It was milk with different kinds of microorganisms (Menrad, 2003). In Europe, Danone, Nestle, and Unilever were pioneers

in functional food markets by producing Actimel, LC1 yogurt and Becel margarine respectively (Menrad, 2003). Actimel and LC1 were kinds of probiotic yogurt that produced for the first time in the 1990s. Becel margarine was plant-based spread low in saturated fat that is good for heart health. A vast majority of functional food products in the EU market are “probiotic”, which are beneficial for gut health (Menrad, 2003 ; Biligardi Galati & Galati, 2013).

Food claims should be appealing to consumers. They should express the product well, explain the advantages and benefits of product consumption in an attractive and simple way to the target group. Furthermore, they should compete with all products already in the market not only focus on medical benefits (Granato et al., 2010).

Figure 2. shows the factors that are important for functional foods in order to have a competitive advantage in the market and become successful (Granato et al., 2010). These factors are an influence on user’s acceptance and perception as well (Siro et al, 2008 ; Granato et al., 2010).

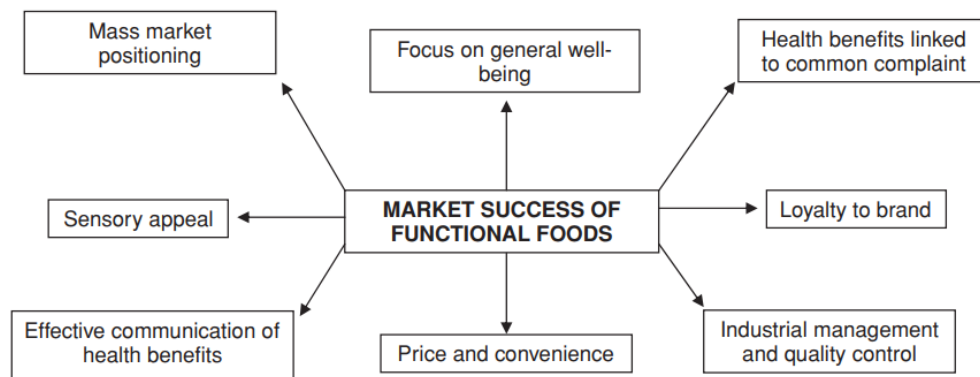


Figure 2: Strategies for functional food success in the marketplace (Granato et al., 2010)

2.4. Functional chocolate

One of the main chocolate ingredients is cocoa. It is found that cocoa has a huge health effect on the human body due to the presence of specific compounds (Zyzelewicz et al, 2018). Cocoa is the main source of flavanols in nature (Ding et al., 2006). Flavanol is a part of a broad family called flavonoids (Heiss, Keen & Kelm, 2010). In addition to flavanols, cocoa is a source of catechins, epicatechins, and procyanidins (Ding et al., 2006). Cocoa consumption contributes to decreasing blood pressure, heart diseases and prolonged lifespan (Erdman et al., 2008 ; Galleano, Oteiza & Fraga., 2009). Scientific researches demonstrated that the risk of heart attack is lower in people who regularly use more than three times chocolate per day compared to people who use one or less (Galleano, Oteiza & Fraga, 2009). Another study in Central America showed that level of mortality related to coronary heart disease, stroke, and diabetes between users of specific beverages with a high amount of flavanols is considerably lower than people who do not use this kind of drink in their daily life (Erdman et al., 2008). Khan et al. (2012), studied 42 males and females with age above 55, during which they were given 40gm of cocoa powder in 500 ml milk for a month. From this, they could conclude that cocoa consumption raises HDL and decreases LDL. Moreover, it has a large effect on the metabolism of fat. In the study of Allen et al., (2008), regularly intake CocoaVia chocolate bars with a high amount of flavanols and plant sterol were effective in reducing blood cholesterol levels and blood pressure.

During production these compounds deteriorate, nowadays industries try to keep the health value of cocoa by using new methods to preserve these compounds in the final product (Zyzelewicz et al, 2018).

2.5. Food choice

Eating is one of the essential needs for humans for survival (Sobal, Bisogni & Jastran, 2014). Food choices are important as people determine micro and macronutrients enter their bodies with their different food choices (Furst et al., 1996), which is highly correlated with their health and disease condition (Shepherd & Raats, 2006).

People are exposed to several options every day for food-related decision making (Vabo & Hansen, 2014). Numerous factors influence consumer's food selection (Hamilton, McIlveen & Strugnell, 2000 ; Van Der Merwe et al., 2010). Several models and theories explain the consumer decision-making process (Sobal & Bisogni, 2009). But one of the most comprehensive ones is the food choice process model (Shepherd & Raats, 2006). In this model three main factors construct the food choice process: life course, influences and personal system (Furst et al., 1996 ; Sobal & Bisogni, 2009).

All the prior backgrounds and experiences that a person has in different periods in their life is a noun as a life course. They can influence conscious and unconscious decision making and even further incidents (Furst et al., 1996 ; Sobal & Bisogni, 2009). Life-course can be divided into the following processes: Trajectories, Transitions, Timing, and Contexts. Trajectories are the most important component in the life course. It is consisting of individual's beliefs, perceptions, strategies, and activities in the life that lead to choosing foods in lifespan. Transitions or turning point is when as a result of specific event previous food choice behavior change, such as diagnose specific disease or marriage. Timing represents when a particular transition happens. For instance, foods selection is different between women during pregnancy. Mature mothers choose healthier foods than immature mothers (Shepherd & Raats, 2006 ; Sobal & Bisogni, 2009). Finally, context is a broad environment, the social, economic, historical and physical environment which life course takes place (Shepherd & Raats, 2006).

The second component is the influence. It is consisting of five categories: Ideals, personal factors, resources, social factors and present contexts, as it can be seen in Figure 3. Sometimes these factors combine together and sometimes compete with each other to influence food selection (Furst et al., 1996).

The personal system refers to intellectual processes which have an effect on the food choice behavior in a specific situation (Furst et al., 1996 ; Sobal, Bisogni & Jastran, 2014). The personal food systems include developing food choice values based on the things that are fundamental for people, negotiate and balance these values, categorizing of foods and circumstances based on these values, and forming strategies for food decision in repetition situations (Shepherd & Raats, 2006 ; Sobal, Bisogni & Jastran, 2014). Value

negotiation and making strategy are two important elements in this process (Furst et al., 1996).

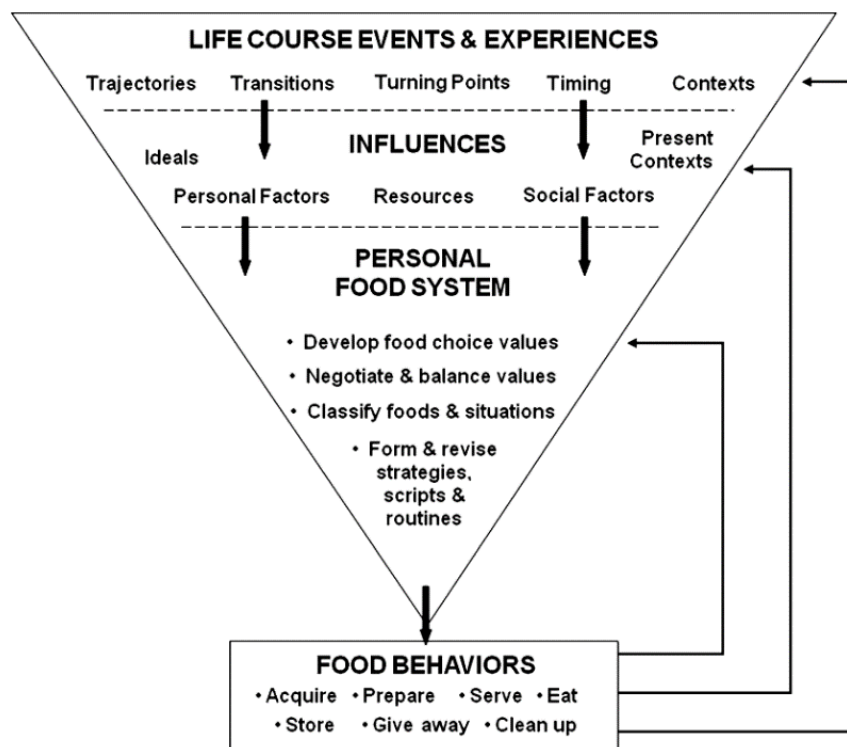


Figure 3: Food choice process model (Sobal & Bisogni, 2009)

Chapter 3. Methodology

In this chapter, methodology of present study will be discussed.

3.1. Rationale for using focus group

To get more in-depth information about consumer's beliefs, perceptions, preferences, and behaviors focus groups are conducted (Rabiee, 2004). A focus group is one of the forms of qualitative research (Kitzinger, 1995). It is a group of people between 6 to 10, that is chosen by the researcher (Powell & Single, 1996) to exchange their opinion, information, and experience based on researcher's topic (Kitzinger, 1995). In one hand, controlling too large group is challenging for a moderator, on the other hand, it is difficult

for participants to concentrate, listen to each other and talk together. A too-small group is not informative because, the views and the opinions are almost the same (Rabiee, 2004). Participants can answer the unstructured questions with their words without any limitation (Sheth, Mittal & Newman, 1999). This method can help the researcher to answer the following questions: what, how and why they think (Kitzinger, 1995). Group discussion has some advantages compared to other methods in qualitative research: sometimes people feel more comfortable to talk about their ideas and share them when they are part of a group, also a wide range of attitudes or beliefs can be obtained in a short period of time (Roascio-Albistur, Gambaro & Ivankovich, 2019).

3.2. Performing a focus group

A total of two focus group discussions conducted consisted of 16 participants, more information about participants of the focus group can be found in the Appendix 2. In group discussion moderator at first explained the aim and ground rules of a focus group. Afterward, an actual discussion was started with some general questions in the first round. These questions were about important properties for participants in making a food choice, frequency of chocolate consumption, followed by their generic information about functional foods and current use of them. Moderator explained the term functional food for respondents in this part, to make sure that all respondents were aware of the meaning of this term.

The second round was about the product itself and consists of discussions by means of topics and questions to gain insight into the perception of the CocoaVia. In this part, the properties of the product were described for respondents and the picture showed to them, but they did not taste CocoaVia.

An Appendix 3 is a list of questions composed for the focus group discussion. Questions were organized around topics such as important properties for food choice, functional foods, health claim, selection of capsule or powder, willing to compromise on taste for health, packaging, price, and willingness to buy in the future.

