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Functional or emotional? How Dutch and Portuguese conceptualise beer, wine and non-alcoholic beer consumption



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ABSTRACT

Non-alcoholic beer (NAB) may be a healthier alternative to wine and beer consumption, however has little appeal to consumers. Conceptualisations, i.e. functional and emotional associations that consumers have with foods/beverages, were explored to understand how NAB consumption is perceived, and compared to beer and wine conceptualisations in the Netherlands and Portugal. A qualitative study was performed using a focus group approach with moderate consumers of both countries ($n = 56$). Content analysis followed by correspondence analysis were used to explore conceptualisations. This study showed similar conceptualisations of the beverages in both countries. NAB has a limited conceptual content, which is mostly functional as a substitute. Beer and wine are rich in both functional and emotional content. Wine is associated with positive low arousal emotional responses, such as *calm* and *loving*. Beer is associated with positive high arousal emotional responses, such as *adventurous* and *energetic*. NAB evokes neutral and negative emotional responses, such as *rational*, *conscious*, and *disappointed*. The difference in conceptualisations of NAB versus beer/wine might be why NAB is not adopted more widely as a substitute as it does not deliver a comparable emotional response to consumers. NAB should be treated as a beverage in its own right and it might be wise to avoid direct conceptual comparisons with beer. Should the image of NAB be communicated and understood with positive and high arousal associations, such as *energetic* and *convivial*, in communication and advertisements, a higher level of congruency between expectation and experience could be achieved.

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1. Introduction

Beer and wine are among the oldest and the most consumed alcoholic beverages worldwide and are part of the daily diet of millions of people (WHO, 2014). Non-alcoholic beer (NAB) on the other hand, is a relatively new beverage that is consumed far less than beer or wine (BoE, 2014). Despite the similar nutritional and sensory profile of beer and NAB, the latter has little appeal to consumers, whereas it may be a healthier alternative, without the alcohol (Sohrabvandi, Mousavi, Razavi, Mortazavian, &

Rezaei, 2010). NAB could be an attractive non-alcoholic replacement for beer and wine. However, the patterns of consumption suggest a lower preference for NAB. Therefore, it is important to understand, the image that NAB presents to consumers and the reasons underlying its limited consumption, within the context of a wider choice of beverages.

The definition of product conceptualisation and its importance, in the framework of this study, is presented in this introduction. Furthermore, a literature review regarding functional and emotional conceptualisations of beer, wine and NAB as well as cultural issues of beer and wine consumption in Portugal and in the Netherlands are described.

1.1. Conceptualisations

Thomson, Crocker, and Marketo (2010) proposed that eating and drinking experiences are influenced by two processes that

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occur in the mind of consumers: the identification of a product via sensory perception (e.g. it is a beer), and the establishment of associations that consumers assign when thinking about a specific food or beverage. The combination of these associations determines the conceptualisations a consumer has of the product. This means that a person's response to a food or beverage does not only depend on the product itself (intrinsic and extrinsic properties), but also on the associated conceptualisations, in terms of functional (e.g. healthy for me) and/or emotional connotations (e.g. makes me happy) (Gutjar et al., 2015; Ng, Chaya, & Hort, 2013; Thomson & Crocker, 2014). Being aware of NAB conceptualisations will lead to a better understanding of how and to what extent the functional promise and the emotional response, are perceived by consumers, i.e. if what is expected is consistent with what is experienced, and thus may be used to optimise the sensory profile in order to fulfil the expectation of the consumers (Thomson et al., 2010).

1.1.1. Functional conceptualisations

Functional conceptualisations are defined as functional consequences of what the product might do to us and thus are associations and factors that motivate consumption (Thomson, 2010).

Beer is a thirst quencher associated with informal and relaxing occasions, being a symbol of demarcation between work and non-work hours, in both eating and non-eating social contexts (Pettigrew & Charters, 2006). Sensory attributes, such as perceived quality, aroma and carbonation, as well as description, context/moment, culture, character and affect are important factors influencing beer preferences and used in the consumer's mental representation of beers (Aquilani, Laureti, Poconi, & Secondi, 2015; Sester, Dacremont, Deroy, & Valentin, 2013). Functional associations with wine consumption are: sensory characteristics, to pair with food, specific contexts, status or group identity, as a social facilitator, as a gift, and for ritualistic purposes (Barrena & Sanchez, 2009; Charters & Pettigrew, 2008; Pettigrew & Charters, 2006; Ritchie, 2007). For NAB, functional associations are: avoiding to get drunk, having to drive, as a healthier alternative beverage and enjoying the flavour (Jongh, Peters, & van Teeffelen, 2014; Thompson & Thompson, 1996). According to Porretta and Donadini (2008) packaging attributes, such as glass format provided with a twist off cap, were nearly five times more important as flavour, in which body and malty were the most relevant attributes. In terms of alcohol content, light beer is positioned between NAB and regular beer. Light beer is perceived as less tasty than regular beer, but even so, the taste seems the main motivation for light beer consumption, followed by health statements and weight management (Chrysochou, 2014).

1.1.2. Emotional conceptualisations

Emotional conceptualisations are associations with an emotional connotation that reflect what the product is communicating to consumers (Thomson et al., 2010). Emotional conceptualisations might lead to an emotion, but might differ from feelings or emotions. Feelings are the different ways people feel, and they could be emotions, moods and attitudes (Meiselman, 2015). Emotions are a specific response to an object or event, and are rapid, intense and last only a short whilst (Meiselman, 2015). For the emotional product characterisation, feelings (including emotions) are studied during product use or immediately after, whereas feelings prior to consumption do not characterise how one feels with the product, but rather they are used to understand what feelings the product leads (Meiselman, 2015). In the scope of this study the expressions "emotional association or emotional response" will be used, being aware that this may or may not be an emotion, according to the definition of Meiselman (2015), but that classification is beyond the aim of this study.

To feel relaxed is probably the most popular emotional association with beer and wine consumption (Charters & Pettigrew, 2008; Yang, Allenby, & Fennel, 2002). Chaya et al. (2015) revealed that the emotional response to beer differs depending on certain sensory properties. For instance, a hoppy beer was shown to increase ratings of negative emotional responses (disappointment, disillusionment) and decrease ratings of positive emotional responses (fun, desire).

Barrena and Sanchez (2009) suggested that emotional factors are more important than functional factors in the purchase decision-making process for wine. For pleasure, enjoyment, to feel relaxed and mood enhancement are the most relevant emotional associations identified to wine consumption (Barrena & Sanchez, 2009; Charters & Pettigrew, 2008). More recently, Ferrarini et al. (2010) summarised the emotional response of wine consumption, presenting a lexicon of 16 emotional terms, 12 of which are pleasant, and 4 are unpleasant.

These studies mentioned were performed with Spanish and Italian consumers. As emotions/emotional responses are culturally dependent (van Zyl & Meiselman, 2015) it is of interest to investigate what are the emotional associations that other cultures have in relation to beer and wine, in an exploratory way.

1.2. Cultural issues

Following this, culture might affect the general conceptualisations of a food or a beverage once its meanings, exposure and usage might be very different (Rozin, 2005). For instance, the Dutch can be considered closely linked with beer production and consumption from a cultural, social and economic perspective (Nederlandse Brouwers, 2015). The Portuguese on the other hand, are generally considered to have a comparable relation with wine. Portugal is traditionally a wine country, having history and heritage of wine making and wine has remained an important product of the national diet and food culture (Panzone & Simões, 2009). Wine production also has a considerable relevance in the Portuguese economy (Duarte, Madeira, & Barreira, 2010). For NAB, this is different as it has neither affective nor specific roots in both countries.

1.3. Aims of the research

Even though functional and emotional associations of beer and wine consumption can be found in the literature, as referred to in the previous sections, there is a lack of scientific work done regarding NAB consumption. Furthermore, most studies focus on beer and wine individually and not comparing them within the same group of consumers.

The main objective of this study was to explore the functional and emotional conceptualisations of NAB and to compare them to those of beer and wine, for moderate consumers from two different cultures: Dutch and Portuguese. Given the importance of context of consumption to differentiate beer and wine choice (Giacalone et al., 2015; Ritchie, 2007), it was decided to include the context of consumption in this study and link it to the functional and emotional associations of the beverages.

The second objective of this study was to compare how Dutch and Portuguese consumers conceptualise beer, wine and NAB consumption, based on their personal and cultural experiences. Given the close relation of the Dutch with beer and the Portuguese with wine, it is expected that cultural factors affect and differentiate the way these cultures conceptualise the beverages.

