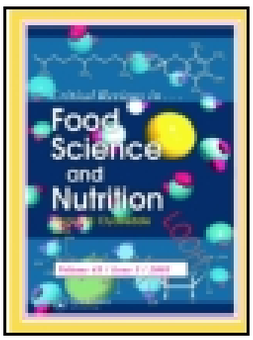

Taylor & Francis
Taylor & Francis Group

Critical Reviews in Food Science and Nutrition

ISSN: 1040-8398 (Print) 1549-7852 (Online) Journal homepage: http://www.tandfonline.com/loi/bfsn20

Cheers, Proost, Saúde: Cultural, Contextual and Psychological Factors of Wine and Beer Consumption in Portugal and in the Netherlands

Ana Patricia Silva , Gerry Jager PhD, Hannelize van Zyl, Hans-Peter Voss Ph.D., Manuela Pintado , Tim Hogg & Cees de Graaf

To cite this article: Ana Patricia Silva , Gerry Jager PhD, Hannelize van Zyl, Hans-Peter Voss Ph.D., Manuela Pintado , Tim Hogg & Cees de Graaf (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, DOI: 10.1080/10408398.2014.969396

To link to this article: http://dx.doi.org/10.1080/10408398.2014.969396

Accepted author version posted online: 11 Nov 2015.

"Cheers, Proost, Saúde: cultural, contextual and psychological factors of wine and beer consumption in Portugal and in the Netherlands"

Ms Ana Patricia Silva Master (Corresponding Author)

Email: patricia.silva@wur.nl

Affiliation 1:

Wageningen University, Division of Human Nutrition, Wageningen, Netherlands

Affiliation 2:

Centro de Biotecnologia e Quimica Fina - Laboratório Associado, Escola Superior de Biotecnologia, Universidade Católica Portuguesa, Porto, Portugal

Dr Gerry Jager PhD

Email: gerry.jager@wur.nl

Affiliation 1:

Wageningen University, Division of Human Nutrition, Wageningen, Netherlands

Ms Hannelize van Zyl

Email: hannelize.vanzyl@heineken.com

Affiliation 1:

Heineken Supply Chain B.V., Zoeterwoude, Netherlands

Dr Hans-Peter Voss Ph.D.

Email: hanspeter.voss@vossid.com

Affiliation 1:

Voss ID, Simone Signoretstr. 35, Almere, 1325LC Netherlands

Professor Manuela Pintado

Email: mpintado@porto.ucp.pt

Affiliation 1:

Centro de Biotecnologia e Quimica Fina - Laboratório Associado, Escola Superior de Biotecnologia, Universidade Católica Portuguesa, Porto, Portugal

Dr Tim Hogg

Email: thogg@porto.ucp.pt

Affiliation 1:

Centro de Biotecnologia e Quimica Fina - Laboratório Associado, Escola Superior de Biotecnologia, Universidade Católica Portuguesa, Porto, Portugal

Professor Cees de Graaf

Email: kees.degraaf@wur.nl

Affiliation 1:

Wageningen University, Division of Human Nutrition, Wageningen, Netherlands

Abstract

Wine and beer consumption are an integral part of European culture: Southern Europe is associated with wine and Northern Europe is associated with beer. When consumed in moderation, these alcoholic beverages can be part of a balanced and healthy diet. In the 1990s, non-alcoholic beer, which has no cultural roots, became available in the market. This review identifies determinants for consumption of wine, beer, and non-alcoholic beer, using data on consumption patterns from Portugal and the Netherlands. Since the 1960s the image of Portugal as a wine country declined, whereas the image of the Netherlands as a beer country remained

stable. In each country beer is now the most consumed alcoholic beverage and is mainly a men's beverage, whereas wine is the second most consumed and is consumed by both genders. Cultural differences define Portuguese as "outdoors, everyday drinkers", within a meal context, and Dutch as "at home, weekend drinkers". Wine is perceived as the healthiest beverage, followed by non-alcoholic beer, and regular beer. Motivation for consumption is related to context: wine for special occasions, beer for informal occasions, and non-alcoholic beer for occasions when alcohol is not convenient. Moderate wine and beer consumption seems to be surrounded by positive emotions.

This review is relevant for public health, for industry market strategies, and identifies opportunities of future research on drinking behaviour.

Keywords:

Non-alcoholic beer, alcohol consumption, cross-cultural, drinking behaviour, beverages.

1. Introduction

Wine and beer consumption are an integral part of European life and culture, dating back to before the Roman era (Baeza, 2000, Poelmans and Swinnen, 2011). Wine and beer are embedded within social and cultural traditions that, in part, define the diets of many Europeans. From a nutritional perspective these are interesting beverages to study since patterns of consumption determine whether their effects on health and well-being are positive or negative. Excessive

alcohol consumption is well recognized to increase the risk of certain diseases, such as cancers, cirrhosis and neurological problems (Foster and Marriott, 2006). However, when consumed in moderation wine and beer are accepted beverages that form part of a healthy, balanced diet, and lifestyle (Lindberg and Ezra, 2008, Arranz et al., 2012). Presently the median contribution of alcohol to the total energy intake (expressed as per adult per day) is 20,5 g (7%) in Portugal (BAP, 2003-2008) and 15,1 g (5%) in the Netherlands (DNFCS, 2007-2010). Drinking guidelines of both countries for daily alcohol consumption are: up to 42 g for men and 28 g for women in Portugal and, up to 20 g for men and 10 g for women in the Netherlands (ICAP, 2010).

Since the nineties, non-alcoholic beer (NAB) has become more present in the market (Nederlandse Brouwers: NB), partly as a result of drinking and driving concerns (social and legislative) but also as a response to general health concerns, and for religious reasons. This beverage has no cultural background and it is certainly not as popular as wine or beer itself. Nevertheless its presence in the market is an interesting development because NAB provides some of the sensory rewards and health benefits of beer itself, without the delivery of alcohol (Martin et al., 1990, Sohrabvandi et al., 2012).