The interviews were conducted in the month of December 2019 on the Axis building and they were lasted on average one hour. To have sincerity in the research that proceeds

and to avoid any ambiguities, all interviews were recorded (Gill et al., 2008), besides this, research assistant took notes during the discussion. The voice recording was used to fill in areas that might have been missed by the note taker.

3.3. Pilot

The researcher conducted a pilot focus group discussion in order to test the design of the group discussion, before the actual one. The feedbacks were used to improve research questions and make sure that questions meet research purposes. Additionally, it was an opportunity for the researcher to check herself as a moderator and improve performance for the actual focus group (Breen, 2006).

3.4. Participants

According to Krueger (1994), if participants in the focus groups have some characteristics in common they more engage in discussion and a broad range of data can be generated. For this research respondents had several characteristics in common. Firstly, all of them were Dutch. Dutch students are recruited and selected from Wageningen University. Secondly, they did not have food and nutrition background. Thirdly, all the participants were young with an age range of 20– 31 years. Fourthly, they were randomly chosen, therefore they did not familiar with each other.

Dutch people were selected because according to Van Trijp & Van der Lans, 2007 ; Trabela & Barbara, 2012 ; Siegrist et al., 2015, there are differences between countries, even various countries in the EU, about perception and acceptance of nutrition and health claims. Both men and women were recruited for the group discussions since gender seem to have an impact on consumers' perceptions with regard to functional foods (Verbeke, 2005 ; Ares & Gambaro, 2007; Seechurn, Neeliah & Neeliah, 2009). The mean age of respondents was 22. According to Ares & Gambaro (2007), young people in the age group 18-29 have more tendency to try new products than the elderly age 45 and over.

3.5. Data analysis

The first step in analyzing data is the transcription of audiotapes and memos written by a research assistant during group discussion (Stewart, Shamdasani & Rook, 1990). Once the transcript is finished, it was read several times in order to identify words or statements that are answer research questions (Rabiee, 2004). Next, transcribed were coded with different codes. For example, main themes such as food choice, health claim, selection of capsule or powder, etc., assigned a code (Appendix 4). After coding the transcripts, they are translated into relevant data. The full focus group transcripts can be found in the Appendix 5,6).

Chapter 4. Results

In this part, the result of the focus group is discussed. Additionally, the characteristics of participants will be discussed as well.

4.1. Sampling

Two focus groups were conducted with a total of 16 Dutch participants. The first session had seven respondents, while the second had nine respondents. As mentioned above, in the methodology section, they were randomly chosen among students. There were five males and eleven females. Which included both bachelor and master students without food sector backgrounds, and their age varied between 20 to 31.

4.2. Focus Group Results

4.2.1. Important properties for food choice

Group discussion started by asking respondents to describe the most important aspects when they make a food choice, as a general question. Taste and price were the most frequent answers regarding making a food choice from participants. A group of participants declared they are health-conscious and mentioned they focus on healthiness and nutritional value to stay healthy and prevent illnesses. Food quality and attractive food packaging were other important factors. Some of the participants were environment-conscious and mentioned that the sustainability of the package is important as well.

4.2.2. Subjective knowledge and information about functional food

All of the participants expressed they had never heard the word functional foods and did not have any information about it. Some of them thought it was something with a specific purpose such as being used in a particular activity, reduce hunger, or to lose weight. Some examples of what the participants said are:

9: "I would say functional foods are foods that also have like vitamins and not only sugar, they do not add sugar for example, it has everything you need".

5: "I think it is a normal food like fruits and vegetables".

4.2.3. Current use of functional foods

Participants acknowledged that currently they do not use functional foods but after being provided the definition of functional foods, they declared, they use different functional foods in their life without being aware that they were termed functional foods such as foods that are fortified with different vitamins and minerals or extra protein. One of the participants was vegetarian and said she bought products with added vitamins and minerals in order to meet her requirements. The other one used high protein yogurt for a short period of time in order to lose weight. Some of the participants in both groups mentioned they never look for these kinds of products in the store. They prefer to meet their requirements through natural products and having a balanced diet in the first place. But, if it is not working for them, then they go to consume products with added value.

4.2.4. Carrier (ingredients)

Basically, CocoaVia is chocolate powder. Participants considered chocolate as unhealthy and generally harmful to the human body. Chocolate as a carrier was one of the reasons for the low interest of CocoaVia in consumers. Although it is free of fat and sugar, participants did not accept it as a healthy product or with product with added values.

"I think the link of chocolate and health is really weird" (Participant 1).

"Is it good to promote eating chocolate milk when you have problems with your heart? isn't it better to put flavanols in the other products instead of chocolate milk??" (Participant 5).

“It becomes healthier by using another product, I mean with something else” (Participant 5).

4.2.5. Health claim

Participants’ attitudes towards claims were negative. The claim “promote healthy heart” was not reliable for them and needed to be proved (They saw on the package: statements have not been evaluated by Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease). “I just said I would not believe it works when I saw this” (participant 3). “It is fake” (participant 5). “I think in general I am a bit hesitant to believe these claims, this is good for your heart” (participant 2). “it is a dream, right? not true” (participant 10). “I think claims have to be confirmed, because in my view for people looks really unreliable” (participant 4). Furthermore, they did not recognize flavanol. Some of them confused flavanol with flavor. “It is like a sort of flavors to me” (participant 5). “I think it is something related to flavor” (participant 12).

4.2.6. Selection of capsule or powder

When participants were asked about their preferences for a selection of powder or capsule and their effectivity, a vast majority of participants trust capsules more than powders. One of the participants said: “I have a feeling that capsules are for curing disorder that you have related to your heart and powder more to prevent it” (participant 5). “I believe the capsules more working just because it looks medicine” (participant 4). Some of them chose a capsule because it is more convenient than powder. They can take them easily but for powder they need preparation. Only a few of them mentioned, they did not believe both, however, the rest of the participants have a positive attitude about powder. The reason for that was powder looks more natural. One of the participants preferred powder because she has to take only one package and then she gets the benefit, but for capsule, she has to take 3 per day. Based on their opinion, the powder is a good substitute for pills or capsules for people who cannot swallow them easily.

“I think for people that already take supplements but cannot or do not like swallowing pills, something like this would be great. They just need to drink and get something that they really need. I think that is better” (participant 14).

“I agree that instead of always swallowing pills when you are already ill or already old it is nicer to have the drink” (participant 8).

4.2.7. Willing to compromise on taste for health

For all participants, taste was the fundamental criteria. Two participants in the second focus group indicated that when the flavor is as good as conventional chocolate powder then they choose chocolate powder with added health benefits. Also, it was found that they were not willing to compromise taste for health attributes. Some participants did not find CocoaVia as a necessity in their diet as they did not have any health issues. Statements that were made are: “I feel this is less tasty than regular hot chocolate, probably go for another kind, instead of the healthier one” (participant 8). “if the taste is the same as a normal chocolate then you would go for this because it is healthier, but if the taste is worse, then I probably go for another option” (participant 16). “if the taste would be the same and everything else would be the same then I prefer healthier one” (participant 11). “I feel healthy, so why I should eat less tasty food? especially when I do not need to use it anymore?” (participant 9). One of the participants had a different opinion, she said she will accept the CocoaVia even with unpleasant flavor, if she is certain about its health effect. “I think it is also important how well it is proven, and how it generally affects your health. if it is really effective for your heart maybe taste is not an option. But when it is not really proven then yeah obviously I do not consider health benefit” (participant 15).

4.2.8. Packaging

Participants were asked their opinion about the packaging of CocoaVia. The overall opinion of participants about the packaging was positive. They had various comments: “it looks nice; it looks like sort of healthy” (participant 16). “It looks like the brand of fair-trade” (participant 8). “I like it” (participant 1). Only one of the participants preferred a different color. She mentioned that brown color is more suitable for the packaging, it is more related to cocoa and helps consumers to recognize it is as chocolate.

They thought that the logo of vegan and fair-trade should be added on the package. About added logo of Mars they thought different. Some of them believed that this logo can

influence them positively. They trust more on the product as Mars is one of the well-known companies in the world. While, others believed that logo of Mars influence them negatively “I think when you are thinking about Mars you also think about unhealthy stuff” (participant 16).

They also declared that the picture of the heart and powder image on the top of the package should be larger to be more clear. They reported that it is hard to find out it is a chocolate powder when they see the package.

4.2.9. Price

The price of CocoaVia, for both powder and capsule, was unacceptably high for respondents in the current study. They compared CocoaVia powder with a competitive product in the market like usual cocoa powder, hot chocolate or Nesquik and declared it is costly. Some of them thought it is a waste of money since they are not really sure it works or not. One of the participants stated that if these specific compounds are really needed for their bodies, they can ask the doctor. Then it will be covered by insurance and therefore they do not need to pay for it.

4.2.10. Willingness to buy in the future

Respondents answered negatively for the intention to purchase CocoaVia in the future. The main barrier for them was the higher price of CocoaVia compare to similar products in the market. They also mentioned that their tendency to buy depends on acceptable taste and proven health benefits. Furthermore, they said they might buy it, if it has other uses, for example, to be used in baking or if it is fortified with other vitamins and minerals. Thus, it has an advantage for the whole body rather than only one part. One of the respondents said she will buy it only when experts such as a doctor or researcher suggest to consume it. Another one said, she will buy CocoaVia because it seems better and more natural option than other medicines in the pharmacy. Several participants indicated that they are not willing to buy it, because it is an unnecessary addition to their healthy diet, they do not have heart issues and do not need it anymore. They thought the potential users of CocoaVia are elderly or people with heart disorders. “I do not think I would buy it, because the benefit for you is to have healthy heart and my heart is fine so I think I

would not buy it even if it is cheaper” (participant 8). “if your heart is fine why would you spend extra money or something to buy a product that would be good for your heart?” (participant 8). “Do I have to eat all different things for our different body compartments?” (participant 6). “For me, I do not have any heart issues why would I take such products” (participant 2). “I am thinking that the only reason I buy this is for my grandmother” (participant 8).

Another factor that influences their intention to purchase was online shopping. They mentioned they would not order it online and prefer to find it in the supermarkets. “I do not like buying online. I think for me is too much effort to order a product online” (participant 2).