Results might be used in different perspectives. Describing the image of NAB will help in understanding what the obstacles to a wider usage of NAB are and why it is apparently not an attractive substitute to either regular beer or other popular alcoholic drinks

like wine, in situations where consumers do not want to drink alcohol. This in turn gives directions on how breweries could improve NAB and its acceptability. From a public health perspective results can also be useful because NAB is a good alternative not only to beverages containing alcohol, but also to soda and soft drinks high in sugar content. Due to its production and composition NAB is a natural and pure beverage, free from chemical additives, low in calories, and containing several B vitamins, amino acids, minerals and carbohydrates (Álvarez, Marín, & Sanz, 2001; Sohrabvandi et al., 2010). These are important contributors to a balanced diet and are linked to positive health benefits. In addition, this study will increase our knowledge on what conceptualisations of beer, wine and NAB are perceived by consumers, which may help understand the choice of different beverages. As identified by Lockshin and Corsi (2012) the contribution of research regarding wine is the discovery of new marketing aspects. Especially the emotional conceptualisations of the beverages, which are less known, may be used as a new tool of marketing to communicate with consumers.

This study followed a qualitative research procedure and was conducted through eight focus groups interviews performed in the Netherlands and in Portugal. Content analysis on the data gives an overview of beer, wine and NAB conceptualisations, of moderate consumers.

2. Methods

2.1. Methodology

This qualitative study employed focus group interviews as the method for data collection. A focus group (FG) is an interview technique that brings together 6–10 participants and a moderator, in the framework of a structured discussion about a specific topic (Morgan, 1997). The use of FG is especially important when little is known about a topic. This method has been applied in several cross-cultural studies and is gaining importance in consumer behaviour related to food and beverages (de Barcellos et al., 2010; Tan et al., 2015; van Zyl & Meiselman, 2015). This study was approved by the Social and Ethical committee of Wageningen University.

2.2. Participants

A general characterisation of the participants is presented in Table 1. In total, 56 consumers (30 female, 26 male) were enrolled in this study, of which 54 were regular beer consumers, 54 were regular wine consumers and 28 were regular NAB consumers. The study, which was performed on a purposive sample, included 27 Dutch consumers (16 female, 11 male), and 29 Portuguese consumers (14 female, 15 male). Screening criteria included: age 20–60 years, being a Dutch or Portuguese native speaker, having a

good general state of health (self-reported) and being a regular consumer of at least two out of the three beverages. The latter criterion was included to ensure participants' familiarity with at least two beverages, as users, and so they could compare their experiences. For beer and wine, a regular consumer was defined as drinking between 1 alcoholic beverage once a week (minimum) and 2 alcoholic beverages per day for women or 3 alcoholic beverages per day for men (maximum). For NAB a regular consumer was defined as drinking NAB at least once a month. To achieve heterogeneity in each FG, participants were as much as possible, stratified according to age, gender, educational level and beverage consumption. Dutch participants were recruited from Wageningen University and from an external agency of consumer research in the Netherlands. Portuguese participants were recruited from Catholic University in Porto. Participants signed a consent form, received an incentive for their participation and a summary of the results, after the data analysis was completed.

2.3. Procedure

Eight FG including product tasting with moderate consumers of beer, wine and NAB were conducted. Four FG were performed in the Netherlands (Wageningen and 's-Hertogenbosch), and four in Portugal (Porto), in their respective native languages. The first author of this study conducted the FGs in Portugal and participated as an observer in the FGs conducted in the Netherlands, to assure consistency in the procedures. All FGs were audio–video recorded. Prior to conducting the actual FGs, a pilot was performed in each country to test the structure, questions and practical organisation of the interviews. These data were also included in the analysis, as only minor changes were made to the discussion guide. All the FGs were performed in the early evening, in both countries, as it is a common time for beer/wine consumption (Silva et al., 2015).

2.4. Structure of the FG interviews

The sequence of stages followed in the FG interviews and the structured guides to questioning are presented in Table 2. A guide for conducting the FGs was developed and agreed upon by the authors, following the guidelines proposed by Morgan (1997). This guide was developed in English and translated to Dutch and Portuguese by native speakers. During the FG two different stimuli, tasting samples and pictures, were used, aiming to recall previous experiences concerning moments of consumption as well as functional and emotional associations related to beer, wine and NAB.

The interviews started with an introduction about the aim of the study, after which the participants introduced themselves and were invited to freely taste small amounts of the most popular beers, wines and NAB familiar to each country. The beverages were

Table 1
Summary of the demographic profile of the participants.

| Country | City | FG code | n | Age (years) | Gender (%) | | Educational level (%) | | | Consumers (%) | | |
|-----------------|------|---------|---|-------------|------------|-----|-----------------------|-----|------|---------------|------|-----|
| | | | | | M | F | Stud | Low | High | Beer | Wine | NAB |
| Portugal | A | FG PT P | 4 | 20–60 | 25 | 75 | 50 | 0 | 50 | 75 | 75 | 0 |
| | | FG PT 1 | 8 | 31–60 | 62 | 38 | 0 | 37 | 63 | 100 | 100 | 88 |
| | | FG PT 2 | 9 | 31–60 | 56 | 44 | 0 | 33 | 67 | 100 | 89 | 78 |
| | | FG PT 3 | 8 | 20–30 | 50 | 50 | 100 | 0 | 0 | 100 | 100 | 25 |
| The Netherlands | B | FG NL P | 4 | 20–30 | 0 | 100 | 100 | 0 | 0 | 100 | 100 | 50 |
| | | FG NL 1 | 8 | 31–45 | 50 | 50 | 0 | 50 | 50 | 88 | 100 | 38 |
| | | FG NL 2 | 7 | 46–60 | 57 | 43 | 0 | 57 | 43 | 100 | 100 | 57 |
| | | FG NL 3 | 8 | 20–30 | 37 | 63 | 100 | 0 | 0 | 100 | 100 | 38 |

Legend: A: Porto; B: 's-Hertogenbosch; C: Wageningen; P: pilot; n: number of participants; M: male; F: female; Stud: actual university students; low – complete or incomplete secondary school; high – university degree or equivalent.

Table 2
Summary of the FG interview structure.

| Topic (time) | Main questions addressed and stimuli |
|-----------------------|---|
| Introduction (10 min) | Welcome and introduction to the study Stimulus 1: Sample tasting (extended through the whole session) |
| Context (20 min) | When/where/with whom do you consume beer/wine/NAB? |
| Motivation (20 min) | What does beer/wine/NAB consumption mean to you? What are the main reasons for beer/wine/NAB consumption? What comes to mind when you think about going to drink a beer/wine/NAB? |
| Emotions (30 min) | Stimulus 2: Pictures of faces expressing emotions and situations of consumption Free association task about emotions How do you feel when you drink beer/wine/NAB? What emotions do you associate with the consumption of beer/wine/NAB? What are your expectations when you drink beer/wine/NAB? |
| Summary (10 min) | Summary of the session |

from different brands, but neither the brands nor the flavour were expected to be evaluated. Water and snacks were also provided. This tasting session was meant to be a stimulus to activate the memories related to the consumption of these beverages. It was also to achieve the most appropriate emotional profile for the beverages, once limited descriptions could be obtained if the participants would not experience the beverages. The samples were available during the whole interview and the participants were free to taste it whenever they wanted (assuring always the recommended limit of moderate alcohol consumption). Before starting the questions, the participants were asked to only answer about the beverages of which they were regular consumers. The first set of questions addressed were about context of consumption, where the participants had to describe moments of consumption (where, when and with whom). The questions were asked separately for each beverage. The next set of questions referred to the motivations for consumption, and the participants shared reasons, meanings and associations they had with the consumption of the beverages. Following this, the participants were presented with a second set of stimuli made up of ten pictures which were shown to all. In response the participants had to perform a free association task. The first five pictures showed different contextual situations with or without people drinking beer and wine, e.g. a group of people smiling and toasting in a bar. In that moment the participants were asked to write in a booklet, individually, what emotions they associated with each picture. Afterwards, five pictures of faces expressing emotions were shown (Ekman, Friesen, & Hager, 2002). The aim was to relate the emotionality projected in the faces with the different beverages. Participants were asked to associate each picture (each emotion) to the beverages and again write it individually in the booklet. This second stimulus was to target their memories about emotion words and feelings, so that in the third set of questions they easily could describe their emotions and emotional associations with the consumption of the beverages. Questions for this topic were for instance: “how do you feel when you drink ...?” or “what emotions do you associate with the consumption of ...?”. Finally, a summary of the discussion was presented and the participants were thanked for their collaboration.

2.5. Data analysis

Data were transcribed *verbatim*, by the authors that are native speakers from each country. Transcriptions were then translated from Dutch or Portuguese to English. Translations and meanings of emotional terms were agreed upon by at least three authors for each language (APS, MP, TH for Portuguese and GJ, HvZ, HPV and RvB for Dutch). Transcriptions were then imported to NVivo qualitative data analysis software (QSR International Pty Ltd. Version 9, 2010) and content analysed (Miles & Huberman, 1994).

Data from transcriptions were coded, i.e., attaching key words, fragments and sentences from the participants' discourse into categories. A category is a class of elements that are treated as equivalent (Barrett, 2006). Some categories were defined *à priori* for each beverage, namely: context – where, when and with whom, functionalities, and emotions – positive, negative.