In order to better understand how wine, beer and NAB consumers choose the beverages they consume, it is necessary to know the main drivers of consumption.

Many studies describe different aspects of alcohol consumption across the world, and these studies reveal that cultural, contextual and psychological factors are determinants of beverage choice (SIRC, 1998, Pettigrew, 2003, McCluskey and Shreay, 2011). However, there is no

comprehensive overview of studies giving a clear picture of the different determinants of wine and beer consumption.

The objective of this paper is to review the scientific and public domain literature concerning wine, beer and NAB consumption in two countries that can be considered representative examples of Northern and Southern European culture, namely Portugal and the Netherlands. Within the scope of this review, an attempt is made to characterize the consumption determinants for these beverages which are prevalent in the two countries.

Knowledge of the determinants of consumption is relevant for public health policy and to help companies design marketing strategies.

This review begins by describing the intake of wine, beer and NAB in Portugal and in the Netherlands, covering cultural factors such as consumption patterns and consumer profile (gender, age, income, level of education). Subsequently, contextual factors of consumption are described, concerning occasions and places. Finally, information regarding psychological factors such as motivation for consumption is explored in addition to the perception of consumers concerning health and emotional attributes related to consumption.

2. The evolution of cultural differences of consumption

2.1 Per capita wine and beer consumption over time

In terms of consumption, Portugal is classically perceived to be a wine country and the Netherlands a beer country. In the paragraphs below we will analyse whether or not these stereotypes concur with present consumption figures.

Estimates of the per capita consumption of wine and beer come from different sources. The World Health Organization (WHO) provides the contribution of wine and beer to the total per capita alcohol consumption (figure 1). This indicator is published per year and per country since the 1960s (WHO).

<Figure 1>

The WHO figures show that over the period 1960- 2010, marked changes occurred in the patterns of alcohol consumption, in both countries (WHO). In Portugal the contribution of wine to the total per capita alcohol consumption decreased 39%, whereas beer consumption increased 29%. In the Netherlands, wine consumption increased 26% at the cost of spirit consumption (WHO). However the contribution of beer consumption remained stable and is still around 50% (WHO).

Data on the consumption per capita can also be obtained from European or global wine and beer industry organisations – e.g. Brewers of Europe (BoE) and the International Organisation of Vine and Wine (OIV). The data presented in table 1 are derived from these organisations and in this paper they will be called commercial figures.

<Table 1>

The consumption per capita published from commercial figures (table 1) is calculated dividing the total of each beverage sold in the country by the total number of inhabitants, including people of all ages, independent of being drinkers or non-drinkers. Per capita consumption inferred in this way is an overestimation, in one hand, as it does not account for storage and waste. On the other hand is an underestimation because the number of drinkers is far less than the total number

of people in a country. These commercial figures, however, can be considered to generally compare between countries.

Based on these figures, during the period 2003-2009, wine consumption decreased in Europe (OIV). Portugal followed this trend with a per capita consumption of 139 mL per day in 2003 and 121 mL per day in 2011 (OIV). Dutch per capita wine consumption has remained constant since 2003 corresponding to half that of the Portuguese in 2011 (62 mL/day) (table 1) (Statistics Netherlands: SN).

Beer consumption across Europe remained relatively stable over the same period, showing a slight decrease in both Portugal and the Netherlands. In Portugal, per capita beer consumption declined 12% over 2003-2011, placing in 2011, the country in fourteenth position in Europe in terms of beer consumption, corresponding to 145 mL/day per capita. In the Netherlands per capita beer consumption declined by 10% over 2003-2011. Its 2011 per capita consumption of 196 mL/day per capita (table 1) placing it in ninth position in Europe in terms of beer consumption.

Another source of consumption figures comes from government statistics. For this review we used the Portuguese Health National Survey (PHNS, 2005-2006) and the Dutch National Food Consumption Survey (DNFCS, 2007-2010). These are reports based on national surveys focusing on individual dietary intake data reported by consumers. In these studies as in those above inferred from sales data, wine or beer drinking are not mutually exclusive. As shown in table 2, the two countries applied different methodologies for data collection. In Portugal, in the PHNS all family members were interviewed face-to-face about the average per day consumed over the previous week. In the Netherlands, the DNFCS performed individual telephone

interviews using two 24-hour recalls to selected people by invitation. Data collection based on interviews may have the disadvantage of under-reporting, a well-known source of systematic error in individual surveys (Ferro-Luzzi, 2002). The under-reported foods vary from study to study and the reason behind it might be because consumers have low involvement with some foods, like snack foods, and those are easily forgotten when reporting daily food consumption (Dop, 2002). Regarding alcohol consumption underreporting can also be explained because it is socially a sensitive topic (Dop, 2002), and people may not wish to admit to drink as much as they do.

<Table 2>

Table 3 shows the consumption per capita as calculated from national surveys. In Portugal, on average, daily consumption of wine drinkers is around 300 mL and 600 mL for beer drinkers. In the Netherlands, the equivalent figures are around 200 mL for wine drinkers and 750 mL for beer drinkers (PHNS, 2005-2006, DNFCS, 2007-2010). From these data values per capita consumption were extrapolated for both countries bearing in mind the percentage of drinkers from the adult population.

Comparing the values from the two sources, i.e. commercial figures (table 1) and national surveys (table 3), there is a notable difference in the figures given of daily consumption, as can be seen in table 4.