Chapter 5. Discussion

Participants were asked to explain the main consideration when they make a food choice, they had a number of different reasons to make food choices such as price, quality, taste, healthiness, nutritional value, packaging and sustainability of packaging. In the study of Chambers et al. (2008) with 6 focus discussions and 43 participants in the UK, the most important food choice motives were cost, health, appearance and time of preparation of foods. Honkanen & Frewer (2009) concluded that taste, followed by convenience and price, were the top three factors for Russians in food choice decision making.

The results of the focus group interview showed that the knowledge about functional foods between respondents was extremely low. In the study of Seechran, Neeliah & Neeliah (2009), 60% of interviewees were unaware of term functional food. Earlier studies demonstrate that people are not interested in buying functional foods because they do not know what functional foods are (Verbeke, 2005).

In the De Jong, Hoendervangers & Ocke (2004) research, Dutch people do not have sufficient information about functional foods but they like to acquire more knowledge in this area. Dutch people do not use functional foods regularly, although, they recommended specific products to others in order to prevent specific diseases for example, they suggested low-fat margarine to prevent cardiovascular diseases (De Jong, Hoendervangers & Ocke, 2004). Awareness of users about food ingredients and their

function can create a positive image of the product and increase the acceptance rate (Verbeke, 2006 ; Markovina et al, 2011).

Furthermore, consumer believes about the effectiveness of food component in disease prevention or quality improvement of life, create a better understanding about certain products (Urala & Lahteenmaki, 2004 ; Verbeke, 2005). The results of research show; participants were suspicious about CocoaVia's claim. The research of Van Trijp & Van der Lans (2007), in four different countries: Italy, Germany, US and UK demonstrated that products with probiotics and lose weight claims are more reliable for consumers than products with other health benefits such as for cardiovascular disease, stress, and fatigue. Participants of current study want to hear more about CocoaVia's claim. According to Nocella & Kennedy (2012), having more information influence consumer's evaluation of the health related claim. Kim and Korek (2015), concluded that providing more information contributes to increase consumer acceptance of health claim in blueberry functional beverages.

Moreover, the word flavanol was unfamiliar for participants. Van Trijp & Van der Lans (2007), found that claims related to heart disease are the most challenging claims for consumers to understand. Therefore, it is crucial for producers to choose words that are easily understood by consumers (Granato et al., 2010).

During the focus group, a group of participants declared CocoaVia capsules remind them of medicine and they prefer chocolate powder for consumption because it is resembling more to foods. According to Jimenez-Colmenero & Cofrades (2001), functional foods should be real foods, not lookalike medicines or drugs it should become a part of people's normal diet. When it is ingested by the gastrointestinal tract, it should prevent disease or develop healthiness. However, another group prefers capsules as it is more reliable and convenient than powders for them. By consuming capsules, they make sure that they get the benefits and meet daily requirements very easily. They declared they already consume vitamin C, D, B12 and omega 3 in the form of pills.

It was found that respondents were not willing to compromise on taste for health, this finding is in line with Verbeke (2006) and Siegrist, Stampfli & Kastenholz. (2008). From a

consumer point of view, the taste is the first and foremost important factor for choosing food products (Verbeke, 2006 ; Siro et al., 2008). If adding value to the product changes the sensory properties it is unacceptable by consumers. Consumers prefer tasty products without health value rather than bitter or salty products with added health benefits (Tuorila & Cardello, 2002 ; Verbeke, 2006). In the study of Siegrist, Stampfli & Kastenholz. (2008), consumers would buy enriched yogurt in the future only when the flavor is similar to conventional yogurt. Pleasant taste also affects purchase behavior and regular using, nonetheless, worse tasting impact negatively and decreases the rate of consumption (Urala & Lahteenmaki, 2004). Sometimes products have very strong health claims, thus consumers prefer health benefits by consumption of these products (Verbeke, 2006). But, the health claim of CocoaVia could not convince most of the participants and it needs to be proven. Verbeke (2006) found that females and old people are two groups who have a tendency to accept health-enhanced foods even with an unpleasant taste.

The first encounter with products is always through eye contact with packaging (Imram, 1999). Consumers can evaluate different packages with different colors and appearance in different ways (Silayoi & Speece, 2007). Most of the participants had a positive attitude about packaging. Food products with attractive packaging draw consumer attention and more likely chosen by consumers (Imram, 1999). One of the participants did not like the color (green and brown) as it does not match to main ingredient (cocoa). Colors have an undeniable influence on product perception and even consumer satisfaction levels about the product (Silayoi & Speece, 2007).

Some of the participants mentioned the picture of the heart and chocolate powder on the package are very small. They cannot recognize, it is a chocolate powder or it is a product with additional benefit. According to Steinhäuser, Janssen & Hamm (2019), visual attention positively influences consumer purchase behavior. Visual aids also impact consumer's perception about the health claim (Nocella & Kennedy, 2012).

Respondents mentioned the lack of vegan, fair-trade, and Mars logo on the packaging. The participants said if they see the Mars logo on the package, they trust more about the product. Health benefits are not tangible, therefore, claims from the reliable food industry are more acceptable by consumers and thus positively influence on purchase intention

(Siegrist, Stampfli, & Kastenholz, 2008). According to Nocella & Kennedy (2012), consumer familiarity is one of the factor that influence consumer's evaluation about a health claim.

A focus group exploration showed the price of CocoVia is quite high. As the same as other products in the market, functional foods should have a reasonable price from the consumer point of view, otherwise, they are not selected by consumers (Verbeke, 2006 Granato et al, 2010). This result confirms the previous study by Seechurn, Neeliah & Neeliah (2009), who concluded that roughly two-thirds of respondents in Mauritius were unwilling to pay a higher price for foods with additional health benefits. According to Menrad (2003), some consumers buy functional foods even with an extra price if the health messages can convince them about the potential effects of the product (Menrad, 2003). Previous research showed income and educational levels are positively related to consumer's willingness to pay (Bruschi, Teuber & Dolgoplova, 2015).

When asked the willingness to buy CocoaVia in the future, approximately all of the respondents were not very likely to buy it in the future. Only one of the female declared she is willing to buy. It differs from the previous study in Croatia which states that young women aged 19-30 are the potential functional food users in the future (Markovina et al., 2011).

Some participants in both groups reported they do not need CocoaVia to have a healthy heart. According to Urala & Lahteenmaki (2004), necessity is supposed to have an influence on the intention to buy. When consumers believe functional food is necessary for their personal healthcare because it can act as a drug or medicine, they have a positive response to it (Urala & Lahteenmaki, 2004, 2007).

Some of participants in both groups assumed chocolate unhealthy as a carrier. This is in line with research by Siegrist et al. (2008), that carriers influence a respondent's perceptions about products. In their research respondents had a positive attitude towards functional yogurt rather than functional chocolate.

Chapter 6. Conclusion

The results of this study give some insights into Dutch consumer's perception about CocoaVia as a functional food. The results clearly show their negative attitude regarding the product and the unwillingness of them for purchasing in the future. It seems that lack of confidence is one the main barrier that influences their tendency to purchase. They expressed health claim is not reliable and prefer a product with proven health benefits. Despite the lack of confidence in health claims, the price seems to be another barrier for them. It is notable that respondents of the present study were price-sensitive and 14 euros for each package was not acceptable for them. In addition to that, chocolate as a carrier is one of the reasons for the lower attractiveness of CocoaVia among consumers. Furthermore, several participants declared, CocoaVia is unnecessary in their diet. Another important finding that applies for both groups is that taste is the most important factor for consumers and they were not willing to compromise taste for health. It was found that most of them prefer CocoaVia in the form of capsules, they felt it is more effective and easy to use. Only a few participants preferred powder as they thought it has a natural lookalike. Respondents consider powder preventive and capsule curative. The packaging is highly desired for them, however, improvement in some of its characteristics are required. It is an option for CocoaVia to add the logo of vegan, fair-trade and Mars on the packaging. The picture of powder and heart on the packaging should be larger in order to enhance transparency and emphasize more on the healthiness of the product. Another option is the enrichment of CocoaVia with other vitamins and minerals to expand health benefits for the whole body. During the focus group discussions, several participants mentioned that they need more information, which should be clear and understandable for them.

Chapter 7. Limitation and Suggestion

7.1. Recommendations for future research

- For the future lines of research, the study can be expanded to other countries. According to Van Trijp & Van der Lans, 2007 ; Trabela & Barbara, 2012 ; Siegrist et al., 2015, there are differences between countries in the perception and acceptance of nutrition and health claim.
- The focus of this study was on young people, future research could expand to other consumer groups. Several studies show that older consumers are potential users of functional foods (Milner, 2002 ; Siro et al., 2008 ; Siegrist, Stampfli, & Kastenholz, 2008). It is worthwhile to investigate the perception of elderly and their willingness to compromise on taste for the health benefits of functional products.
- Heart diseases, gastrointestinal disorders, obesity, and high blood pressure are the main health issues that the consumers concerned about them (Siro et al., 2008). There are several products with different claims related to these problems in the market. Future research can be expanding to other food products with other claims.
- Research can be conducted with participants with health disorders or the presence of family members with a certain disease. Verbeke (2005), found the existence of an ill family member can increase functional food acceptance. When people have a family history of cancer they have more knowledge about it. They are more prone to pay attention to the claims related to cancer and assess them carefully (Van Kleef, Van Trijp & Luning, 2005).
- Other research methods can be used such as face to face interviews, another form of qualitative research, with the same questions to gain information in more detail. The quantitative method is another option, with more respondents. As a result, more data can be obtained. According to Adams & Cox (2008), face to face interviews, focus groups, and quantitative methods are useful methods

individually, but if they combined together the quality of research would become comprehensive.

- Further research can be done with more number of focus groups so that more data can be collected.

7.2. Practical implications

- Research results indicate due to the lack of consumer knowledge; companies should invest more in activities to raise consumer information. In this area, advertising and launching a campaign is a good strategy (Siro et al., 2008 ; Markovina et al., 2011).
- High price is one of the barriers for consumers to buy CocoaVia, therefore, a price reduction could be a strategy to attract consumers who are price-conscious. Price is one of the most important factor that can determine product success in the market (Granato et al, 2010).
- Fortified CocoaVia with more vitamins and minerals could be another option, then it would have other beneficial effects for general health. Therefore, it can be a substitute for pills or capsules for people who have difficulty in swallowing.
- It is better for Mars to just concentrate on the specific target group for example for people with heart disorders, rather than trying to design a product for the whole marketplace.
- According to participants more attention should be given to appearance by Mars, first of all make it more resemble to chocolate, stress more on health benefits of the product to differentiate it from regular product is needed. Additionally, logo of Mars and labels such as fair-trade and vegan should be added on the packaging.