The final categories are presented according to the structure of the interview in the results section. Two authors coded transcriptions individually (APS and RvB). Percentage of coding agreement between them was on average 97%, representing systematic coding reliability. Content analysis techniques were performed in each category, such as counting word frequencies, finding sequences and systematic explanations of the questions addressed and exploring the relations between categories. Frequency of usage is an indicator of the importance of that word/category for the participants in a direct relation, the higher the frequency of a word/category, the more important it is for the participants (Miles & Huberman, 1994). The relative importance of the categories for each group (Dutch and Portuguese) is presented in the results by symbols that differ according to connotation: + has a positive connotation and – has a negative connotation. The number of symbols in each category represents the usage frequency by the participants. One symbol means that the category was coded between 1 and 10 times; two symbols were coded from 11 to 20 times and three symbols were coded more than 21 times.

In order to increase the validity and precision of the study, three well-known techniques of qualitative research were employed in different phases of the study (Barbour, 2001). First, *within-method triangulation* was applied for data collection, i.e. the data were built up from inputs of multiple sources (three different locations) to include a larger variety of consumers' drink experiences, habits and cultural meanings, and to reduce the chances of bias (Modell, 2005). Second, *purposive sampling* was carefully planned according to the aims of the study. Third, *multiple coding* was performed by 2 of the authors during data analysis.

Lastly, to create a clearer image of the conceptual profile of each beverage per country, a correspondence analysis was applied to the data. This method, originated in the social science context, is commonly used to present results of qualitative studies (Ares et al., 2015; Sester et al., 2013). It explores categorical data in which no specific hypotheses have been formed, allowing us to examine the associations between the variables (Doey & Kurta, 2011). These associations can be visualised in a correspondence map, where proximities between points indicate associations between the variables (Greenacre, 2010). Data were organised in a contingency table displaying the frequencies between the categories achieved (columns) and the beverages per country (rows). The categories achieved were all the groups of words formed and classified in terms of context, functional and emotional conceptualisations. A correspondence

Table 3
Context of beer, wine and NAB consumption and their relative importance for the Dutch (NL) and the Portuguese (P).

| Context | Category | Beer | | Wine | | NAB | | Category specification of individual terms |
|-----------------|--------------------|------|-----|------|-----|-----|---|--|
| | | NL | P | NL | P | NL | P | |
| When | Afternoon | ++ | +++ | + | + | 0 | + | Afternoon, 15–18 h, before dinner, late afternoon, middle afternoon |
| | Dinner | ++ | ++ | +++ | +++ | + | + | Dinner, whilst eating |
| | Lunch | 0 | + | 0 | ++ | 0 | + | Lunch |
| | Evening | +++ | +++ | +++ | + | + | + | Evening, 18–24 h, after dinner |
| | Summer | ++ | ++ | + | + | + | + | Summer, warm days, warm weather |
| | Winter | 0 | 0 | + | + | 0 | 0 | Winter |
| | Week | + | + | + | + | 0 | + | Week, Monday, Tuesday, Wednesday, Thursday |
| | Weekend | ++ | + | ++ | + | + | + | Weekend, Friday, Saturday, Sunday |
| Where | A night out | ++ | +++ | + | + | + | + | Going a night out, bar, discotheque, nightclub |
| | Home | ++ | +++ | +++ | ++ | + | + | Home, my place, student house, parents'/partners'/friends' house |
| | With specific food | + | ++ | + | ++ | 0 | + | Beer: snacks, seafood, tidbit, lupin, francesinha, picanha; wine: quality/fine/slow food, sardines |
| | Watching TV | + | + | 0 | 0 | 0 | 0 | Watching TV |
| | Doing Sports | + | + | + | 0 | + | 0 | During or after doing sports |
| | Party | +++ | + | ++ | ++ | + | + | Party, birthday party, Carnival, Christmas, New Year, Celebration |
| | Pub/café | + | + | + | + | 0 | 0 | Pub, café |
| | Restaurant | + | + | ++ | ++ | + | + | Restaurant, going out for dinner |
| | At work | 0 | 0 | 0 | 0 | 0 | + | Work |
| | Beach | + | + | 0 | + | 0 | 0 | Beach |
| | Terrace | + | + | + | + | + | 0 | Terrace, lounge, outside |
| | Reflection moments | 0 | 0 | + | + | 0 | 0 | Emotional moments, reflecting moments, leisure, romantic moments |
| | Informal occasion | + | + | + | 0 | 0 | 0 | Barbecue, in the street, festivals |
| Formal occasion | 0 | 0 | ++ | + | + | 0 | Formal occasion, official occasion, special occasion, reception | |
| With whom | Alone | ++ | + | + | + | 0 | + | Alone, myself, my own |
| | Colleagues | + | + | + | + | + | + | Colleagues, business relations |
| | Family | + | + | ++ | +++ | + | + | Family, parents, family in law, mother, son |
| | Friends | ++ | +++ | ++ | ++ | + | + | Friends |
| | Large group | + | + | 0 | 0 | 0 | 0 | Lot of people, crowd, large group |
| | Partner | 0 | 0 | + | + | 0 | 0 | Partner, wife, boyfriend |
| | Small group | + | 0 | + | + | 0 | 0 | Couple of people, small group |

Legend: + (positive connotation) = coded from 1 to 10 times; ++ coded from 11 to 20 times; +++ coded > 21 times.

analysis was applied to the contingency table allowing to extract and visualise the concept profile of each beverage per country, as it shows what categories are closer related and associated with each beverage. This analysis was performed using the software SPSS (IBM SPSS Statistics 2013, version 22).

3. Results

3.1. Context of consumption, functional and emotional conceptualisations

The twenty-nine categories of context of consumption found in participants' discourse were grouped in the three dimensions previously defined: *when*, *where* and *with whom*. These categories, their relative importance for the Dutch and Portuguese participants and examples of terms they used are summarised in Table 3.

Ten predominant functional conceptualisations for beer, wine and NAB consumption were identified from grouping the twenty categories found in participants' discourse (Table 4).

More than a hundred (107) emotional terms were evoked, mostly positive (93 terms, 87%). These were grouped, according to similar meanings, in the framework of participants' discourse, resulting in a list of 25 emotional conceptualisations (Table 5). The terms were classified as positive or negative, since it is a natural and basic distinction for emotional experience (Schifferstein & Desmet, 2010). In Appendix A, emotional terms are translated from Dutch to English and from Portuguese to English.

3.2. Correspondence maps – conceptualisation of beer, wine and NAB

Correspondence analysis was applied to a contingency table crossing the categories identified in context, functional, emotional

conceptualisations (columns from Tables 3–5) and the beverages (beer, wine and NAB), per group of consumers (Dutch and Portuguese). Frequency of elicitation was used as data input. The correspondence map (Fig. 1) illustrates consumers' associations between context, functional and emotional conceptualisations and the beverages, suggesting a highly significant association between the categories and the beverages. Two dimensions explained 82% of the variance between the categories identified and the beverages. Dimension 1 (explained 56% of variance) showed a distinction between the terms evoked by alcoholic (beer and wine) and non-alcoholic (NAB) beverages. Dimension 2 (explained 26% of variance) showed a clear distinction between the conceptualisation of beer and wine. In addition, it can be observed a clear and close correspondence between the Dutch and the Portuguese for all the three beverages, i.e. there is no large cultural distinction on how both groups conceptualise the beverages.

Apart from *at work*, drinking NAB took place in the same contexts of beer and wine, but to a lesser extent, as it presented the lowest number of categories and frequencies associated (Table 3). This means that consumption of NAB occurred in restricted occasions, when compared to beer or wine, which presented mostly the same categories. Contrasting with the context of consumption, NAB had the highest number of functional conceptualisations and very different ones from those related to beer and wine (Table 4). NAB was seen as a *functional* beverage, mainly to *avoid alcohol*, being a *substitute* when alcohol is not convenient, but also for water and soft-drinks (for health reasons), as becomes clear by reading this statement: "I rather take a non-alcoholic beer than a coke because I think that is too sweet. And that water is also just water (FGNL 303)". Beer was classified as a *thirst quencher* and a *convenient* beverage mainly to *socialise*. Drinking wine was associated with *communication*, and used to *celebrate* and to *extend moments*.