<Table 4>

As previously mentioned, the calculation of per capita consumption was performed considering different primary data, and this has an understandable effect on the final outcome. Values derived from commercial figures are around twice those from national surveys (table 4). This

discrepancy may be explained by two main reasons. On one hand, data provided from self-reporting questionnaires might lead to an underestimation of consumption, especially as related to alcoholic beverages. On the other hand, the commercial figures are based on the whole population of a country (including children and other non-drinkers) to calculate per capita consumption. Nevertheless, the ratio between both sources (surveys and commercial figures) is relatively constant between countries and beverages. Hence, it seems acceptable to consider both sources representing a valid basis for comparison purposes even if in absolute terms there is a discrepancy between the data.

The following conclusions are observed from both sources: in Portugal wine consumption is twice as much as in the Netherlands. Beer consumption is far higher in the Netherlands than in Portugal. It is also higher in volume terms, than wine consumption in both countries.

From a health perspective, and in addition to patterns of consumption, it is important to factor in the relative alcohol contents of wine and beer. Wine contains 8-15% of alcohol by volume (German and Walzen, 2000) whereas beer contains 3-6% alcohol by volume (Bamforth, 2002). This for Portugal wine contributes more than twice as much to the total alcohol consumed than beer. In the Netherlands beer is the greatest contributor to total alcohol consumption.

Looking at these figures, Portugal may still be considered as a wine drinking country, and the Netherlands as one which prefers beer. However, the difference in consumption patterns between the two countries is smaller than 50 years ago.

2.2 Non-Alcoholic Beer

A beer can be called non-alcoholic depending on the legal definitions, which can vary between countries. In Portugal NAB must contain less than 0,5% alcohol by volume (Portaria n. 1/96),

whereas in the Netherlands up to 0,1% alcohol by volume is permitted (Bierverordening, 2002). This difference in alcohol content (0,4%) might have some effect on consumers´ preferences. Not only because alcohol is an important flavour contributor but also because during the removal of alcohol inevitably other flavour substances are removed (Mieth, 1996).

NAB was introduced to the market in the 1990s (BoE). It is a new beverage compared to wine or beer. NAB was developed mainly to appeal to consumers who would appreciate its health and wellbeing attributes, being strategically positioned between beer and soft drinks, even being presented by one brand as a regenerative sports beverage (DM, 2012). Despite the technological effort in creating innovative dealcoholisation solutions which are less compromising to the flavour of the original beer, NAB has not been a successful product in European markets. In both countries the market share of beer sales for NAB is still very small, corresponding to 2% in Portugal and to 1% in the Netherlands (2011). An exception to this is Spain in which NAB has a market share of beer sales of 10% (2011) (Associação Portuguesa de Cervejeiros: APCV, NB).

It is not possible to present useful data of NAB consumption on the basis of publicly available data. In Portugal no data has been published whilst in the Netherlands, the DNFCS returned 2523 respondents of which only 11 (0,4%) admitted being NAB consumers.

2.3 Socio-Demographic profile of wine and beer consumers

Understanding the relations between consumption and consumer drinking profile is helpful for commercial strategies and public policies to be effectively targeted. Consumers' drinking

profiles are often described in terms of gender, age, level of education and monthly income (e.g. Pettigrew, 2003, Ramful and Zhao, 2006, Colen and Swinnen, 2011, McCluskey and Shreay, 2011). From table 5 it can be seen that in Portugal, men are the major consumers of wine and they drink twice as much as women. In the Netherlands the gender distribution for wine consumption is fairly equal, both in number of consumers and in amount of wine consumed. In both Portugal and the Netherlands, beer is largely consumed by men and this is also the case in other western societies (Pettigrew, 2002, Ramful and Zhao, 2006, Colen and Swinnen, 2011). The majority of consumers (mode is presented in bold numbers in table 5) drink two glasses of wine or beer per day, with the exception of wine consumption by Portuguese, who drink three. In a worldwide comparison, according to the WHO, Portugal and the Netherlands are countries that present low risk (1 in a 1 to 5 scale) regarding alcohol consumption-related health problems (WHO).

<Table 5>

The likeliness of an adult being a wine consumer apparently increases with age, starting with 30 years of age or older, reaching the highest percentage in the age group between 50-54 years old (Ramful and Zhao, 2006, Melo et al., 2010). Portuguese and Dutch seem not to be exceptions, as it is shown in table 6 that wine consumers tend to be adults (≥ 35 years). Beer is most likely to be consumed until the middle age (54 years), in which the younger age group (≤ 34 years) has a relevant contribution, especially in the Netherlands (37%). A plausible explanation for this is that beer is normally a comparatively inexpensive beverage with a good price / quality relation which might be more relevant to younger consumers (DM, 2011b). In addition, the language of much beer marketing is considered easy to understand by young people, making it more accessible

(DM, 2011b), whereas wine marketing language tend not to be focused on their generation and needs (Thach and Olsen, 2006). Moreover, several studies suggest that wine flavour seems to be the main driver for wine consumption (Zanten, 2005, Pettigrew and Charters, 2006, Charters and Pettigrew, 2008, Jaeger et al., 2009, Duarte et al., 2010, Melo et al., 2010, Bruwer et al., 2012). It is also suggested that age and level of experience play an important role in wine flavour preference (Blackman et al., 2010, Melo et al., 2010). Thus, these arguments may help to understand why younger consumers are more likely to drink beer than wine.

Typically, Portuguese consumers of wine and beer have primary education and low monthly income, whereas the majority of Dutch consumers have an intermediate level of education and higher monthly incomes (table 6). These socioeconomic indices are consistent with the general characterization of the whole population of both countries. For comparison, the modal value of income for Portugal is 905€/month in 2011 (BDPC, 2011) and for the Netherlands 2750€/month in 2013 (Expatax, 2013). Therefore income and level of education are variables that can distinguish between Portuguese and Dutch consumers, but not between wine and beer consumers. Age and gender seem to be the most differentiating factors between wine and beer consumers.