7.3. Limitation

- The focus of this study was on young Dutch people, thus cannot withdraw conclusions for the Dutch population in general.
- Sensory attributes have been reported as a significant factor affecting individual choices and preferences for functional foods (Granato et al., 2010 ; Bruschi, Teuber & Dolgoplova, 2015), but in this study, we could not include taste perception because the product does not ship to the Netherlands.
- The results of the current study cannot expand to other functional food products.
- Finally, the last limitation is a small consumer sample. Krueger (1994) argued, for simple investigations, three or four focus groups are sufficient to provide a broad idea about topic (Krueger, 1994). In present research, though more participants were invited, they didn't show enough willingness to participate.

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Appendix

Appendix 1: Product concept

Figure 4: CocoaVia powder and capsule



“Mars” is an American producer of confectionary and food products. One of their mission is try to develop people’s wellbeing all over the world (Mars, 2019). Based on this mission “CocoaVia” is a first functional food designed by Mars in 2003. It contains the highest concentration of cocoa that is extracted from the cocoa beans by specific method so called “Cocoapro”. This method patented by Mars and helps to preserve flavanols which is naturally present in cocoa. This preservation method begins with harvesting and continue until the final product. Therefore, the final product contains high amount of flavanols, however, in ordinary methods flavanols destroy during processing by time, temperature and moisture. Further cocoa, CocoaVia contains maltodextrin and sunflower lecithin as well. Each pack provides 375 mg flavanols. Flavanol from cocoa is a powerful plant-based nutrients found naturally in the cocoa bean, which is useful for blood circulation in the human body and helps the brain and heart to perform well result to have better feeling. The mechanism is 4 hours after consumption, flavanols absorbed by the body then it helps to keep the level of nitric oxide. It is a molecule which has fundamental role in and blood flow circulation, transportation of oxygen and nutrients through the body (CocoaVia, 2019 ; Mars, 2019).

It is available in two forms of powders and capsules. Powders are available with three flavors:

- Unsweetened Dark Chocolate,
- Sweetened Dark Chocolate,
- Cran-Raspberry

Each package contains 30 sachets. Adding each sachet to the daily regime can provides 375mg flavanols. For its preparation, the cocoa powder needed to be added to foods or drinks, like hot or cold water/milk, coffee, smoothies, oatmeal, and yogurt. The price of the whole package is € 14.

Table 1: Nutritional value of CocoaVia (powder) stated on the package

Amount per Packet	%DV	
Calories	25	
Total Carbohydrate	3g	1%
Total Fat	0.5 g	1%
Potassium	180 mg	5%
Iron	0.9 mg	6%
Protein	1 g	
Cocoa Extract (bean)	1500 mg	
Cocoa Flavanols	375 mg	
Percent Daily Values (DV) are based on a 2000 calorie diet		

Extra notes on the package

Store in a cool, Dry place, Recommendation use: one pocket daily. Do not use if pregnant or lactating. Consult a physician prior to use if you are taking any medication or undergoing medical treatment. Not for use by children. These statements have not been evaluated by Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

Nutritional value of CocoaVia Capsule stated on the package

In the form of capsules each bottle contains 60 capsules. Daily consuming of 3 capsules with food can provide 375mg flavanols. The price of each bottle is € 11.

Cocoa extract (bean) 1350mg, Cocoa flavanols 375mg, Calorie 10g, Total carbohydrate 1%, Other ingredients: Hypremellose capsule, Microcrystalline cellulose, Stearic Acid, Silicon Dioxide, Croscarmellose sodium, Magnesium Stearate.

Extra notes on the package

Do not use if pregnant or lactating. Consult a physician prior to use if you are taking any medication or undergoing medical treatment. Not for use by children. Do not use if safety cap is broken or missing. Store in a cool and dry store.

Appendix 2: Focus group participants

Table 2: information about participants in both groups

Participants	Focus Group	Gender	Age	Food/ Nutrition Background
1	1	F	22	No
2	1	F	21	No
3	1	F	23	No
4	1	F	20	No
5	1	M	25	No
6	1	M	24	No
7	1	F	22	No
8	2	F	22	No
9	2	M	22	No
10	2	M	21	No
11	2	F	22	No

12	2	F	24	No
13	2	F	21	No
14	2	F	22	No
15	2	F	22	No
16	2	M	31	No

Appendix 3: Moderator guide

Table 4: list of questions asked during focus group by moderator

Moderator guide
<p>A. Brief Introduction</p> <ul style="list-style-type: none"> Moderator - Guidelines and purpose. Each respondent - Name and educational backgrounds <p>B. Focus Area 1 – Important properties for food choice</p> <ul style="list-style-type: none"> What do you find the most important when you making a food choice? <p>C. Focus Area 2 – Subjective Knowledge and information about functional foods</p> <ul style="list-style-type: none"> What do you know about “Functional Foods”? What comes in to your mind when you hear this word? <p>D. Focus Area 3 – Current use of functional foods</p> <ul style="list-style-type: none"> Do you use functional foods in your daily life? <p>E. Brief explanation about functional food and the CocoaVia. Show Participants the picture.</p> <p>F. Focus Area 4 – Carrier (ingrediets)</p> <ul style="list-style-type: none"> How do you see CocoaVia? When do you like to use this product and why? <p>G. Focus Area 5 - Health claim</p> <ul style="list-style-type: none"> What do you think about the CocoaVia’s health claim? <p>H. Focus Area 6 - Selection of capsule or powder</p> <ul style="list-style-type: none"> Which form of CocoaVia is more attractive for you, chocolate powder or capsule? Why? <p>I. Focus Area 7 – Current use of comparable product</p> <ul style="list-style-type: none"> Do you use similar product as CocoaVia? both powder and capsule.

J. Focus Area 8 - Willing to compromise on taste for health

- Are you willing to compromise on taste for health respect to CocoaVia?

K. Focus Area 9 - Packaging

- How do you see the CocoaVia's package?

L. Focus Area 10 - Price

- Price is 14 € what do you think about it?
- Price is 11 € what do you think about it?

Appendix 4: Main coding theme

Table 3: Transcript coding legend

General theme's	color
Important properties for food choice	Olive green
Subjective knowledge and information about functional food	Yellow
Current use of functional foods	Purple
Product related theme's	
Carrier (ingredients)	brown
Health claim	Pink
Selection of capsule or powder	Grey
Current use of comparable product (powder/capsule)	Blue
Willing to compromise on taste for health	Red
Packaging	Dark blue
Price	Green
Willingness to buy in the future	Light green

Appendix 5: Transcript focus group 1

Welcome everyone!

I want to thank you for participating in this research. My name is Neshat, I am a master student of food technology. Today discussions concerning my thesis topic “Consumer perception of Functional foods”. I urge you all to participate. I am sure you all have very interesting ideas to share. However, try not to interrupt your co-participants while they are presenting their views. There are no right or wrong answers in this discussion. Thus, please freely share your point of view and respond to others even if it differs from what others have said. Please respect the opinions of others and the privacy of everyone in the room. Today’s session will be audio recorded. This is done for data collection and analyzing purposes. For that purpose, participants can address each other by their first names. But, all the results in the report will be made anonymous to protect your privacy. This session will last approximately one hour in total. During this time there will be a short break of 10 minutes. We ask you to stay for the entire meeting. Because we have a limited amount of time, I might sometimes have to interrupt to keep things moving. At the end of the discussion, you will receive 10 euros to thank you for your participation.

Is it clear to everyone what we are going to do during this research? Are there any questions?

OK. We can start.

Could you please tell me a little about yourself, your first name and your educational background?

- What do you find the most important when you making a food choice?

4: price.

N: why price?

4: because it is a first thing.

1: I think also quality and taste.

3: and healthiness also for me.

N: why?

3: because you are living alone if you take something bad or eating something bad you become sick. I just want to stay healthy.

N: anything else?

5: for me, taste is the most important.

6: I think the most important things already mentioned, taste, price, nutritional value.

2: I think there are also certain products that you always need to be in a balanced diet maybe products with certain carbs that someone need or other need protein or some vegetable and fruits that you always need in your diet.

1: oh yeah, for me also taste is very important.

- How often do you consume chocolate?

7: almost every day.

2: Not very often.

- What do you know about 'Functional Foods', what comes into your mind when you hear this term?

3: what do you mean by functional food? Does it mean do not be hungry or something? functional?

5: you mean you use it during a certain activity? like sporting or being in an office. what is it?

4: I have never heard.

1: No.

2: no I do not know. I have no idea.

- Functional food is a food that beyond nutritional value has beneficial effect on one or more parts of the human body. For example, yogurt with live microorganisms has a beneficial effect on your digestive system. Based on this definition do you use functional foods in your daily life?

4: not in purpose, if any.

1: yeah, probably I use it but I do not know. I do not search in the stores for these kinds of foods.

N: why? because you think you are already healthy?

1: No, I did not think about it before.

3: I eat yogurt for a while to lose weight because it does not have any carbs, it has a lot of proteins, so that is why I took it.

2: but I feel if we just have a balanced diet we do not really need certain products that have these claims, for example, I do not really look for it, I just try to eat a little bit healthy. I mean it does not need to be always healthy but kind of, if I eat enough vegetables and fruits and these kinds of things I am ok.

N: How about you (6)?

6: yeah I think it is the same, I am not looking for particular things but I might choose them by myself and, as I want to eat healthily, I would choose products like low in carb, not too high in fat, but I am not looking for food to prevent kind of disease or something.

- I will give you some time to look at the product picture (powder) and read the labels (5 min). I would like to know what comments and questions about the product come to your mind. You can write these down, in this way you will not forget them. Eventually, we will discuss what you have written down.

1: flavanols? what is flavanol? I do not know.

5: It is like a sort of flavor to me.

4: I do not know what is it exactly, but I know it is not flavor.

5: yeah, I think it is not but I do not know. I do not have any idea what it is.

4: I have never heard of it.

6: I do not know.

2: No.

- CocoaVia is the first functional food produced by Mars. Basically, it is a chocolate powder with a high amount of flavanols. Flavanols influence blood circulation and promote a healthy heart. You can add it to milk, water, yogurt, and oatmeal.

Flavanol is antioxidant, it can increase HDL (High Density-Lipoprotein) and reduce blood pressure which can lead to reduce risk of cardiovascular disease.

- How do you see this product?

1: I am a little bit skeptical about this product. because I do not know how much it helps for your heart and I think normally chocolate is bad for your heart so, yeah, I do not think that I believe it.