Table 4

Functional conceptualisations of beer, wine and NAB consumption and their relative importance for the Dutch (NL) and the Portuguese (P).

| Functionality | Category | Beer | | Wine | | NAB | | Category specification of individual terms |
|-----------------|-----------------------|------|-----|------|----|-----|----|--|
| | | NL | P | NL | P | NL | P | |
| Hedonic | Food related | ++ | +++ | + | ++ | + | + | Dinner, dish, eat, food, lunch, meal, snacks, good food, tidbit, eat a sandwich, go with food |
| | Tasty | +++ | + | ++ | ++ | + | – | Tasty/not tasty, tastier, tasting, taste, flavouring, aromas, please the senses, intense pleasure, fruit flavour, I like the taste, not for the taste, the taste is nice, the taste is good |
| Social | Convivial | ++ | +++ | ++ | + | 0 | 0 | Convivial, conviviality, social, socialisation, socialise, socialising |
| | Communication | 0 | 0 | + | ++ | 0 | 0 | Chatting, in-depth conversations, serious talks, beginning of talks |
| | Company | + | + | + | + | + | + | Company, together, feeling of solidarity, belonging, not wanting to differ, drinking along, companionship, pleasure of having company, drinking along, join in, loyalty, to be integrated in the group, to participate |
| Nutritional | To celebrate | 0 | 0 | + | + | 0 | 0 | To celebrate, special occasion, official occasion, more ceremonious, romantic moments, fancier parties |
| | To have fun | + | + | + | + | + | 0 | Lots of fun, have fun, live the fun, moments of fun |
| | Thirst-quencher | +++ | ++ | 0 | 0 | + | + | Thirst-quencher, refresh, refreshing, refreshment, fresh, freshness, thirsty, if I'm really thirsty, freshness, as a refreshment drink |
| Substitute | Health | 0 | 0 | 0 | 0 | + | ++ | To keep me hydrated, is healthier than drinking a soda or a coke, it's not bad for my liver |
| | Substitute | 0 | 0 | 0 | 0 | + | ++ | It's a substitute for water, closest possible to beer, rather than a coke or a seven-up or other junk drinks |
| For the alcohol | Loosen up | 0 | 0 | + | + | 0 | 0 | Loosen up, bit looser, getting tipsy |
| Extend moments | To extend moments | 0 | 0 | + | + | 0 | 0 | Extensive dinners, extensive cooking, ritual, sitting, extend convivial moments, drink slower |
| Break moments | Break between moments | ++ | + | + | + | 0 | + | Escape the daily rush, left the week behind, come home from work, calm down, doing nicely nothing, forget the whole week, put my mind in "0", break moments |
| Convenient | Practical | ++ | + | 0 | 0 | 0 | 0 | Drinkable, easy to drink, easy to transport, to get into the spirit, practical to order, fast drink, informal, convenient, inexpensive drink, practical to drink in a plastic glass, easy to buy in most places. |
| | Inexpensive | + | + | 0 | 0 | 0 | 0 | Cheap, cheaper, less expensive, price |
| Functional | Functional | 0 | 0 | 0 | 0 | + | + | Functional, functional choice less based on emotions, helps you to swallow |
| Avoid Alcohol | Avoid Alcohol | 0 | 0 | 0 | 0 | +++ | ++ | Do not want to get tipsy, does not contain alcohol, to move on without being drunk, when I think I shouldn't drink alcohol |
| | Driving | 0 | 0 | 0 | 0 | ++ | ++ | To drive, when I am the BOB ^a |
| | Medication | 0 | 0 | 0 | 0 | + | + | When you take antibiotics, when you are ill, because pregnancy, on medication |
| | Keep control | 0 | 0 | 0 | 0 | ++ | + | Still want to be in control, being aware, certain safety, be conscious, security reasons |

Legend: + (positive connotation) or – (negative connotation) = coded from 1 to 10 times; ++ coded from 11 to 20 times; +++ coded > 21 times.

^a BOB – Designated driver, Dutch expression meaning that a person can't drink alcohol because she/he has to drive whilst the others can drink alcohol.

Hedonic seemed the most important functional association, with positive connotation for beer and wine. For NAB two opposite opinions were found about its flavour: some participants considered NAB a tasty and pleasurable beverage, whereas to others NAB was not as tasty, as explained here: “Non-alcoholic beer works like a medicinal product. I'm going to drink this because it has interesting health properties but in terms of flavour and taste and pleasure, it's a remedy when compared to an alcoholic beer (FGPT 104)”. Furthermore, some participants mentioned that the flavour of NAB can differ a lot among brands and this is the reason why they only drink a certain brand, and did not show willingness to drink unknown brands.

Beer and wine showed a similar number of emotional associations (wine 29, beer 32 – Table 5), and had 15 emotional associations in common, for example: *happy, joyful, pleased* and *relaxed* (Table 5). However, particular emotional associations were linked to beer, such as: *adventurous, energetic* and *free*, whereas wine consumption was more associated with *calmness, loving, comforted* and *fulfilled*, as exemplified in this statement: “Beer brings a different pleasure from wine. Drinking wine is more thoughtful, calmer. The pleasure of beer is more energetic” (FGPT103).

Both beverages showed a strong positive emotional profile, but indeed differentiated, as can be seen in Fig. 1. However, it seems that wine is perceived as more emotional than beer, judging by

the interpretation of participants' discourse: “Wine is more emotional to me, it's more emotional and when we have parties and friends' dinners but mostly it's more about emotion, whilst beer, with or without alcohol, is associated to a specific type of food (FGPT209)”. “I also associate wine to emotions. Beer, I don't associate it so much to emotions, but rather just being in a terrace, drinking something cooler (FGPT204)”. NAB seems far from being associated with an emotional beverage, as it was classified as rational and indifferent in terms of emotional responses, as reflected in participants' discourse: “I think it is very rational when you drink non-alcoholic beer and that you really think about what you are drinking (FGNL106)”, “Yes, that is right, we just said, (drinking NAB) it is mental it is not emotional, it is ratio (FGNL305). “Ah, that's impossible ... (NAB and emotions). We're still the same, we drink another pack and we're the same!”. “It is not there (the emotions)” (FGPT106). NAB evoked more neutral and negative emotional responses, as *rational, conscious* and *disappointed* (Table 5), which was quite different compared to beer and wine.

Notably, participants not only reported emotional responses evoked by the beverages during consumption (as they were asked), but also feelings prior to consumption that guided their choice. Wine and beer are used by the participants either to enhance intensity of positive feelings or to decrease intensity of the negative ones. In

Table 5
Emotional conceptualisations of beer, wine and NAB consumption and their relative importance for the Dutch (NL) and the Portuguese (P).

| Emotional conceptualisations | Beer | | Wine | | NAB | | Category specification of individual terms |
|------------------------------|------|----|------|-----|-----|---|--|
| | NL | P | NL | P | NL | P | |
| <i>Positive</i> | | | | | | | |
| Adventurous | + | + | 0 | 0 | 0 | 0 | Adventurous, rebel, wild |
| Amused | + | + | + | + | 0 | 0 | Amused, playful, less serious, feeling funny, not boring |
| Calm | + | + | +++ | ++ | + | + | Calm, peaceful, quiet, rest, tranquillity |
| Comforted | + | + | + | ++ | 0 | 0 | Comforted, warm, cozy, harmonious |
| Curious | + | + | 0 | + | + | 0 | Curious, surprise, discovery |
| Energetic | + | + | 0 | 0 | 0 | 0 | Energetic, lively, daring, sporty |
| Excited | + | + | + | + | 0 | 0 | Excited, euphoric, feeling victory, feeling of ecstasy, exaltation |
| Exuberant | + | 0 | + | 0 | 0 | 0 | Exuberant |
| Free | ++ | + | + | + | 0 | + | Free, flexible, freedom, loosen up, more open, easier, carefree |
| Friendly | 0 | + | 0 | 0 | 0 | + | Friendly, please your friends, |
| Fulfilled | 0 | 0 | 0 | + | 0 | 0 | Personal fulfilment, plenitude |
| Good | 0 | + | 0 | + | 0 | + | Good, well |
| Happy* | ++ | + | + | ++ | + | 0 | Happy*, glad*, geniality |
| Joyful | + | ++ | + | + | 0 | 0 | Joyful, joy, enjoy, merry* |
| Loving | 0 | 0 | ++ | ++ | 0 | 0 | Love, passion, sensual, romantic, intimacy, attention to each other |
| Pleased | + | ++ | + | ++ | 0 | + | Pleased, pleasant, satisfied, delighted, orgasmic, agreeable, satisfaction |
| Relaxed | ++ | ++ | ++ | +++ | 0 | + | Relaxed, relieve stress, it is relaxing, |
| Responsible | 0 | 0 | 0 | 0 | + | + | Responsible, responsibility |
| Safe | 0 | 0 | 0 | 0 | + | + | Safe, secure, in control, fearless |
| <i>Negative</i> | | | | | | | |
| Grumpy | + | 0 | 0 | 0 | + | 0 | Grumpy, grouchy*, irritated*, bored |
| Restless* | + | + | + | 0 | 0 | 0 | Restless, unreliable, anxious |
| Sad* | + | 0 | + | + | 0 | 0 | Sad |
| Disappointed* | + | 0 | + | 0 | + | + | Disappointed, foolish, feeling of loss |
| <i>Neutral</i> | | | | | | | |
| Conscious | 0 | 0 | 0 | 0 | ++ | + | Conscious, consciously, sensible, attention, aware, careful |
| Rational | 0 | 0 | 0 | 0 | + | 0 | Rational, ratio, mental |

Legend: + (positive connotation) = coded from 1 to 10 times; ++ coded from 11 to 20 times; +++ coded > 21 times.