<Table 6>

3. Contextual factors

3.1 Occasions of consumption

In characterizing drinking behaviour it is interesting to consider consumption over different parts of the week, and in particular weekend *versus* weekdays (figure 2). The weekends are a prime period of alcohol consumption and in the sample of each country only 6% of consumers drink

less or did not drink during the weekends. For Dutch consumers, a difference is noted in that they drink more during weekends than weekdays or only drink during weekends (61%) (DNFCS, 2007-2010). In contrast, Portuguese consumers tend to drink the same amount (wine and beer) on weekdays as during the weekend (62%) (PHNS, 2005-2006).

<Figure 2>

In the Netherlands the preferred time of the day for alcohol consumption is the late afternoon and during the evening. Beer is commonly consumed during the late afternoon whereas wine is associated with evening meals. According to the Dutch eating habits, lunch is in general a light and quick meal (Yuksel, 2007). Alcohol consumption during lunchtime in the Netherlands is not common (AICEP, 2008, DNFCS, 2007-2010). This is different from Portuguese eating habits where lunch and dinner are considered to be of equally importance, and for that reason, have equal relevance in relation to wine or beer consumption (PHNS, 2005-2006). Besides main meals, Portuguese also commonly consume alcoholic beverages at night (IPSOS, 2009).

Wine

In general, wine is perceived as complementary to food and is associated with sit-down meals, either at home or in restaurants (Pettigrew and Charters, 2006, DM, 2011b, Thach, 2012). Wine consumption is described as being related to more formal occasions, special occasions and celebrations, being considered a social facilitator to interact with other people (Pettigrew, 2003, Ritchie, 2007, Thach, 2012). Choosing a wine is considered a ritual and wine choice and willingness to pay are influenced by the nature of the occasion (Quester and Smart, 1998, Pettigrew, 2003, Aqueveque, 2006, Ritchie, 2007, Thach, 2012). Wine consumers are willing to pay more for a bottle of wine to take to a dinner party at a friend's house at Saturday night,

compared to a bottle of wine to drink at home during the week, by oneself or with one's family over dinner (Quester and Smart, 1998). Worldwide wine is the preferred choice with a meal as a relaxing beverage, at home or in a bar (DM, 2011b).

Beer

Similar to wine, beer consumption is also associated with social events but with more informal occasions, such as barbeques, large music festivals, sports events, high energetic night out with friends, as well as pub culture and friendships (Pettigrew and Charters, 2006, SIRC, 2008, DM, 2011b, McCluskey and Shreay, 2011).

Beer is predominantly perceived to be an everyday beverage for relaxation-oriented occasions as the drinkers commonly use the beverage as a symbol of demarcation between work and non-work hours (Pettigrew, 2003, Pettigrew and Charters, 2006). Beer is also consumed in solitary occasions, like when at home relaxing and watching TV, whereas drinking wine alone is reported less (Pettigrew and Charters, 2006, Kim and Chintagunta, 2012). Beer is classified as a "flexible beverage" as its consumption might or might not be related with eating contexts, alone or with others (Pettigrew and Charters, 2006).

Non Alcoholic Beer

NAB is apparently unrelated to specific consumption places. Consumers do not choose it based on the type of occasion, as with wine or beer, but as an alternative for when they cannot drink alcohol. In general, the main reasons for drinking NAB are because consumers have to drive, for medical reasons or pregnancy (Vlek and Peters, 2012).

3.2 Places of consumption

Place of consumption is a reflection of habits of different cultures and contributes to consumption decisions (Pettigrew, 2002).

Referring to wine, it seems that domestic settings, including own homes, and the homes of friends or family, are the most common places for consumption in Portugal and in the Netherlands (AESBUC[1], 2003, DNFCS, 2007-2010, DM, 2011b). Additionally, in Portugal, restaurants are also considered as an important consumption place (AESBUC, 2003), whereas in the Netherlands restaurants are less representative for wine consumption (DNFCS, 2007-2010).

In Portugal, beer sales take place mainly in the on-trade (69%, 2011), which include pubs, clubs, bars, and restaurants. Only 31% of beer sales take place off-trade, through supermarkets, shops and other retail outlets. This is in contrast with the European trend also reflected in the Netherlands, where on-trade beer sales have been decreasing to 26% and off-trade beer sales increasing to 74% (2011). At home is, according to the latest data, the preferred place for beer consumption in the Netherlands (BoE, DNFCS, 2007-2010).

Overall it seems that beverages are used according to the nature of the occasion: wine for special and relaxing moments and with a meal, beer for informal and more energetic occasions and NAB when it is not convenient to drink alcohol. For Portuguese, wine consumption takes place mainly at home and in restaurants whereas beer consumption takes place mainly in bars, pubs and restaurants. Portuguese consume wine and beer either during lunch, dinner or in the evening,

[1]The methodology of this study includes 1208 face to face interviews to Portuguese moderate wine consumers

during weekdays or weekends. For Dutch, the preferred moment for wine and beer consumption is in the evening, at weekends and often home related.

4. Psychological factors

4.1 Motivation for consumption

Factors of impact on beverage choice and motivation for consumption may be derived from the drink by itself - drink related – and/or are context related (figure 3).

Wine and beer have different sensory attributes and the choice for one or the other, as a complement of food, seems to be based on creating a balance between food and beverage, providing pleasure (Charters and Pettigrew, 2008, Donadini et al., 2008). Nevertheless, wine is by far the beverage of choice for meal occasions and wine drinkers are more knowledgeable about food and alcohol combinations than beer drinkers (Pettigrew and Charters, 2006, DM, 2011b). The variety of tastes and flavours provided by wine are probably the most significant reasons for wine purchase and consumption for the majority of consumers (Zanten, 2005, Pettigrew and Charters, 2006, Charters and Pettigrew, 2008, Jaeger et al., 2009, Duarte et al., 2010, Melo et al., 2010, Bruwer et al., 2012). For young generations (24-35 years age), however, wine flavour does not seem to be that important and their primary focus is the conviviality and enjoyment that wine drinking provides (Barrena and Sanchez, 2009, Duarte et al., 2010).