2: exactly chocolate in general is not good.

6: how much do you have to take of it to have any benefits?

N: Each package contains 30 pockets. One sachet for each day. It can give you 375 mg flavonoids.

6: one per day right?

N: yes.

6: oh, ok.

1: one is good.

4: yes, it is fine.

1: but how much fat and calories and sugar?

4: look at the table, 25 calories, there is 0.5 gr fat, and no sugar yes?

N: yes, this one is unsweetened. you can choose the sweetened one. it has three flavors: sweetened, unsweetened and cran-raspberry.

2: fat is almost nothing.

5: but chocolate has sugar.

3: but why? why just cocoa is not sufficient? is it the same as this or not? just cocoa?

1: yeah, why we cannot change it with like a package of cocoa instead of this?

N: Mars, use the unique process which protects flavanols naturally present in the cocoa beans during processing. Therefore, the final product has a high amount of flavanols that you cannot find it in conventional products.

3: oh, ok. it means that if you buy a usual product in the shop it does not have this, right? it is ok.

4: ok.

1: Is the taste also different?

N: Actually, I do not know, I want to buy it but unfortunately it does not ship to Europe.

3: I do not know if I would buy it. but if my doctor told me that it would be good, perhaps.

1: I want to know the taste of it. Because it is no fat and no sugar, sounds ok. It also promotes healthy heart but now I am not sure about the taste.

- When do you like to use this product and why?

7: Maybe when I am studying to gives me more energy.

2: when it is cold.

3: yeah, when it is cold or you feel cold.

- Assume when you added this chocolate powder to the water or milk it becomes less tasty. Are you going to use it again?

1: of course no, it is only cocoa, and only cocoa adding to milk I do not like the taste.

6: I do not really like very dark dark chocolate.

1: yeah me too.

4: same, and this is unsweetened.

2: I think in general I am a bit hesitant to believe these claims. "this is good for your heart".

5: Yeah, actually how much it is promoting? what is promoting exactly? or do you need it at all?

2: yeah, or if you just eat other things, I do not know maybe if you eat properly that is also good for your heart. I do not know any other products like ...

3: natural you mean?

2: yeah, more natural it is better for you.

- Do you use any products like this chocolate powder?

4: no, I just drink coffee.

2: most of the time I drink tea.

3: not pure cocoa but sometimes I drink chocolate milk.

6: I use cocoa for baking but I did not use cocoa for this purpose.

1: I use cocoa once in a year or something, in general for the baking. but yeah I drink sometimes chocolate milk but not in this kind of form.

- What do you think about the package of the CocoaVia?

7: I prefer brown color because it is cocoa.

1: but I like it.

2: yeah, it looks healthy and plant-based, but this heart is pretty small (heart on the package).

- N: Price is 14 € what do you think about it?

2: 14?? wow.

6: expensive.

1: very expensive.

2: one per day for chocolate powder?

N: yes.

7: for 30 times it is almost 50 cents

1: I think it is still a lot, it is 50 cents per day and you do not know the real effects of it. I would not spend so much money on it.

2: I think also there is a quite big difference between normal cocoa powder and this one. but I do not know exactly what is the normal price of similar products. but I think there is a quite big difference.

6: yeah, I agree.

3: for me, it is a little bit expensive, but also when you go to the doctor and describe something you need for your blood circulation your insurance will be covered so why would I take this instead of something for free.

1: so what makes it so expensive? the process? or special cocoa?

N: I think the unique process that they already use, maybe because it is natural also I think it has a health benefit.

- What do you think about the claim?

5: it is fake.

3: it is really big, for what is it good? for the muscle or brains or?

4: help blood circulation and it promotes a healthy heart. It is on the package.

3: Ahh. ok.

1: cardiovascular disease?

N: yes.

1: is there also the description? like how it enhances your heart or something? on the package? to make it more trustable I think?

5: like how it works?

4: they just mentioned on the package they mentioned: "the cocoa flavanols in CocoaVia help deliver oxygen and nutrient to your heart".

4: well, I believe the capsules more than the chocolate powder, to be honest.

1: I would not trust both.

6: true.

1: because based on the chocolate aspect it is a kind of strange.

3: yeah, can you just buy it in the shop? I do not know where can we buy it?

N: you can buy it online.

3: it feels so wired for me. also like some bodybuilders they buy protein shakes and these kinds of tablets and I do not really believe it is it working. so I do not know.

2: I think your heart is a bit too complex to just have this one specific product that would be amazing or something for it.

- imagine for vitamin C there is a pill and also there is an orange juice available. which one do you prefer?

1: orange juice, because it is more common products

3: you know what it is, what there is in it.

4: looks more natural.

5: but for me I prefer pill but I do not have any reason for that.

2: already so many products on the market that have these kind of claims and I feel some people just take so many this kind of medication. but I think if you just eat normally, not extreme things then I feel you do not need to take these extra products.

6: I think if it is really really beneficial for your heart everyone would already eating it and that is not a case, I think it is not proved.

2: as you mentioned (3), if the doctor says it is something that you should take it then I use it, but I would not go to the shop to look for products like this, this is my idea.

6: How big is the effect? Do I feel different? if I would not feel different I would not be likely to ...

5: spending money on it?

6: yeah.

- I will give you some time to look at the product picture (capsule) and read the labels (5 min). I would like to know what comments and questions about the product come to your mind. You can write these down, in this way you will not forget them. Eventually we will discuss what you have written down. How do you see this product?
- How do you see the product?

3: is it more concentrated?

N: both products have the same amount of flavanols (375mg), but for this one, you have to take 3 capsules per day to take the benefit.

6: I would only take it if my doctor says...

1: it feels more unnatural.

6: yes, agree, otherwise I do not take it.

1: I feel unnatural yeah. I link it to chocolate and then it feels so wired to have chocolate medicine or something.

3: exactly, it is looks like a medicine with a flavor.

2: for me, I do not have any heart issues why would I take such products.

4: just it is total of taking 3 pills per day.

5: but it is lot.

2: I think 3 is a lot.

N: Do you use a similar product like this?

6: no, not at all.

3: I just sometimes take some vitamin tablets to put in the water but nothing else.

5: fish oil sometimes, also in a form of capsules.

4: I just take supplements with protein, because I go to the gym.

2: but the only thing maybe for me, is taking vitamin D in the winter but for me if I take three per day it is a little bit too much.

- what do you think about effectiveness?

3: I would ask the opinion of my doctor I guess before taking something like this.

1: yeah I do not trust it, I will not try it and 3 is a lot. 3 capsules per day. I want to hear more about it before I take it.

6: I think I would trust more on capsule more than the powder form. I also need more information before I take it.

5: I have a feeling that capsules are for curing disorders that you have related to your heart and powder more to prevent it.

4: yes, I believe the capsules more working just because of looks medicine.

5: yes.

6: yes, it has a shape of medicine.

1: yes, but I think I should take the first one earlier than this one.

6: but if the taste is nice.

1: oh, yeah, definitely, I do not use food supplement. This is more unnatural for me.

- N: Price for capsule is near 11€ what do you think about it?

5: 11 euros?

4: for 60 capsule!!!

1, 2: for 20 days.

4: oh my god

2: very expensive I never buy it.

1: No, me neither.

6: that is expensive.

3: but why they make this because it is like normal medicine? is it better for blood circulation?

4: maybe because it is more convenient, it is easier, but powder needs preparation, add it to something else.

3: but what is the difference between the capsule and the powder?

N: there is no difference just they are different forms of one product with the same amount of flavanols.

3: but what is the difference between taking 3 capsules and one package of powder?
there is no difference?

1: a pill is like a doctor prescribed.

3: I think both are easy why I should take this one instead of medicine? I cannot see the advance thing of this one.

7: I think it is more related to the consumer's perspective that really affects. maybe some prefer pill form another prefer powder. it is my feeling.

- What would make you more likely to buy CocoaVia rather than conventional chocolate powder?

1: if the taste is good, I added to milk otherwise no.

3: can we buy it in the Netherlands?

N: no, it is not already in the Dutch market, you can buy it online.

3: if it is recommended by people who studied or research about this kind of thing I guess I buy it.

2: I do not like buying online. I think for me is too much effort to order a product online.

1: yes.

4: yeah it should be in the supermarkets.

1: I think if you add it to milk and it has a taste like chocolate milk and then they describe more about the real heart effect maybe I buy it but then I need to know if the taste is really good.

5: sure, if the taste is not good I never buy it.

7: taste is very important, yeah.

4: I think claims have to be confirmed, because in my view for people looks really unreliable.

3: yeah you can buy a lot of these things that do not work.

5: they should give consumers more information.

6: it is only such a small part of your health, I could also get a long disease. How can it help me? it does not help me.

1: maybe also it is bad for your health.

6: do I have to eat all different things for our different body compartments?

1: yeah, but it might be bad for our other compartments.

5: is it good to promote eating chocolate milk when you have problems with your heart?
isn't it better to put flavanols in the other products instead of chocolate milk??

1: it feels unnatural, for consumers I think.

5: the products become healthier by using another product, I mean with something else.

1: it is pure cocoa and it is different I think the link is chocolate and health and it is really weird.

This is the end of the focus group, thank you very much for your participation. You will receive a VVV-voucher of 10 euros. Before we leave is there anything you would like to add what was not mentioned?

Appendix 6: Transcript focus group 2

Could you please tell me a little about yourself, your first name and your educational background?

- What do you find the most important when you making a food choice?

15: Price, because I am a student, I guess I should buy the cheapest option for everything.

10: also quality.

9: Also it should be healthy.

14: food package, how looks in the store, yeah.

11: oh, I would say whether or not it is healthy like it is not containing added sugars that are mainly what I mean by healthy and another thing is the price. Because there are also waste to substitute for the products for cheaper one. if the option is there I would go for cheaper option. but why I would do that? I have a certain amount of money to spend on food and really restrict myself to that amount.

12: After these things, maybe also the sustainability of packages like plastic or extra. We are responsible to the environment.

13: the first thing is what would I like to eat, it is the first thing that I think about it. Do I see something sweet or something like that in the store and see what happens? and then I think, I compare the price over quality and how much do I get for this amount of money.

8: I would definitely say taste also what do I want to eat, like how does it taste for instance with bread if you want to get a really cheap one, and there is no flavor, then I do not buy it.

- How often do you consume chocolate?

10: I love chocolate.

12: most of the time.

14: yeah, once or twice per week at least.

15: every day.