* Emotional state of participants also prior to consumption.

Table 5, terms marked with a star not only express the emotional responses during drinking, but also the feelings of the participants prior to consumption. Participants reported to drink wine to make them feel *happier, more glad and merrier*. They expressed to drink beer to become *less grouchy and less irritated*. They expressed to drink wine or beer to weaken negative emotions, as stated here: “I also had a little bit of disappointment or sadness or the feeling of restless. I think I had beer or wine when it can serve to ease the pain a little, to weaken the emotion (FGNL104)”.

Dutch consumers highlighted that special beers (premium) are very much comparable to wine, in context, functional and emotional associations. They reported that special beers are not that suitable to drink at parties (context), and that they like to drink them slowly (functionality). These special beers were associated with intense *happiness, delight, and comfort* (emotional terms). It seems that the conceptualisation of special beers is closer to the conceptualisation of wine than of beer.

4. Discussion

Two main findings can be highlighted from this study. Firstly, moderate alcohol consumers have different conceptualisations of beer, wine and NAB, as is visualised in Fig. 1. The conceptualisation of NAB is mostly functional, whereas beer and wine are rich in both functional and emotional content. Secondly, the Dutch and the Portuguese participants showed a similar conceptualisation for these beverages, with small differences in the emotional associations.

The qualitative approach used in this study revealed the context, functional and the emotional conceptualisations of beer, wine and NAB consumption, for Dutch and Portuguese consumers. Interpretation of qualitative data required careful consideration of the number of words associated with each beverage and subjective interpretation and judgment of participants' discourse, both the literal and the figurative meanings (Knodel, 1995). The correspon-

dence analysis along with the interpretation of participants' discourse, is a useful way to better understand the conceptualisation of the beverages.

4.1. Differences in conceptualisations

Relevant and positive functional association with hedonics exists for beer and wine. Participants drink beer and wine because they like the flavour, which converges with previous research (e.g. Charters & Pettigrew, 2008; Chrysochou, 2014). For NAB consumption this is more complex and consumers seem to be divided in two segments. A sub-group of participants reported that flavour is the main motivation for consumption (segment 1) which is in line with the findings of Thompson and Thompson (1996) for NAB and of Chrysochou (2014) for light beer. However, to other participants the flavour of NAB was definitely not the driver of consumption (segment 2), which is comparable with the findings of Porretta and Donadini (2008), but the primary reason for NAB consumption was to avoid alcohol, as also reported by Jongh et al. (2014). In addition, most participants find NAB not as tasty as regular beer and are very brand sensitive. This is also reported by Chrysochou (2014), for light-beers in a study with light-beer consumers. This can be expected because when ethanol is removed from regular beer there is also a loss of other flavour compounds affecting the flavour characteristics, as well as a loss of body and mouth feel (Blanco, Andrés-Iglesias, & Monero, 2014; Montanari, Marconi, Mayer, & Fantozzi, 2009). Flavour composition varies depending on the process of dealcoholisation and perhaps this is the reason why participants are very demanding and faithful to a certain brand. Despite the efforts to develop new technologies to produce NAB (e.g. Catarino & Mendes, 2011), this is a confirmation that product refinement focusing on sensory attributes is required and that the target group of NAB consumers might be divided into two different segments.

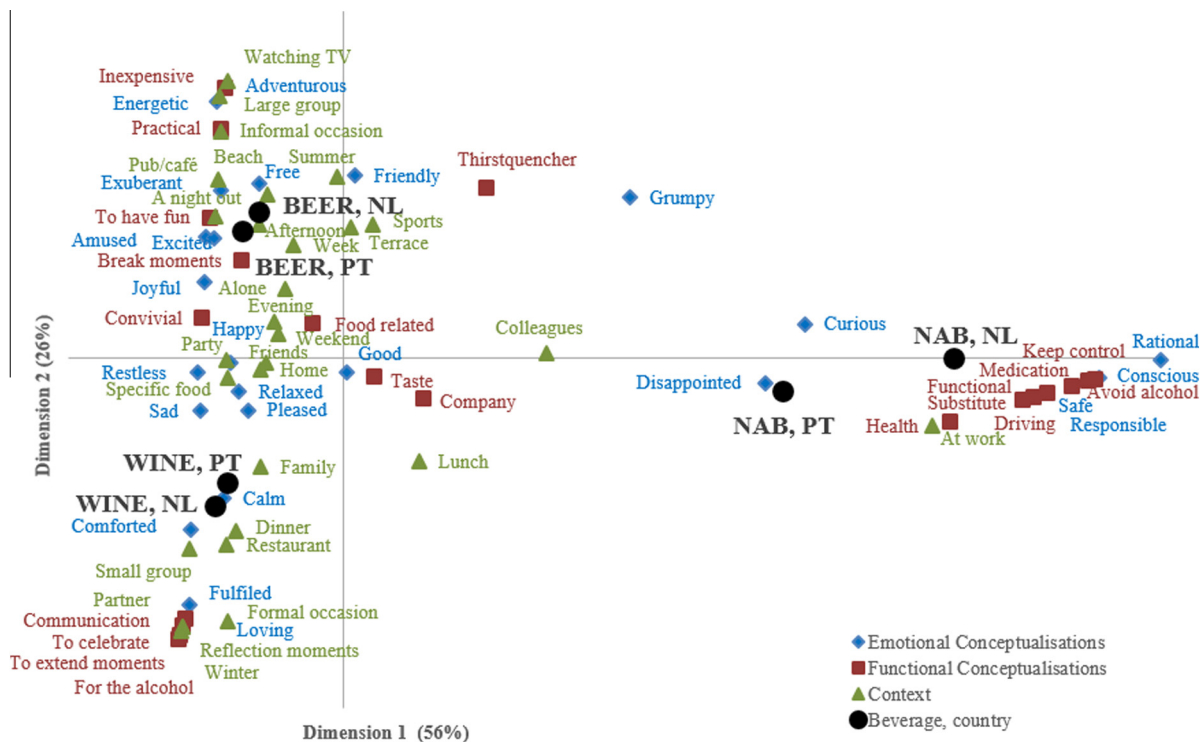


Fig. 1. First two dimensions of the correspondence analysis showing associations between context (\blacktriangle green), functional (\blacksquare red) and emotional (\blacklozenge blue) associations and beer, wine and NAB consumption, in the Netherlands (NL) and in Portugal (PT) (\bullet black). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

The hedonic value associated with NAB could explain the negative and neutral emotional associations surrounding this beverage such as *disappointed*, *grumpy* and *rational* (Fig. 1). In contrast, pleasant emotional associations were reported to be experienced for beer and wine more often than unpleasant associations. This is known as hedonic asymmetry (Schifferstein & Desmet, 2010) and is only verified for beer and wine. People have a positive predisposition to eat and drink products they expect to have a pleasant emotional impact. However, participants did not show this predisposition towards the NAB.

Beer and wine showed different emotional associations in terms of arousal, which is a dimension ranging from calm to excitement, used to characterise emotions in addition to the valence (pleasant/unpleasant) dimension (Russell, 2003). These dimensions, arousal and valence, can be identified in Fig. 1. Dimension 1 represents valence, pleasant feelings that were associated to beer and wine consumption (alcoholic beverages), such as *pleased* and *joyful*, and unpleasant feelings that were associated with NAB (non-alcoholic beverages), such as *disappointed* and *grumpy*. Dimension 2 represents arousal, and ranges from high arousal terms, such as *energetic*, *excited*, *amused*, that were associated with beer, to low arousal terms, such as *calm*, *loving* and *comforted*, that were associated with wine consumption.

The strong image of NAB as a substitute of beer, in addition to the weak positive hedonic value, might explain the neutral and negative emotional responses and, therefore, the lower frequency of consumption. Some participants described NAB as a *fake beverage*, comparable to something like *plastic flowers*, giving them a feeling of *loss*. These associations reflect the high level of comparison of NAB to regular beer in which the participants' expectations regarding NAB were not fulfilled. To prevent, or at least minimise disappointment, NAB should be treated as a beverage in its own right and it might be wise to avoid conceptual comparisons with beer in advertisement and publicity.

Participants highlighted their loyalty to a certain brand of NAB, and were not eager to try others brands. This seems to be a risk reduction strategy to avoid disappointments related to flavour resulting from different methods of dealcoholisation. Thus, whilst risk reduction strategies favour choosing beer over wine, as wine is perceived as much more complex (Lacey, Bruwer, & Li, 2009), brand loyalty due to flavour expectations benefits specific brands of NAB. Developing a NAB that will result in a positive and congruent conceptualisation with the brand is therefore of high importance.