Wine and beer have different functional connotations, fulfilling different consumer needs. These functional connotations play a role in choice behaviour. For instance, wine is seen as a social facilitator to interact with other people whereas thirst relief is often mentioned in relation to beer consumption (Yang et al., 2002, Donadini et al., 2008, Barrena and Sanchez, 2009).

The anticipated emotions and feelings associated with the consumption of a beverage is also a motivation for the choice. For instance, wine consumers feel enjoyment when planning to drink wine with food (Pettigrew and Charters, 2006). Comparably beer consumers may expect to relax after drinking a beer (Yang et al., 2002, Kim and Chintagunta, 2012).

There is some evidence showing that wine consumers perceive an emotional benefit from drinking wine that predominates over functional factors (Charters and Pettigrew, 2008, Barrena and Sanchez, 2009). This suggests that consumers' choice might include an emotional component in addition to the product knowledge (Barrena and Sanchez, 2009).

Wine and beer are often consumed in a social context, mainly with friends or family, to socialize, to celebrate and to have fun (SIRC, 1998, McCluskey and Shreay, 2011). In a social context consumption is, to some extent, influenced by peers, friends or family, either to seek approval of the behaviour (Zanten, 2005), image management (Pettigrew, 2002, McCluskey and Shreay, 2011) or to impress others (Melo et al., 2010). Social pressure, mainly used by friends and family, are especially influential in young adults' alcohol consumption (Hall et al., 2004, Ahlström and Osterberg, 2005, Thach and Olsen, 2006, Olsen et al., 2007, Silva et al., 2014).

Rituals are symbolic attitudes involving wine or beer consumption. Those are used to distinguish certain moments or specific contexts, such as the end of the working day or the end of the week, before and after football games, to toast and celebrate special moments in one´s life trajectory (SIRC, 1998, Pettigrew and Charters, 2006, Charters and Pettigrew, 2008, SIRC, 2008, McCluskey and Shreay, 2011).

<Figure 3>

Motivations for consumption are certainly related with the development of preferences through experience, which seem to be different between wine and beer. This might be influenced by socialisation but might also be related to the effect of learned liking, as a result of repeated consumption - exposure effect - as happens with other foods (Yeomans, 2006). There is some evidence that, for wine drinkers, the evolution of preference is primarily inversely related to sweetness and later directly related with perceived “body” in a wine. In this way consumers' preferences move first over the dimension sweet-not-sweet and later on, along the dimension light-heavy/full (Blackman et al., 2010, Melo et al., 2011). Concerning beer consumption it is commonly argued that beer has an acquired taste and most consumers do not like their first taste of it (McCluskey and Shreay, 2011). Still, to our knowledge, there is no scientific evidence published to demonstrate this effect. The differences in regional beer production might have an influence in beer consumption preferences, especially in countries like America and Germany. The locally developed beer styles are more available in their region of origin (McCluskey and Shreay, 2011). Also in Northern Europe many pubs offer only two or three local beers which can limit the experience of consumption and consequently limit the exposure effect (McCluskey and Shreay, 2011). This might be applicable, but to a lesser extent to the Netherlands, where beer production is dominated by eight breweries, which together account for over 95% of beer production. The remaining five percent is manufactured by over 120 microbreweries (NB). In Portugal there is a different situation. As 90% of the national market is dominated by two breweries, located in the north and in the centre (APCV), most cafes and bars tend to sell only one brand, so choice is very limited. In general, alcoholic drink preferences tend to vary with age as the taste of the consumers develops. Whereas younger consumers tend to look for a sweeter

product the older consumers prefer a more complex taste and unique flavours (Datamonitor, 2012).

From a marketing point of view a distinction is often made between motivations for consumption and motivations for purchase. Referring to purchase behaviour, price and habit or preferred brand are reported to be factors that exert the greatest influence on choice of wine and beer in 19 countries worldwide, including Portugal and the Netherlands (Duarte et al., 2010, DM, 2011c). Overall, consumers perceive price as a quality indicator. Its relative importance, however, is influenced by the context of consumption and level of product involvement (Quester and Smart, 1998, Ritchie, 2007, Charters and Pettigrew, 2008).

The motivations for NAB consumption are less documented, but those reported are very different from those known for alcoholic beverages. Drinking NAB can be related to occasions where consumers cannot or do not want to drink alcohol (Thompson and Thompson, 1996, Vlek and Peters, 2012). Flavour and healthy benefits were found to be the most important motives behind purchase (Thompson and Thompson, 1996, Chrysochou, 2014). In addition, as for wine and beer, the choice of NAB is influenced by drinking companions, family and social groups (Thompson and Thompson, 1996). Amongst Dutch NAB non-consumers this beverage has a drowsy image and flavour is the key factor not to choose this beverage (Vlek and Peters, 2012).

In summary, it appears that wine, beer and NAB serve different purposes and that motivation for consuming either beverage depends on the context of consumption, although sensory and social aspects also carry some weight in the decision.