- What do you know about 'Functional Foods', what comes into your mind when you hear this word?

11: food which helps you to lose weight for example. I think it is functional food.

10: I would say for me, functional foods, what comes in my mind is food that brings people together, so it has a social function.

13: for me, it is "Schijf van vijf", what is it in English? it is what the government says it is healthy and regularly meets your needs on a daily basis.

16: it is basically safe to eat.

14: Daily intake.

15: yes, maybe also we have a label in the Netherlands the "Beste keuze level" like a healthy choice which is labeled on the foods. I think it is something like that.

10: even they are the healthiest choice of that type of foods, so they also pretty do not candy and do not say it is worth or this is the healthiest candy.

12: maybe in the category.

10: yeah, category.

16: I would say functional foods are foods that also have like vitamins and not only sugar, they do not add sugar for example, it has things you need.

9: yes, it has mainly things you need and taste and all those things that are less important for you on the packaging and those things. they are mainly for you, functional.

12: I think it is a normal food like fruits and vegetables.

- Functional food is a food that beyond nutritional value has beneficial effect on one or more part of the human body. For example, yogurt with live microorganisms has a beneficial effect on your digestive system. Based on this definition do you use functional foods in your daily life?

13: ok, it means that all of us use functional foods. for example, products with extra protein or...

12: pasta.

13: yeah.

10: I think as a vegetarian I use it a lot without being aware of that.

8: oil with vitamin D.

- I will give you some time to look at the product picture (powder) and read the labels (5 min). I would like to know what comments and questions about the product come to your mind. You can write these down, in this way you will not forget them. Eventually, we will discuss what you have written down.
- How do you see this product?

10: I just said I would not believe it works when I saw this.

11: No me neither.

13: what makes it special with usual cocoa powder?

- CocoaVia is the first functional food produced by Mars. Basically, it is a chocolate powder with a high amount of flavanols. Flavanols influence blood circulation and promote a healthy heart. You can add it to milk, water, yogurt, and oatmeal. Flavanols is antioxidant, it can increase HDL (High-Density Lipoprotein) and reducing blood pressure which can lead to reduce risk of cardiovascular disease. Mars uses the unique process which protects flavonoids naturally present in the cocoa beans during processing. Therefore, the final product has a high amount of flavonoids that you cannot find it in conventional products.

10: what is flavanol?

15: that is my question as well?

N: no one knows about flavonoids?

All: No.

12: I think it is something related to flavor.

16: it sounds familiar.

14: good.

16: I would maybe want to try it. because it is also unsweetened, so I like dark chocolate but most of the time it is a little sweetened I think. This one is unsweetened maybe, I do not know how does it taste?

11: it looks like maybe healthier substitute for, ...

10: Nesquik.

11: yeah, another sort of chocolates.

14: or chocolate milk.

11: yeah, that is true.

9: I want to try it.

14: it does not look like the thing you would find it in a supermarket, maybe "Holland & barrett".

15: yeah.

10: oh, yeah.

12: also it looks expensive.

11: yeah maybe.

14: but I am wondering whether if it is too bitter to be enjoyable? Because it is natural right?

10: yeah, I am thinking about it as well.

14: How chocolate can be healthy?

12: good point.

14: chocolate is unhealthy.

- Do you use any products like this chocolate powder?

10: yes, Nesquik.

13: maybe sometimes, make chocolate milk.

15: Hot chocolate

9: Hot chocolate yeah.

10: but I do not use products with extra antioxidants or nothing similar to this with added value.

- When do you like to use this product and why?

10: probably for making chocolate milk in the winter. Just when you come home from lectures and you are very cold, because it is cold outside then probably, I think.

8: I feel like this is less tasty than regular hot chocolate, probably go for another kind instead of the healthier ones.

16: Everything depends on the taste ...

All: yes.

16: if the taste is the same as normal chocolate then you would go for this because it is healthier, but if the taste is worse, then I probably go for another option.

13: and again it depends on price, it seems that this one is much more is twice expensive than usual one, maybe twice, then you go for the other one.

16: and you do not enjoy chocolate anymore.

13: then you have a stomachache.

15: also in the case of chocolate I do not any care if it is healthy. I throw with cream or other stuff like cookies so it is going to be unhealthy.

11: but if the taste would be the same and everything else would be the same then I prefer a healthier one.

15: Is it also say if you drink it on a regular basis that would help you? or you can use once to replace hot chocolate?

N: you should use it every day you should take a small pocket to get the benefits.

11: you have to take it every day?

12: if you want to get a healthy heart you have to take it every day?

N: Yeah.

12: that is quite different, I do not like to eat cocoa every day.

13: it is just powder right? so you can add it to yogurt or yeah.

8: but do you want it every day? Do you need every day something that tastes like chocolate?

14: I do not mind.

10: I like it.

12: I would not be happy.

15: the substance already in CocoaVia is also available in regular diet?

9: I think you probably eat it anyway but less.

15: yeah.

N: Basically, cocoa, apples, and tea are the main sources of flavonoids.

All: oh, ok.

16: it means that we can get it every day.

15: yeah, nice.

10: I also wonder what is the impact of a few amounts, if you are generally healthy what does it do for you especially when you are still young?

16: if you notice the change by eating or drinking something like that.

8: yeah, if your heart is fine why would you spend extra money or something to buy something that would be good for your heart?

- What do you think about the package of the CocoaVia?

8: it looks like the brand of fair-trade

13: I am looking for the logo but I did not see it.

16: it looks nice; it looks like a sort of healthy

14: sustainable.

11: you cannot really see and read what is on it, so you cannot tell what is the inside is about.

12: it only needs a heart eye.

10: only small heart here to show it is healthy.

16: if this picture would be larger (at the bottom-right of a package), it would be clear.

11: we cannot find out it is chocolate or instant powder.

16: mainly powder, I only discover it is powder after I saw this (at the bottom-right of a package).

- Price is 14 € what do you think about it?

9: quite expensive

8,10: very expensive

14: that is a lot.

15: in Netherlands is quite expensive.

10: the box of Nesquik is 2 euros recently. I think at least for students it is not even an option to buy something like this. because we have a loan from the government for our study I am not going to spend 14 euros on cocoa powder. but maybe if you are really rich and you have a career and then you feel your heart is very bad then you might buy this.

9: maybe if you only have a sort of heart disease, maybe you consider buying. On the regular diet, I would not buy it for 14 euros.

16: maybe also for older people.

14: If you already have heart disease then something like this product could it help to recover or prevent heart disease maybe? or maybe almost use it in medicine?

10: it is a dream right? not true.

11: I think it is also depending on where you can buy it? if it is in the supermarket next to the regular hot chocolate no one is going to buy it, but if it is in the pharmacy then...

10: would you go to the pharmacy to buy this? to buy hot chocolate?

11: No, we are looking for medicine and see this, then it might be nicer than others.

10: Ok. then it should be really scientifically proven to say medicine.

13: maybe it works in "Holland & barrett" because people go there...

12: for an alternative.

13: yeah exactly.

8: or "WERELD WINKEL" or something.

13: maybe and then definitely you can find it.

9: yeah, true.

- for vitamin C there is a pill and also there is an orange juice available. which one do you prefer?

13: A pill for me, fresh orange juice you have to cut it up, so messy you know in the morning, but pill is really easy you just take it and then I just go everywhere that I need to go.

12: I would choose orange juice that is more interesting than a pill, which is a fake of the original vitamin C, so I would choose original orange juice.

15: but I am using fruits, maybe because they have other health benefits over just a pill because you also get hydrated and fibers and those kinds of things.

8: but I think I would just eat oranges because there is a lot of vitamins that you through away by making juice from it, and it is a waste. you can just eat them, so I prefer that.

- I will give you some time to look at the product picture (capsule) and read the labels (5 min). I would like to know what comments and questions about the product come to your mind. You can write these down, in this way you will not forget them. Eventually, we will discuss what you have written down. How do you see this product?
- How do you see the product?

12: I think I would consider trying CocoaVia powder then I would choose this option because it is easier to get it in your schedule instead of you have to make yogurt or milk with chocolate every day. Especially when you are in the hurry you just can take pills in the morning it is easier, but still I would not consider doing this. but if you would then I choose the pills.

15: I think the fact that it is still chocolate even though it is a pill it is a kind of redundant because you do not taste the pill. maybe it is better that they just brand it as the component that is healthy for your heart not as chocolate. I think it would be better.

8: yeah agree, I think that makes sense. it should taste like chocolate because...

16: but I do not think the taste is really important because you just take it, you swallow it right?

13: it also looks like something you can get from "ETOS KRUIDVAT", it is a store of vitamins, so what does it do? why should I buy this?

9: yeah, I have a feeling that is not something look like a serious medicine. More like vitamins or diet pills or something like that.

10: yeah, I think just diet pills, not like diet pills.

11: yeah, but why would you give a flavor?

8: maybe because they just want to change.

11: it is just something you swallow and you do not have to chew.

N: capsule does not have any flavor; it is only high amount of flavonols from natural cocoa beans.

14: I think for people that already take supplements but cannot or do not like swallowing pills, something like this would be great. They just need to drink and get something that they really need. I think that is better.

- Do you use any products like this, supplements or something like that?

13: yes, vitamin C and vitamin D.

10: I use vitamin B12 because I am vegetarian.

12: I try seaweeds for a while but I did not notice a change and I stop it again.

- N: Price for the capsule is near 11€ what do you think about it?

14: for pills?

9: take 3?

8: It means for 20 days, wow!

16: that is very expensive.

- what do you think about effectiveness?

10: for me chocolate powder because you have to take only one of those and then it will affect. but for another one you have to take 3 pills to see the effect.

8: in my view, they will be more or less the same otherwise they would not make 2 different things that have the same effect.

- Assume when you added this chocolate powder to the water or milk it becomes less tasty. Are you going to use it again?

11,12: No.

10: I would not.

9: No, because I feel healthy so why I would eat less tasty food? especially when I do not need to use it anymore?

15: I think it is also important how well it is proven, and how it is generally affects your health. if it is really effect on your heart maybe taste is not an option. but when it is not really proven then yeah obviously I do not consider health benefit.

8: and also if you have to eat it every day to have this effect, I would already not start, I do not want to spend time for preparation, I do not want it.

10: yeah you do not have time for it.

8: yeah, exactly.

13: or maybe you can combine it, if you do not have time to eat this stuff.

9: then you have to buy both.

13: yeah that is true.