It could also be argued that the lack of positive emotional associations with NAB might be due to the absence of alcohol. Chaya et al. (2015) reported that the word *intensity* (similar to *energetic*) was able to discriminate between the non-alcohol and high alcohol beer samples, with the high alcohol content beer rated higher for *intensity*. Our study found that *energetic* is highly associated with beer and not with NAB. Alternatively, the absence of alcohol might not be a strong argument for the lack of positive emotional associations, because other non-alcoholic beverages have been associated with positive and high arousal emotions. For instance, the Amp Energy beverage is classified as a high arousal beverage and Coca-Cola is strongly related with *happiness* (Di Muro & Murray, 2012; Mogilner, Aaker, & Kamvar, 2012). These beverages, however, contain caffeine, which is not present in NAB. Caffeine is also known as a mood and arousal enhancer, and in this sense, may be comparable to alcohol (Keast & Riddell, 2007).

If it comes to improving the image of NAB, the neutral and negative emotional associations evoked have to be changed. One way to accomplish this might be, for instance, by introducing *energetic* and *convivial* associations in communication and advertisement whilst avoiding the direct comparison with beer, especially on the flavour (Holbrook & Batra, 1987).

Mood enhancement was one of the main motivations reported by Charters and Pettigrew (2008) for wine consumption. In our

study, we also found that beer and wine are used to enhance the emotional state of consumers, but also to decrease negative feelings, as also reported by van Zyl and Meiselman (2015). If participants are in a positive emotional state they drink to enhance that state. On the other hand, if they are in a negative emotional state they drink to become less negative. This is known as emotionally instrumental eating/drinking, i.e. eating/drinking in order to regulate or control both positive or negative emotions and it has been proposed as a major motivation for alcohol use (Demmel & Nicolai, 2009; Macht & Simons, 2000). Our findings, however, suggest that the emotional state of consumers might influence the choice of the alcoholic beverage (beer or wine) to reach a desirable emotional state. This is a different situation from emotional responses evoked by product (Meiselman, 2015) and seems to be a relevant topic to explore further for a better understanding of beverage choice.

So far there are no standard methods of food/beverage emotional measurements but there are some studies reporting emotional responses related to specific beverages and a comparison is interesting. Our list of emotional terms (25 words) includes 3 out of 4 emotional terms reported by Desmet and Schifferstein (2008) in relation to alcoholic beverages, namely *amusement*, *love* and *enjoyment* (included in our list in *joyful*); 5 out of 5 emotional terms reported by Sester et al. (2013) related to beer, namely: *happiness*, *calm*, *sadness*, *excited* and *relaxed*; and 4 out of 12 emotional terms reported by Chaya et al. (2015), namely: *pleasure*, *excitement*, *disappointment* and *intensity* (energetic). However, 4 extra terms from this study are included in their previous list (before clustered), namely: *friendly*, *relaxed*, *happy* and *curious*. Some of the terms classified as emotions by Chaya et al. (2015) (fun, fresh) were classified as functional associations in this study based on participant's description. In relation to wine consumption, 7 out of 16 emotional terms reported by Ferrarini et al. (2010) are similar to our list, namely: *amusing*, *happy*, *joyful*, *curious*, *pleasant*, *euphoric* (included in our list in *excited*) and *passionate* (included in our list in *loving*). One may assume that our list would integrate all the terms from these previous studies, since the beverages are the same. The differences are due to the different methods applied for data collection, the level of familiarity between the participants and the beverages, data analysis or due to cultural differences, as the studies were performed in different countries, and/or due to the language of the respondents (Dutch, French, Spanish, Italian versus Portuguese and Dutch) (van Zyl & Meiselman, 2015). The comparison with other studies support the idea that the development of a list of emotions to apply in cross-cultural studies is relevant to establish which terms are important to all beverages and in all countries/cultures of interest involved (van Zyl & Meiselman, 2015). The lexicon of emotional responses related to beer, wine and NAB found in this study (25 terms) could be used in further quantitative studies to be performed in the Netherlands or in Portugal.

Sester et al. (2013), reported that the more familiar consumers are with products, the more episodic memories are retrieved. In addition, Giacalone et al. (2015) reported that beer familiarity strongly influences different usage contexts, i.e. familiar beers are associated with sports and outdoor activities, whereas novel ones seemed suitable for formal social occasions. Following this, it can be expected that the relatively low familiarity (in terms of frequency of consumption) of consumers with NAB could be the reason for the low number of associations reported in this study.

4.2. Cultural comparison

Despite the strong cultural, social and economic relations between the Dutch and beer and the Portuguese and wine, the results of this study did not reflect a great distinction between

the two groups in the conceptualisation of beer, wine and NAB. However, findings are based on a small sample of consumers that might not be representative of the Dutch and the Portuguese cultures. Therefore, this finding needs replication in bigger representative samples before one can generalise this to the population of both countries.

Regarding the functional conceptualisations no differences were found (Table 4) showing that both groups use these beverages for the same purposes. However small differences are reflected in the context of consumption and in emotional conceptualisations. Drinking beer, wine and NAB during *lunch* time is a cultural Portuguese habit (Table 3) and is related with their concept of lunch, as a warm, complete and long meal. In contrast, Dutch lunch is usually a quick meal, such as a sandwich, excluding beer or wine consumption (Silva et al., 2015).

For the Portuguese the distinction between drinking beer or wine seems also to be closely related to the *food* that it goes with and to its *taste* (Table 4). This seems to be in line with the findings of Ares et al. (2015), where it is shown that, between five different cultures, the Portuguese have the highest association between specific foods and alcoholic beverages when describing wellbeing, evoking feelings as *calm*, *happiness*, *comfort* and *pleasure*.

For the Dutch participants wine and special beers seem to have similar conceptualisations. This is an interesting outcome to explore further, suggesting that two different product categories (special beers and wine) may compete in similar occasions, evoking similar emotional responses to the consumers. This is in line with Giacalone et al. (2015) who reported that unfamiliar beers tend to be perceived as an alternative to wine for dinner. Exploring further in which contexts different classes of beers and wines may compete is important to increase insights in beverage choice and should be a topic of future studies.

Despite the fact that NAB is associated with concepts such as *safe*, *responsible* and *disappointed*, for the Portuguese participants, *pleasant* and *relaxed* were also evoked, similarly to beer and wine, although in a lesser extent. On the other hand, the Dutch participants mentioned *curiosity*. Especially the latter may lead us to believe that the Dutch participants have some expectations about NAB that are not yet met, giving an opportunity for product development.

In summary, NAB is seen as a substitute for alcoholic beverages but also for soft drinks, for health reasons, because of the high sugar levels that they contain. Seeking a substitute requires the disruption of the unconscious mind, i.e. to break existing habits, e.g. not going for an alcoholic or a soft drink, and find an alternative to fulfil concerns (Lundahl, 2011). This rational process is named seeking behaviour (Lundahl, 2011) and seems applicable to the choice of NAB. Because this beverage is named beer, even without alcohol, the comparison with regular beer is obvious and likely leads to product expectations that seem not to be met. These expectations might be reflected in the low emotional associations with NAB (e.g. *responsible*, *rational*) that support this assumption. In contrast, the consumption of beer and wine seems to be a sensing behaviour, i.e. arises from sensory cues and is associated with habit (Lundahl, 2011). This behaviour is mostly driven by our unconscious mind and it is related with high positive emotional impact that is stored in the memories associated with the experience. If sensing behaviour is applicable to beer and wine consumption, and seeking behaviour is applicable to NAB consumption, different strategies have to be applied accordingly.

The present research identified the functional and emotional associations that consumers have with beer, wine and NAB, but not the level of each association. Although the frequency of the categories achieved can give us an idea of their importance, they serve to generate hypotheses that need to be confirmed. Further

quantitative studies, on a larger sample population would be beneficial to gain a better understanding of consumers' perceptions of NAB and possible cultural differences.

5. Conclusions

Beer, wine and NAB have different conceptualisations for consumers. Beer and wine have rich conceptual content and are successful beverages. NAB has a limited conceptual content, mostly functional and less emotional, and is not so successful. This may suggest that a beverage needs to evoke a rich and emotional set of positive associations in consumers to succeed. Wine is associated with positive low arousal emotional responses, whereas beer is associated with positive high arousal emotional responses. NAB is neither associated with high nor with low arousal, evoking neutral and negative emotional responses.

This study shows similar conceptualisations of the beverages in both countries, with minor differences. From the product category profile it is beneficial that beer, wine and NAB are perceived with a uniform concept across countries. This means that the same

strategies to improve NAB acceptability can be applicable in both countries.