4.2 Perception of health benefits associated with moderate alcohol consumption

Consumers in general are more conscious of the health risks of alcohol consumption than the suggested health benefits (DM, 2011a). Nonetheless, consumers appear to be well aware that drinking wine or beer may lead to positive health outcomes and that the key factor is moderation in consumption (AESBUC, 2003, Zanten, 2005, Ritchie, 2007, Barreiro-Hurle et al., 2008, Wright et al., 2008a, Saliba and Moran, 2010, Yoo et al., 2013). In addition, the presence of alcohol does not seem to be a decisive factor defining the perception of healthiness of beverages, since wine and beer have been considered healthier than soft drinks (Wright et al., 2008a). In general, wine (red or white) is perceived as healthier than beer (Wright et al., 2008b). This might be due to a relative lack of information on the health benefits of beer, since more scientific work has been published on wine than on beer, especially that which is oriented towards the consumer. A popular perception is that beer consumption is responsible for causing a paunch or "beer belly", although scientific evidence does not support this perception when beer is consumed in moderation (Bendsen, 2011). Another reason might be that wine consumption is strongly related to meals, which results in a stronger association with healthiness (DM, 2011a).

From the published literature different attitudes emerge on how consumers perceive the healthiness of wine which may be culturally related: American consumers do not significantly change their behaviour on the basis of health perception and the main attribute that guides wine choice is flavour (Zanten, 2005, Wright et al., 2008b); Spanish would be willing to pay more for resveratrol enriched wine (Barreiro-Hurle et al., 2008) and Australian consumers, who perceived wine as healthy, have a higher frequency but not volume of consumption (Saliba and Moran, 2010).

It appears that consumers perceive NAB as being healthier than regular beer, but also less satisfying in terms of flavour than regular beer (Wright et al., 2008b, Chrysochou, 2014).

In conclusion, consumers are aware of possible health benefits of alcoholic beverage consumption, but that information in itself does not seem to be the main driver of consumption (Zanten, 2005, Wright et al., 2008b, DM, 2011a, Chrysochou, 2014). Ranking the three beverages in this paper, wine is perceived as the healthiest beverage, followed by non-alcoholic beer, and with regular beer as the least healthy (Wright et al., 2008b, Chrysochou, 2014).

4.3 Wine and beer related emotional attributes

Emotions and mood play an important role in food choice (Lyman and McCloskey, 2001, Canetti et al., 2002, Gibson, 2006). The interaction between mood and food is based on a bidirectional relationship, which is influenced by a variety of factors such as appetite, sensory effects and social context (Gibson, 2006). For instance a good mood can induce a consumer to choose and drink a high quality wine (Ritchie, 2007). Likewise different foods evoke different emotions both in nature and in intensity (Cardello et al., 2012). Relatively few references exist in the literature concerning emotions and wine or beer consumption (Desmet and Schifferstein, 2008, Ferranini et al., 2010, Kaneda et al., 2011). The few existing ones mainly report on positive emotions in relation to wine and beer (table 7).

Emotions that affect consumers' choices can be linked to intrinsic product attributes such as sensory characteristics (Kuenzel et al., 2010, Thomson et al., 2010). It has been shown that by modulating beer flavour properties, it is possible to accentuate positive emotions elicited while drinking beer (Kaneda et al., 2011). Extrinsic attributes, however, like product name (Cardello et

al., 2012) or label (King et al., 2010), can also be linked to emotions. In addition, it has been shown that food products have emotional connotations that when linked to the product identity will assign a meaning to what we experience while eating or drinking (Thomson et al., 2010). This is known as product conceptualisations, which have not yet been explored with wine or beer.

<Table 7>

It seems that the emotional attributes that are related to beer consumption are more of the functional type compared to those related to wine. For instance, attributes elicited by beer consumption such as refreshed and feeling of relief were not cited in connection with wine. Moreover, elegant and interesting are perhaps the two words cited that are most exclusively linked to wine in published studies (table 7). Emotions reported for both wine and beer were peace/peaceful and amusing/amusement.

In summary, the study of emotions elicited by wine and beer consumption is not well explored and seems a promising area of research to gain more insight into beverage choice.

5 Conclusions

This review summarizes the main determinants of wine, beer and NAB consumption, covering cultural, contextual, and psychological aspects, in Portugal and in the Netherlands, as countries representing Northern and Southern European culture.

Wine is a symbol of Portugal, but since the 1960s wine consumption decreased significantly and beer consumption increased. Perhaps unexpectedly, nowadays beer production and consumption per capita is greater, in volume terms, than for wine. Still, and in the terms of health benefits, it is

important to highlight that wine is the greater contributor to total alcohol consumption. For Portuguese, wine and beer consumption is part of their daily habits and is mainly associated with lunch and dinnertime. Beer is mainly consumed outside the home whereas wine is mainly consumed at home and in restaurants.

Beer is a symbol of the Netherlands and patterns of consumption remained almost untouched over the years. Wine consumption however increased. Both beverages significantly contribute to the total alcohol consumption, although beer is the greatest contributor. Dutch are more likely to drink wine or beer at weekends and mainly at home and in the evening.

NAB it is a relatively new beverage, with no cultural roots and consumption is minimal in both countries compared to wine or beer.

Wine is for the older generation and for both genders. Indeed, it is perceived as the healthier beverage, but this is far from being the prime reason for consumption. Flavour, food pairing and sociability seem to be more fundamental drivers for wine consumption. Wine is consumed at formal and special occasions. Interesting, passionate and elegant are some of the positive emotions evoked by wine consumers. Beer is a men's beverage, and is more likely to be chosen by the younger generations. It has a high connection with sociability, amusement and enjoyment, and a close relation with informal and energetic occasions. NAB represents an alternative for occasions where alcohol drinking is not appropriate and/or convenient. It is perceived as healthier than beer and flavour plays an important positive role for consumers and negative role for non-consumers.

This review illustrates the disparity between the amount of research that exists in the public domain concerning wine and beer consumption, where studies on wine outweigh those on beer. Work on NAB is almost non-existent.

The determinants of consumption described in this review contribute to define the actual identity of moderate wine, beer and NAB consumption giving insights to understand patterns of consumption over time and changes in drinking behaviour, in two different cultures. Emotional attributes related with consumption of these beverages are not yet well explored and, in combination with context of consumption and cultural differences, might be an interesting topic to gain more knowledge on beverage choice.