11: and also I think when I speak to myself when I want to stay healthier or healthy heart, I think I could search for a healthier lifestyle, more looking at my diet, just eating more vegetables or exercise more or something like that, instead of taking supplements. I would first try to change my diet if it does not work then I would try this maybe. also when I compare the price because it is quite expensive.

- What would make you more likely to buy CocoaVia rather than conventional chocolate powder?

10: probably the price it is really competing with Nesquik and I would probably consider it because I love dark chocolate powder or dark chocolate, it is very tasty but I am not going to pay 14 euros for dark hot chocolate.

16: but also the taste.

10: yeah, but if the taste is like dark chocolate then it would be fine.

8: yeah, if the taste would be the same more or less.

10: yeah but if the taste would not be the same as Nesquik. Because, Nesquik has low sugar, only a little bit bitter, yeah if the taste is like chocolate milk then I like it, but if there is a difference in taste and I realize that, even a little bitter then I will not buy it.

13: or maybe it is better to compare it to usual cocoa powder instead of Nesquik.

9, 12, 14: yeah.

15: good. there is something that I am interested in is if you use this cocoa powder for instance baking does it destroy the health benefits?

N: I do not think so.

15: oh, that is possible.

10: then you have muffins.

12: chocolate cake.

11: then you have to eat all the muffins to get health benefits.

8: I do not think I would buy it, because the benefit is that it is a benefit for your healthy heart and my heart is fine so I think I would not buy it even if it is cheaper. I do not use any chocolate powder now. so maybe that is a reason as well.

9: yeah, I think if there are also other vitamins in there, that it would not be good just for your heart, for your general health maybe I am more willing to buy it. I think my heart is fine but products that are generally healthy is always nice.

8: maybe if it is cheaper and promotes that you can use it in baking there is a chance to buy it. Also because there is a small package that is useful for baking.

13: but it is quite expensive for baking.

8: yeah, it has to be cheaper as well definitely. I am thinking the only reason I buy this is for my grandmother.

13: yeah, it is better also lekker.

8: yeah and then I agree that instead of always swallowing pills when you are already ill or already old it is nicer to have the drink.

13: or marshmallow or something like that.

11: and also I think it is pretty nice that you cannot use it only for hot chocolate you can also put in other stuff.

10: yeah because then you have some variation.

- This is the end of the focus group, thank you very much for your participation. You will receive a VVV-voucher of 10 euros. Before we leave is there anything you would like to add what was not mentioned?

15: I think it would be wise to just brand it like as regular cocoa powder like the general branding is for the drink but you can also use it for baking and it would be nice.

13: you said it is produced by Mars?

N: Yeah.

13: if they would have been mentioned it on the package, it is more familiar for me.

8: yeah maybe you would trust more as well that the claim is healthier. Because it is a such a big brand and they will obviously do a lot of research.

13: yeah, trust more exactly.

16: also I think when you are thinking about Mars you also think about unhealthy stuff.

15: yeah, I would trust less.

13: I think it is a contradiction.

8: Mars and fair trade.

12: Is it in the market?

N: no it is not already in Dutch market, only in US.

13: Is it selling well?

N: To be honest I do not know. but they already launch a new version of it, with new packages and amounts.

13: I think you will hear a lot about prices from Dutch people.

15: I think it is really wise if they like put the advertisement on fair-trade, because it is like to quite a big thing for people right now. people really care that chocolate is fair-trade and for this product because it is product for people that they really think a lot about their own health, I think people that think a lot about own health also think about other people's health on the planet, so I think that would be wise.

8: I think if they put a logo "vegan", in case it is, because it is dark chocolate it is a big chances of vegan if there are no other things added to it, because I know my housemates they are all vegan and they definitely use in their baking if says yeah it is ok for baking.

13: vegan logo?

8: yeah exactly.

10: but I think normal cocoa powder is also vegan right?

8: yeah, but at least has a better price.

N: Thank you!

Appendix 7: Themes coding focus group 1

7.1. Coding Important properties for food choice

Table 5: Answers main theme Important properties for food choice focus group 1

Main Theme: Important properties for food choice	
Person	Citation
4	price.
1	I think also quality and taste.
3	and healthiness also for me.
5	for me, taste is the most important.
6	I think the most important things already mentioned, taste, price, nutritional value.
1	oh yeah, for me also taste is very important.

7.2. Coding Subjective knowledge and information about functional food

Table 6: Answers main theme Subjective knowledge and information about functional food focus group 1

Main Theme: Subjective knowledge and information about functional food	
Person	Citation
3	what do you mean by functional food? Does it mean do not be hungry or something? functional?
5	you mean you use it during a certain activity? like sporting or being in an office. what is it?
4	I have never heard.

7.3. Coding Current use of comparable product

Table 7: Answers main theme current use of comparable product focus group 1

Main Theme: Current use of functional foods	
Person	Citation
4	not in purpose, if any.
1	yeah, probably I use it but I do not know. I do not search in the stores for these kinds of foods.
3	I eat yogurt for a while to lose weight because it does not have any carbs, it has a lot of proteins, so that is why I took it.
2	I feel if we just have a balanced diet we do not really need certain products that have these claims, for example, I do not really look for it, I just try to eat a little bit healthy. I mean it does not need to be always healthy but kind of, if I eat enough vegetables and fruits and these kinds of things I am ok.
6	I think the same, I am not looking for particular things but I might choose them by myself and, as I want to eat healthy, I would choose products like low in carb, not too high in fat, but I am not looking for food to prevent kind of disease or something.

7.4. Coding Carrier (ingredients)

Table 8: Answers main theme Carrier (ingredients) focus group 1

Main Theme: Carrier (ingredients)	
Person	Citation
1	I am a little bit skeptical about this product. because I do not know how much it helps for your heart and I think normally chocolate is bad for your heart so, yeah, I do not think that I believe it.
2	exactly chocolate, in general, is not good.
1	based on the chocolate aspect it is kind of strange.
5	is it good to promote eating chocolate milk when you have problems with your heart? isn't it better to put flavanols in the other products instead of chocolate milk??

5	the products become healthier by using another product, I mean with something else.
1	it is pure cocoa and it is different I think the link is chocolate and health and it is really weird.
1	I link it to chocolate and then it feels so wired to have chocolate medicine or something.

7.5. Coding Health Claim

Table 9: Answers main theme health claim focus group 1

Main Theme: Health Claim	
Person	Citation
2	No, I do not know. I have no idea.
1	flavanol? what is flavanol? I do not know.
5	It is like a sort of flavor to me.
4	I have never heard of it.
6	I do not know.
1	I am a little bit skeptical about this product. because I do not know how much it helps for your heart and I think normally chocolate is bad for your heart so, yeah, I do not think that I believe it.
2	I think in general I am a bit hesitant to believe these claims. "this is good for your heart".
5	Yeah, actually how much it is promoting? what is promoting exactly? or do you need it at all?
3	it is really big. for what is it good? for the muscle or brains or?
5	it is fake.
3	it feels so wired for me. also like some bodybuilders they buy protein shakes and these kinds of tablets and I do not really believe it is it working. so I do not know.

2	I think your heart is a bit too complex to just have this one specific product that would be amazing or something for it.
6	I think if it is really really beneficial for your heart everyone would already eating it and that is not a case, I think it is not proved.
1	Yeah, I do not trust it, I will not try it and 3 is a lot. 3 capsules per day. I want to hear more about it before I take it.
4	I think claims have to be confirmed, because in my view for people it looks really unreliable.
3	yeah you can buy a lot of these things that do not work.
6	it is only such a small part of your health, I could also get a long disease. How can it help me? it does not help me.
1	maybe also it is bad for your health.

7.6. Coding Selection of capsule or powder

Table 10: Answers main theme Selection of capsule or powder focus group 1

Main Theme: Selection of capsule or powder	
Person	Citation
4	well I believe the capsules more than the chocolate powder, to be honest.
1	I would not trust both.
6	true.
5	but for me I prefer pill but I do not have any reason for that.
6	I would only take it if my doctor says...
1	it feels more unnatural.
6	yes, agree, otherwise I do not take it.
1	I feel unnatural yeah. I link it to chocolate and then it feels so wired to have chocolate medicine or something.
3	exactly, it is look like a medicine with a flavor.

3	I would ask the opinion of my doctor I guess, before I take something like this.
1	yeah I do not trust it, I will not try it and 3 is a lot. 3 capsules per day. I want to hear more about it before I take it.
6	I think I would trust more on capsule more than powder form. I also need more information before I take it.
5	I have a feeling that capsules are for curing disorders that you have related to your heart and powder more to prevent it.
4	yes, I believe the capsules more working just because of looks medicine.
5	yes.
6	yes, it has the shape of medicine.
1	yes, but I think I should take the first one (powder) earlier than this one.
1	oh, yeah, definitely, I do not use food supplements, this is more unnatural for me.

7.7. Coding Current use of comparable product (powder/ capsule)

Table 11: Answers main theme Selection of capsule or powder focus group 1

Main Theme: Current use of comparable product (powder/ capsule)	
Person	Citation
4	I just drink coffee.
2	most of the time I drink tea.
3	not pure cocoa but sometimes I drink chocolate milk.
6	I use cocoa for baking but I did not use cocoa for this purpose.
1	I use cocoa once in a year or something, in general for backing. but yeah I drink sometimes chocolate milk but not in this kind of form.
6	no, not at all. (capsule)
3	I just sometimes take some vitamin tablets to put in the water but nothing else.

5	fish oil sometimes, also in a form of capsules.
4	I just take supplements with protein, because I go to the gym.
2	but the only thing maybe for me, is taking vitamin D in the winter but for me if I take three per day it is a little bit too much.

7.8. Coding Willing to compromise on taste for health

Table 12: Answers main theme willing to compromise on taste for health focus group 1

Main Theme: Willing to compromise on taste for health	
Person	Citation
6	but if the taste is nice.
1	if the taste is good, I added to milk otherwise no.
7	taste is very important, yeah.
5	sure, if the taste is not good I never buy it.

7.9. Coding Packaging

Table 13: Answers main theme packaging focus group 1

Main Theme: Packaging	
Person	Citation
7	I prefer a brown color because it is cocoa.
1	but I like it.
2	yeah, it looks healthy and plant-based. but this heart is pretty small (heart on the package).