The difference in conceptualisations between NAB and beer/wine might be why NAB is not adopted more widely as it does not deliver a comparable emotional response to consumers. NAB has to be treated as a beverage in its own right, avoiding direct conceptual comparisons with beer, especially regarding the flavour. Product refinement related to the sensory attributes seems to be required. Should the image of NAB be communicated and understood as a more *energetic* and *convivial* beverage in communication and advertisement, a higher level of congruence between expectation and experience could be achieved.

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Appendix A

Table A1. Emotional terms related to beer, wine and NAB consumption evoked by the Dutch participants and its translation to English.

| Dutch | English | Dutch | English |
|---------------------------------|-----------------|------------------------|------------------|
| Prettig | Agreeable | Geirriteerd | Irritated |
| Angstig | Anxious | Minder serieus | Less serious |
| Schaamte | Ashamed | Losser | Loosen up |
| Aandacht | Attention | Luxe | Luxurious |
| Saai | Boring | Mentaal | Mental |
| Kalmte, afkoelen | Calm, calm down | Vrolijk | Merry |
| Vrolijk je op | Cheer up | Ingetogen | Modest |
| Chique | Classy | Nobel | Noble |
| Comfort | Comfort | Niet saai | Not boring |
| Compromie | Compromise | Open | Open |
| Gezellig | Convivial/cozy | Burgerlijk | Middle class |
| Bewust | Conscious | Te gewoon | Ordinary |
| Gemoedelijk | Cozy | Rust | Peaceful |
| Benieuwd | Curious | Baldadig | Playful |
| Durven | Dare | Tevreden, tevredenheid | Pleased |
| Voor de gek houden | Deceive | Positief gevoel | Positive feeling |
| Heerlijk | Delicious | Trots | Proud |
| Teleurgesteld | Disappointed | Klasse | Rank |
| Gemakkelijke, makkelijk | Easy | Ratio, rationeel | Rational |
| Extase | Ecstasy | Ontspanning | Relaxation |
| Energiek | Energetic | Verantwoordelijk | Responsible |
| Genieten | Enjoy | Onrust, onrustig | Restless |
| Enthousiast | Enthusiastic | Verdrietig | Sad |
| Uit je dak | Getting excited | Veilig | Safe |
| Uitbundig | Exuberant | Verstandig | Sensible |
| Geen angst | Fearless | Sensueel | Sensual |
| Soepeler in de omgang, Flexibel | Flexible | Zwoel | Sensual |
| Vrij | Free | Serieuze emoties | Serious emotions |
| Vrijheid | Freedom | Eenvoudig, simpel | Simple |
| Gemoedelijk, Gemoedelijkheid | Geniality | Saamhorigheid | Solidarity |
| Gelukkig | Glad | Speciaal | Special |
| Sikkeneurig | Grouchy | Sportiever | Sporty |
| Chagrijnig | Grumpy | Controle houden | Stay in control |
| Schuldig | Guilty | Moe | Tired |
| Geluk | Happiness | Overwinning | Victory |
| Blij | Happy | Warmte | Warmth |
| Intiem | Intimate | Wild | Wild |

Table A2. Emotional terms related to beer, wine and NAB consumption evoked by the Portuguese participants and its translation to English.

| Portuguese | English | Portuguese | English |
|---|---------------------|---|---------------------|
| Aventureiro | Adventurous | Harmonioso, harmonia | Harmony |
| Divertido | Amused | Em controlo | In control |
| Desperta os sentidos | Awake | Indiferente | Indifferent |
| Com calma, sem pressa, com tempo | Calm | Intimidade | Intimacy |
| Despreocupado | Carefree | Alegre, alegria, bem-disposto | Joy |
| Cauteloso | Careful | Leveza | Lightness |
| Informal | Casual | Agitado | Lively |
| Descontraído | Casualness | Perda | Loss |
| Proximidade | Closeness | Amor | Love |
| Confortável, mais à vontade | Comforted | Emoções ligeiras | Mild emotion |
| Compromisso | Commitment | Nobreza | Nobleness |
| Companheirismo | Companionship | Paixão | Passion |
| Complexidade | Complexity | Tranquilidade, em paz | Peaceful |
| De acordo | Consensual | Realização | Personal fulfilment |
| Aconchegado | Cozy | Agradável | Pleasant |
| Profundidade | Deep | Prazer, orgasmos do palato | Pleasure |
| Desiludido | Disappointed | Plenitude, tudo perfeito, tudo completo | Plenitude |
| Descoberta | Discovery | Rebelde | Rebel |
| Atordoada | Dizzy | Instropeitivo, refletivo | Reflective |
| Uma emoção | Emotional | Refrescante | Refreshing |
| Picos de emoção | Emotional high | Relaxado, descontraído | Relaxed |
| Energético, energia, energizante, dá pica | Energetic | Aliviar o stress | Relieve stress |
| Eufórico | Euphoric | Responsável | Responsible |
| Elevação | Exaltation | Romântico | Romantic |
| Livre, sem compromissos | Free | Triste | Sad |
| Liberto, liberdade | Freedom | Seguro | Safe |
| Frescura | Freshness | Satisfação, saciado | Satisfied |
| Amigável, amizade | Friendly/friendship | Partilhar/partilha | Share/sharing |
| Completa-me mais | Fulfilment | Solidariedade | Solidarity |
| Diversão | Fun | Surpresa | Surprise |
| Contente | Glad | Sem emoção, pouca emoção | Unemotional |
| Sinto-me bem, bem-estar | Good | Inconstante | Unreliable |
| Feliz, felicidade | Happiness | Calor | Warm |

References

- Álvarez, J. R. M., Marín, A. L. V., & Sanz, J. M. C. (2001). Cerveza sin alcohol. Sus propiedades. *Sociedad Española de Dietética y Ciencias de la Alimentación. Centro de Información Cerveza y Salud*. Available on: http://www.cervezaysalud.es/wp-content/uploads/2015/05/Estudio_7.pdf.
- Aquilani, B., Laureti, T., Poponi, S., & Secondi, L. (2015). Beer choice and consumption determinants when craft beers are tasted: An exploratory study of consumer preferences. *Food Quality and Preference*, 41, 214–224. <http://dx.doi.org/10.1016/j.foodqual.2014.12.005>.
- Ares, G., de Saldamando, L., Giménez, A., Claret, A., Cunha, L. M., Guerrero, L., de Moura, A. P., Oliveira, D. C., Symoneaux, R., & Deliza, R. (2015). Consumers' associations with wellbeing in a food-related context: A cross-cultural study. *Food Quality and Preference*, 40, 304–315.
- Barbour, R. S. (2001). Checklists for improving rigour in qualitative research: A case of the tail wagging the dog? *BMJ. British Medical Journal*, 322(7294), 1115.
- Barrena, R., & Sanchez, M. (2009). Connecting product attributes with emotional benefits: Analysis of a Mediterranean product across consumer age segments. *British Food Journal*, 111(2), 120–137.
- Barrett, L. F. (2006). Solving the emotion paradox: Categorization and the experience of emotion. *Personality and Social Psychology Review*, 10(1), 20–46.
- Blanco, C. A., Andrés-Iglesias, C., & Monero, O. (2014). Low-alcohol beers: flavour compounds, defects and improvement strategies. *Critical Reviews in Food Science and Nutrition* (just-accepted).
- BoE. (2014). Breweries of Europe. <http://www.brewersofeurope.org>, July 2014.
- Catarino, M., & Mendes, A. (2011). Non-alcoholic beer—A new industrial process. *Separation and Purification Technology*, 79(3), 342–351. <http://dx.doi.org/10.1016/j.seppur.2011.03.020>.
- Charters, S., & Pettigrew, S. (2008). Why do people drink wine? A consumer-focused exploration. *Journal of Food Products Marketing*, 14(3), 13–32. <http://dx.doi.org/10.1080/10454440801985894>.
- Chaya, C., Eaton, C., Hewson, L., Vázquez, R. F., Fernández-Ruiz, V., Smart, K. A., & Hort, J. (2015). Developing a reduced consumer-led lexicon to measure emotional response to beer. *Food Quality and Preference*, 45, 100–112. <http://dx.doi.org/10.1016/j.foodqual.2015.06.003>.
- Chrysoschou, P. (2014). Drink to get drunk or stay healthy? Exploring consumers' perceptions, motives and preferences for light beer. *Food Quality and Preference*, 31, 156–163.
- de Barcellos, M. D., Kügler, J. O., Grunert, K. G., Van Wezemael, L., Pérez-Cueto, F. J. A., Ueland, Ø., & Verbeke, W. (2010). European consumers' acceptance of beef processing technologies: A focus group study. *Innovative Food Science & Emerging Technologies*, 11(4), 721–732. <http://dx.doi.org/10.1016/j.ifset.2010.05.003>.
- Demmel, R., & Nicolai, J. (2009). Beer and current mood state. In Victor R. Preedy (Ed.), *Beer in health and disease prevention (177–180)*. Elsevier.
- Desmet, P., & Schifferstein, H. N. (2008). Sources of positive and negative emotions in food experience. *Appetite*, 50(2), 290–301.
- Di Muro, F., & Murray, K. B. (2012). An arousal regulation explanation of mood effects on consumer choice. *Journal of Consumer Research*, 39(3), 574–584.
- Doey, L., & Kurta, J. (2011). Correspondence analysis applied to psychological research. *Tutorials in Quantitative Methods for Psychology*, 7(1), 5–14.
- Duarte, F., Madeira, J., & Barreira, M. M. (2010). Wine purchase and consumption in Portugal—an exploratory analysis of young adults' motives/attitudes and purchase attributes.
- Ekman, P., Friesen, W. V., & Hager, J. C. (2002). Facial action coding system: The manual on CD ROM. A Human Face, Salt Lake City, UT, US: A Human Face.
- Ferrarini, R., Carbognin, C., Casarotti, E., Nicolis, E., Nencini, A., & Meneghini, A. (2010). The emotional response to wine consumption. *Food Quality and Preference*, 21(7), 720–725.
- Giocalone, D., Frøst, M. B., Bredie, W. L. P., Pineau, B., Hunter, D. C., Paisley, A. G., Beresford, M. K., & Jaeger, S. R. (2015). Situational appropriateness of beer is influenced by product familiarity. *Food Quality and Preference*, 39, 16–27. <http://dx.doi.org/10.1016/j.foodqual.2014.06.012>.
- Greenacre, M. (2010). Correspondence analysis of raw data. *Ecology*, 91(4), 958–963. <http://dx.doi.org/10.1890/09-0239.1>.
- Gutjar, S., Dalenberg, J. R., de Graaf, C., de Wijk, R. A., Palascha, A., Renken, R. J., & Jager, G. (2015). What reported food-evoked emotions may add: A model to predict consumer food choice. *Food Quality and Preference*, 45, 140–148. <http://dx.doi.org/10.1016/j.foodqual.2015.06.008>.