6 References

AESBUC (2003). Estudo do consumidor português de vinhos. Eds., Associação para a Escola Superior de Biotecnologia da Universidade Católica (AESBUC), Portugal.

Ahlström, S.K., and Osterberg, E.L. (2005). International Perspectives on Adolescent and Young Adult Drinking. *Alcohol Research & Health*. **28** : 258-268.

AICEP Portugal Global (2008). Países Baixos, vinho tranquilo. Available at http://www.revista.portugalglobal.pt/AICEP/Documentos/PasesBaixosVinhoTranquiloBreve Apontamento, April 2013.

APCV – Associação Portuguesa de Cervejeiros. Portugal. Available at htpp://www.apcv.pt, April 2013.

Aqueveque, C. (2006). Extrinsic cues and perceived risk: the influence of consumption situation. *Journal of Consumer Marketing*. **23** : 237-247.

Arranz, S., Chiva-Blanch, G., Valderas-Martínez, P., Medina-Remón, A., Lamuela-Raventós, R.M., and Estruch, R. (2012). Wine, Beer, Alcohol and Polyphenols on Cardiovascular Disease and Cancer. *Nutrients* **4** : 759-781.

Baeza, C. (2000). Gran Atlas del Vino. Editorial Libsa. Madrid.

Bamforth, C. (2002). Nutritional Aspects of Beer – a review. *Nutrition Research*. **22 :** 227-237.

BAP - Balança Portuguesa Alimentar 2003-2008. Eds., Instituto Nacional de Estatística, Portugal. Available at http://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=83386467&DESTAQUESmodo=2, April 2013.

Barreiro-Hurle, J., Colombo, S., and Cantos-Villar, E. (2008). Is there a market for functional wines? Consumer preferences and willingness to pay for resveratrol-enriched red wine. *Food Quality and Preference*. **19** : 360-371.

Barrena, R., and Sanchez, M. (2009). Connecting product attributes with emotional benefits. *British Food Journal*. **111** : 120-137.

BDPC - Base de Dados de Portugal Contemporâneo. Portugal. Available at http://www.pordata.pt/Portugal/Salario+medio+mensal+dos+trabalhadores+por+conta+de+outrem+remuneracao+base+e+ganho-857, May 2014.

Bendsen, N., Christensen, R., Bartels, E., Kok, F., Sierksma, A., Raben, A., and Astrup, A. (2011). Is beer consumption related to measures of abdominal and general obesity? A systematic review and meta-analysis. *Nutrition Reviews*. **71** : 67-87.

Bierverordening Productschap Dranken 2003, dd. 13 November 2002. The Netherlands.

Blackman, J., Saliba, A., and Schmidtke, L. (2010). Sweetness acceptance of novices, experienced consumers and winemakers in Hunter Valley Semillon wines. *Food Quality and Preference*. **21** : 679-683.

BoE – Brewers of Europe. Beer Statistics (2010 and 2012). Eds., The Brewers of Europe. Available at http://www.brewersofeurope.org/asp/publications/index.asp?num=10&crit=, April 2013.

Bruwer, J., Li, S.E., and Chaumont, S. (2012). Perspectives on Consumers' Attitudes to Wine's Region of Origin in a Restaurant Setting. *Journal of Foodservice Business Research*. **15** : 300-318.

Canetti, L., Bachar, E., and Berry, E. (2002). Food and Emotion. *Behavioural Processes.* **60** : 157-164.

Cardello, A., Meiselman, H., Schutz, H., Craig, C., Given, Z., Lesher, L., and Eicher, S. (2012). Measuring emotional responses to foods and food names using questionnaires. *Food Quality and Preference*. **24** : 243-250.

Charters, S., and Pettigrew, S. (2008). Why Do People Drink Wine? A Consumer-Focused Exploration. *Journal of Food Products Marketing*. **14** : 13-32.

Chrysochou, 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.

Colen, L., and Swinnen, J. (2011). Beer Drinking Nations – The determinants of Global Beer Consumption. *American Association of Wine Economists* **79**. Available at http://www.wine-economics.org/workingpapers/AAWE_WP79.pdf, May 2013.

DM - Datamonitor (2011a). Health Concerns and Alcoholic Beverage Preferences: Implications for New Product Development. Available at http://www.datamonitor.com/store/Product/health_concerns_alcoholic_beverage_preferences_implications_for_npd?productid=CM00045-004, October 2013.

DM - Datamonitor (2011b). Food & Alcohol Pairing: Consumer Occasions and Marketing Opportunities. Available at http://www.datamonitor.com/store/Product/food_alcohol_pairing_consumer_occasions_and_marketing_opportunities?productid=CM00044-004, October 2013.

DM - Datamonitor (2012). Consumer and Innovation Trends in Beer. Available at http://www.datamonitor.com/store/Product/consumer_and_innovation_trends_in_beer?productid=CM00198-012, October 2013.

DM - Datamonitor (2011c). Off-Trade Alcoholic Drinking Habits: Exploiting new consumer behaviors in the Retail Market. Available at http://www.datamonitor.com/store/Product/off_trade_drinking_habits_exploiting_new_consumer_behaviors_in_the_retail_market?productid=CM00045-005, October 2013.

Desmet, P. M. A. and Schifferstein, H. N. J. (2008). Sources of positive and negative emotions in food experience. *Appetite*. **50** : 290-301.

DNFCS - Dutch National Food Consumption Survey, 2007-2010. Eds., National Institute for Public Health and the Environment, The Netherlands. Available at http://aesan.msssi.gob.es/AESAN/docs/docs/evaluacion_riesgos/Holanda.pdf, April 2013.