7.10. Coding Price

Table 14: Answers main theme packaging focus group 1

Main Theme: Price	
Person	Citation
2	14?? wow.
6	expensive.
1	very expensive.
7	for 30 times it is almost 50 cents
1	I think it is still a lot it is 50 cents per day and you do not know the real effects of it. I would not spend so much money on it.
2	I think also there is a quite big difference between normal cocoa powder and this one. but I do not know exactly what is the normal price of similar products. but I think there is a quite big difference.
6	yeah, I agree.
3	for me, it is a little bit expensive, but also when you go to the doctor and describe something you need for your blood circulation your insurance will be covered so why would I take this instead of something for free.
5	11 euros?
1,2	for 20 days.
4	oh my god !!
2	very expensive I never buy it.
6	that is expensive.
6	How big is the effect? Do I feel different? if I would not feel different I would not be likely to ...
5	spending money on it?
6	yeah.

7.11. Coding Willingness to buy in the future

Table 15: Answers main theme willingness to buy in the future focus group 1

Main Theme: Willingness to buy in the future	
Person	Citation
3	I do not know if I would buy it. but if my doctor told me that it would be good, perhaps.
2	as you mentioned (3), if the doctor says it is something that you should take it then I use it, but I would not go to the shop to look for products like this, this is my idea.
3	if it is recommended by people who studied or research about this kind of things I guess I buy it.
1	I think if you add it to milk and it has a taste like chocolate milk and then they describe more about the real heart effect maybe I buy it but then I need to know if the taste is really good.
5	sure, if the taste is not good I never buy it.
2	very expensive I never buy it.
1	No, me too.
2	I do not like buying online. I think for me is too much effort to order a product online.
4	Yeah, it should be in the supermarkets.

Appendix 8: Themes coding focus group 2

8.1. Coding Important properties for food choice

Table 16: Answers main theme Important properties for food choice focus group 2

Main Theme: Important properties for food choice	
Person	Citation
15	Price, because I am a student, I guess. I should buy the cheapest option for everything.
10	also quality.
9	Also, it should be healthy.
14	food package, how looks in the store, yeah.
11	oh, I would say whether or not it is healthy like it is not containing added sugars that is mainly what I mean by healthy and another thing is price. Because there are also waste to substitute for the products for cheaper one. if the option is there I would go for a cheaper option. but why I would do that? I have a certain amount of money to spend on food and really restrict myself to that amount.
12	After these things, maybe also the sustainability of package like plastic or extra.
13	the first thing is what would I like to eat, it is first thing that I think about it. Do I see something sweet or something like that in the store and see what happens? and then I think, I compare the price over quality and how much do I get for this amount of money.
8	I would definitely say taste also what do I want to eat, like how does it taste for instance with bread if you want to get a really cheap one, and there is no flavor, then I do not buy it.

8.2. Coding Subjective knowledge and information about functional food

Table 17: Answers main theme Subjective knowledge and information about functional food focus group 2

Main Theme: Subjective knowledge and information about functional food	
Person	Citation
11	foods that help you to lose weight for example. I think it is functional food.
10	I would say, for me functional foods, what comes in my mind is food that brings people together, so it has a social function.
13	for me it is "Schijf van vijf", what is it in English? it is what the government says it is healthy and regularly meets your needs on a daily basis.
15	yes, maybe also we have a label in the Netherlands the "Beste keuze level" like a healthy choice which is labeled on the foods. I think it is something like that.
16	I would say functional foods are foods that also have like vitamins and not only sugar, they do not add sugar for example, it has things you need.
9	yes, it has mainly things you need and taste and all those things that are less important for you on the packaging and those things. they are mainly for you, functional.
12	I think it is a normal food like fruits and vegetables.

8.3. Coding Current use of functional foods

Table 18: Answers main theme Current use of functional foods focus group 2

Main Theme: Current use of functional foods	
Person	Citation
13	ok, it means that all of us use functional foods. for example, products with extra protein or...
12	pasta.
10	I think as a vegetarian I use it a lot without being aware of that.
8	oil with vitamin D.

8.4. Coding Carrier (ingredients)

Table 19: Answers main theme Carrier (ingredients) focus group 2

Main Theme: Carrier (ingredients)	
Person	Citation
14	How chocolate can be healthy?
12	good point.
14	chocolate is unhealthy.
15	also in the case of chocolate, I do not any care if it is healthy.

8.5. Coding Health Claim

Table 20: Answers main theme Health Claim focus group 2

Main Theme: Health Claim	
Person	Citation
10	what is flavanol?
15	that is my question as well?
All	No.
12	I think it is something related to flavor.
16	it sounds familiar.
10	I just said I would not believe it works when I saw this.
11	No me neither.
10	it is a dream right? not true.
10	Ok. then it should be really scientifically proven to say medicine.

8.6. Coding Selection of capsule or powder

Table 21: Answers main theme Selection of capsule or powder focus group 2

Main Theme: Selection of capsule or powder	
Person	Citation
12	I think I would consider trying CocoaVia powder then I would choose this option because it is easier to get it in your schedule instead of you have to make yogurt or milk with chocolate every day. Especially when you are in the hurry you just can take pills in the morning it is easier, but still I would not consider doing this. but if you would then I choose the pills.
9	yeah, I have a feeling that is not something that look like a serious medicine. More like vitamins or diet pills or something like that.
14	I think for people that already take supplements but cannot or do not like swallowing pills, something like this would be great. They just need to drink and get something that they really need. I think that is better.

10	for me chocolate powder because you have to take only one of those and then it will effect. but for another one, you have to take 3 pills to see the effect
8	yeah and then I agree that instead of always swallowing pills when you are already ill or already old it is nicer to have the drink.

8.7. Coding Current use of comparable product (powder/ capsule)

Table 22: Answers main theme Current use of comparable product focus group 2

Main Theme: Current use of comparable product (powder/ capsule)	
Person	Citation
10	yes, Nesquik.
13	maybe sometimes, make chocolate milk.
15	Hot chocolate
10	but I do not use products with extra antioxidants or nothing similar to this with added value.
13	yes, vitamin C and vitamin D.
10	I use vitamin B12, because I am vegetarian.
12	I try seaweeds for a while but I did not notice a change and I stop it again.

8.8. Coding Willing to compromise on taste for health

Table 23: Answers main theme Selection of capsule or powder focus group 2

Main Theme: Willing to compromise on taste for health	
Person	Citation
8	I feel like this is less tasty than regular hot chocolate, probably go for another kind instead of the healthier one.
16	Everything depends on the taste ...
All	yes.
16	if the taste is the same as similar or normal chocolate then you would go for this because it is healthier, but if the taste is worse, then I probably go for another option.
11	but if the taste would be the same and everything else would be the same then I prefer a healthier one.
9	No, because I feel healthy so why I would eat less tasty food? especially when I do not need to use it anymore?
15	I think it is also important how well it is proven, and how it is generally affecting your health. if it is really effects your heart maybe taste is not an option. but when it is not really proven then yeah obviously I do not consider health benefit.

8.9. Coding Packaging

Table 24: Answers main theme Packaging focus group 2

Main Theme: Packaging	
Person	Citation
8	it looks like the brand of fair-trade.
13	I am looking for the logo but I did not see it.
16	it looks nice; it looks like a sort of healthy.
14	sustainable.
11	you cannot really see and read what is on it, so you cannot tell what is the inside is about.

10	only a small heart here to show it is healthy.
16	if this picture would be larger (at the bottom-right of a package), it would be clear.
11	we cannot find out it is chocolate or instant powder.
16	mainly powder, I only discover it is powder after I saw this (at the bottom-right of a package).
15	I think it is really wise if they like to put the advertisement on fair-trade, because it is like quite a big thing for people right now. people really care that chocolate is fair-trade and for this product, because it is a product for people that they really think a lot about their own health, I think people that think a lot about own health also think about other people 's health on the planet, so I think that would be wise.
8	I think if they put a logo "vegan", in case it is, because it is dark chocolate it is a big chances of vegan if there is no other things added to it, because I know my housemates they are all vegan and they definitely use in their baking if says yeah it is ok for baking.

8.10. Coding Price

Table 25: Answers main theme Price focus group 2

Main Theme: Price	
Person	Citation
13	again it depends on the price, it seems that this one is much more expensive than usual one, maybe twice, then you go for the other one.
9	quite expensive.
8, 10	very expensive
15	in the Netherlands it is quite expensive.
10	the box of Nesquik is 2 euros recently. I think at least for students it is not even an option to buy something like this. because we have a loan from the government for our study I am not going to spend 14 euros on cocoa powder. but maybe if you are really rich and you have a career and then you feel your heart is very bad then you might buy this.
9	maybe if you only have a sort of heart disease, maybe you consider buying. On the regular diet, I would not buy it for 14 euros.

16	that is very expensive.
10	probably the price it is really competing with Nesquik and I would probably consider it because I love dark chocolate powder or dark chocolate, it is very tasty but I am not going to pay 14 euros for dark hot chocolate.
13	I think you will hear a lot about prices from Dutch people.

8.11. Coding Willingness to buy in the future

Table 26: Answers main theme Willingness to buy in the future focus group 2

Main Theme: Willingness to buy in the future	
Person	Citation
11	I think it is also depending on where you can buy it? if it is in the supermarket next to the regular hot chocolate no one is going to buy it, but if it is in the pharmacy then...
11	we are looking for medicine and see this, then it might be nicer than others.
10	probably the price it is really competing with Nesquik and I would probably consider it because I love dark chocolate powder or dark chocolate, it is very tasty but I am not going to pay 14 euros for dark hot chocolate.
16	but also the taste.
10	yeah, but if the taste is like dark chocolate then it would be fine.
8	yeah, if the taste would be the same more or less.
10	yeah but if the taste would not be the same as Nesquik. Because, Nesquik has low sugar, only a little bit bitter, yeah if the taste is like chocolate milk then I like it, but if there is a difference in taste and I realize that, even a little bitter then I will not buy it.
8	I do not think I would buy it, because the benefit is that it is a benefit for your healthy heart and my heart is fine so I think I would not buy it even if it is cheaper. I do not use any chocolate powder now. so maybe that is a reason as well.
9	yeah, I think if there are also other vitamins in there, that it would not be good just for your heart, for your general health maybe I am more willing

	to buy it. I think my heart is fine but products that are generally healthy is always nice.
8	maybe if it is cheaper and promotes that you can use it in baking there is a chance to buy it. Also because there is a small package that is useful for baking.
9	maybe if you only have a sort of heart disease, maybe you consider buying. On the regular diet I would not buy it for 14 euros.
8	yeah, it has to be cheaper as well definitely. I am thinking the only reason I buy this is for my grandmother.