- Holbrook, M. B., & Batra, R. (1987). Assessing the role of emotions as mediators of consumer responses to advertising. *Journal of Consumer Research*, 404–420.
- Jongh, d. J., Peters, W., & van Teeffelen, C. (2014). Nationaal bieronderzoek Nederlande <http://www.nederlandsebrouwers.nl/publicaties/nationaal-bieronderzoek>, April 2015.
- Keast, R. S. J., & Riddell, L. J. (2007). Caffeine as a flavor additive in soft-drinks. *Appetite*, 49(1), 255–259. <http://dx.doi.org/10.1016/j.appet.2006.11.003>.
- Knodel, J. (1995). Focus groups as a qualitative method for crosscultural research in social gerontology. *Journal of Cross-Cultural Gerontology*, 10(1–2), 7–20. 10.1007/BF00972029.
- Lacey, S., Bruwer, J., & Li, E. (2009). The role of perceived risk in wine purchase decisions in restaurants. *International Journal of Wine Business Research*, 21(2), 99–117. doi: 10.1108/17511060910967962.
- Lockshin, L., & Corsi, A. M. (2012). Consumer behaviour for wine 2.0: A review since 2003 and future directions. *Wine Economics and Policy*, 1(1), 2–23. <http://dx.doi.org/10.1016/j.wep.2012.11.003>.
- Lundahl, D. (2011). *Breakthrough food product innovation through emotions research: Eliciting positive consumer emotion*. Academic Press.
- Macht, M., & Simons, G. (2000). Emotions and eating in everyday life. *Appetite*, 35(1), 65–71. <http://dx.doi.org/10.1006/appe.2000.0325>.
- Meiselman, H. L. (2015). A review of the current state of emotion research in product development. *Food Research International*. <http://dx.doi.org/10.1016/j.foodres.2015.04.015>.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Beverly Hills: Sage Publications.
- Modell, S. (2005). Triangulation between case study and survey methods in management accounting research: An assessment of validity implications. *Management Accounting Research*, 16(2), 231–254. <http://dx.doi.org/10.1016/j.mar.2005.03.001>.
- Mogilner, C., Aaker, J., & Kamvar, S. D. (2012). How happiness affects choice. *Journal of Consumer Research*, 39(2), 429–443.
- Montanari, L., Marconi, O., Mayer, H., & Fantozzi, P. (2009). Production of alcohol-free beer. In Victor R. Preedy (Ed.), *Beer in health and disease prevention* (61–75). Elsevier.
- Morgan, D. L. (1997). Focus groups as qualitative research (Vol. 16): Sage.
- Nederlandse Brouwers, N. (2015). Available on: <http://www.nederlandsebrouwers.nl/over-bier/cultuur-traditie-en-historie>.
- Ng, M. L., Chaya, C., & Hort, J. (2013). The influence of sensory and packaging cues on both liking and emotional, abstract and functional conceptualisations. *Food Quality and Preference*, 29(2), 146–156.
- Panzone, L. A., & Simões, O. M. (2009). The importance of regional and local origin in the choice of wine: Hedonic models of Portuguese wines in Portugal. *Journal of Wine Research*, 20(1), 27–44. <http://dx.doi.org/10.1080/09571260902978527>.
- Pettigrew, S., & Charters, S. (2006). Consumers' expectations of food and alcohol pairing. *British Food Journal*, 108(3), 169–180. doi: 10.1108/00070700610650990.
- Porretta, S., & Donadini, G. (2008). A preference study for no alcohol beer in Italy using quantitative concept analysis. *Journal of the Institute of Brewing*, 114(4), 315–321.
- Ritchie, C. (2007). Beyond drinking: the role of wine in the life of the UK consumer. *International Journal of Consumer Studies*, 31(5), 534–540.
- Rozin, P. (2005). The meaning of food in our lives: A cross-cultural perspective on eating and well-being. *Journal of Nutrition Education and Behavior*, 37 (Supplement 2), S107–S112. [http://dx.doi.org/10.1016/S1499-4046\(06\)60209-1](http://dx.doi.org/10.1016/S1499-4046(06)60209-1).
- Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, 110(1), 145.
- Schiffstein, H. N. J., & Desmet, P. M. A. (2010). Hedonic asymmetry in emotional responses to consumer products. *Food Quality and Preference*, 21(8), 1100–1104. <http://dx.doi.org/10.1016/j.foodqual.2010.07.004>.
- Sester, C., Dacremont, C., Deroy, O., & Valentin, D. (2013). Investigating consumers' representations of beers through a free association task: A comparison between packaging and blind conditions. *Food Quality and Preference*, 28(2), 475–483.
- Silva, A. P., Jager, G., van Zyl, H., Voss, H.-P., Pintado, M., Hogg, T., & de Graaf, C. (2015). Cheers, Proost, Saúde: Cultural, contextual and psychological factors of wine and beer consumption in Portugal and in the Netherlands. *Critical Reviews in Food Science and Nutrition*. <http://dx.doi.org/10.1080/10408398.2014.969396>. in press.
- Sohrabvandi, S., Mousavi, S. M., Razavi, S. H., Mortazavian, A., & Rezaei, K. (2010). Alcohol-free beer: Methods of production, sensorial defects, and healthful effects. *Food Reviews International*, 26(4), 335–352. <http://dx.doi.org/10.1080/87559129.2010.496022>.
- Tan, H. S. G., Fischer, A. R., Tinchan, P., Stieger, M., Steenbekkers, L., & van Trijp, H. C. (2015). Insects as food: Exploring cultural exposure and individual experience as determinants of acceptance. *Food Quality and Preference*, 42, 78–89.
- Thompson, N. J., & Thompson, K. E. (1996). Reasoned action theory: An application to alcohol-free beer. *Journal of Marketing Practice. Applied Marketing Science*, 2 (2), 35–48.
- Thomson, D. M., & Crocker, C. (2014). Application of conceptual profiling in brand, packaging and product development. *Food Quality and Preference*.
- Thomson, D. M., Crocker, C., & Marketo, C. G. (2010). Linking sensory characteristics to emotions: An example using dark chocolate. *Food Quality and Preference*, 21 (8), 1117–1125.
- Thomson, D. M. (2010). Going beyond liking: Measuring emotional and conceptual profiles to make better new products. In S. R. Jaeger & H. MacFie (Eds.), *Consumer-driven innovation in food and personal care products* (pp. 219–274). UK: Woodhead Publishing Limited.
- van Zyl, H., & Meiselman, H. L. (2015). The roles of culture and language in designing emotion lists: Comparing the same language in different English and Spanish speaking countries. *Food Quality and Preference*, 41, 201–213.
- WHO. (2014). World Health Organization, Global Information System on Alcohol and Health (GISAH). Available at <http://apps.who.int/gho/data/node.main.A1022?lang=en>, July 2014.
- Yang, S., Allenby, G. M., & Fennel, G. (2002). Modeling variation in brand preference. The roles of objective environment and motivating conditions. *Marketing Science*, 21(1), 14–31.