Donadini, G., Spigno, G., Fumi, M. D., and Pastori, R. (2008). Evaluation of Ideal Everyday Italian Food and Beer Pairings with Regular Consumers and Food and Beverage Experts. *J. Inst. Brew*. **114** : 329-342.

Dop, M-C. (2002). Individual food intake surveys methods. *International Scientific Symposium on Measurement and Assessment of Food Deprivation and Undernutrition*, Italy. Available at http://www.fao.org/docrep/005/Y4249E/y4249e0a.htm#bm10, Jan 2014.

Duarte, F., Madeira, J., and Barreira, M. (2010). Wine purchase and consumption in Portugal – an exploratory analysis of young adults' motives/attitudes and purchase attributes. *Ciência Téc. Vitiv*. **25** : 63-73.

Expatax BV (2013). Average Dutch Income. The Netherlands. Available at http://www.expatax.nl/kb/article/what-is-the-average-gross-dutch-income-in-2013-427.html, May 2014.

Ferranini, R., Carbognin, C., Casarotti, E.M., Nicolis, E., Nencini, A., and Meneghini, A.M. (2010). The emotional response to wine consumption. *Food Quality and Preference*. **21** : 720-725.

Ferro-Luzzi, A. (2002). Individual food intake survey methods. *International Scientific Symposium on Measurement and Assessment of Food Deprivation and Undernutrition*. Italy. Available at http://www.fao.org/docrep/005/Y4249E/y4249e0a.htm#bm10, Jan 2014.

Foster, R.K., and Marriott, H.E. (2006). Alcohol consumption in the new millennium – weighing up the risks and benefits for our health. *British Nutrition Foundation Nutrition Bulletin*. **31** : 286-331.

German, J.B., and Walzen, R.L. (2000). The Health benefits of wine. *Annu. Rev. Nutr*. **20** : 561-93.

Gibson, E.L. (2006). Mood, Emotions and Food Choice. **In**: The psychology of food choice, pp 113-140. Shepherd R., and Raats, M. Food,. Eds., CAB International, UK.

Hall, J., Binney. W., and O´Mahony, G. (2004). Age Related Motivational Segmentation of Wine Consumption in a Hospitality Setting. *International Journal of Wine Marketing*. **16** : 29-43.

ICAP (2010). International Drinking Guidelines. Eds., International Center for Alcohol Policies. Available at http://www.icap.org/PolicyTools/ICAPPolicyGuides, April 2013.

INE - Instituto Nacional de Estatística. Portugal. Available at http://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0000178&contexto=bd&selTab=tab2, April 2013.

IPSOS (2009). Alcohol Price and Consumer Behaviour. Eds., IPSOS. Available at http://www.brewersofeurope.org/docs/flipping_books/prince_consumer_2009/index.html, April 2013.

Jaeger, S.R., Danaher, P.J., and Brodie, R.J. (2009). Wine purchase decisions and consumption behaviours: Insights from a probability sample drawn in Auckland, New Zealand. *Food Quality and Preference*. **20** : 312-319.

Kaneda, H., Kojima, H., and Watari, J. (2011). Novel Psychological and Neurophysiological Significance of Beer Aromas. Part I: Measurement of Changes in Human Emotions During the Smelling of Hop and Ester Aromas Using a Measurement System for Brainwaves. *J. Am. Soc. Brew. Chem*. **69** : 67-74.

Kim, M., and Chintagunta, P.K. (2012). Investigating brand preferences across social groups and consumption contexts. *Quantitative Marketing and Economics*. **10** : 305-333.

King, S., Meiselman, H., and Thomas, C.B. (2010). Measuring emotions associated with foods in consumer testing. *Food Quality and Preference*. **21** : 1114-1116.

Kuenzel, J., Zandstra, E.H., Lion, R., Blanchette, I., Thomas, A., and El-Dereby, W. (2010). Conditioning unfamiliar and familiar flavours to specific positive emotions. *Food Quality and Preference*. **21** : 1105-1107.

Lindberg, M.L., and Ezra, A. (2008). Alcohol, Wine, and Cardiovascular Health. *Clinical Cardiology*. **31** : 347-351.

Lyman, B., and McCloskey, J. (2001). Food Characteristics thought desirable during various imagined emotions. *The Journal of Psychology*. **123** : 163-169.

Martin, C.S., Earleywine, M., and Younger, R.D. (1990). Identification of Non-alcoholic and alcoholic beers: effects of consumption practises and beer brand. *Addictive Behaviors*. **14** : 89-93.

McCluskey, J.J., and Shreay, S. 2011. Culture and Beer Preferences. **In:** The Economics of Beer, cap. 9. Swinnen, J.F.M. Oxford Scholarship Online.

Melo, L., Colin, J., Delahunty, C., Forde, C. and Cox, D. (2010). Lifetime wine drinking, changing attitudes and associations with current wine consumption: A pilot study indicating how experience may drive current behaviour. *Food Quality and Preference*. **21** : 784-790.

Melo, L., Delahunty, C., and Cox, D. N. (2011). A new approach using consumers' 'drinking histories' to explain current wine acceptance. *Food Research International*. **44** : 3235-3242.

Mieth, H.O. (1996). Technology Brewing and Malting. Cap 11. Kunze, W., Eds., VLB Berlin, Verlagsabteilung.

Moran, C., and Saliba, A. (2012). Reasons for drinking wine and other beverages – comparison across motives in older adults. *International Journal of Wine Research.* **4** : 25-32.

NB - Nederlandse Brouwers. Available at http://www.nederlandsebrouwers.nl/publicaties/nationaal-bieronderzoek, June 2012.

OIV - International Organization of Vine and Wine. Available at http://www.oiv.int/oiv/info/enstatoivextracts2, May 2012.

Olsen, J.E., Thach, L., and Nowak, L. (2007). Wine for my generation: exploring how US wine consumers are socialized to wine. *Journal of Wine Research*. **18** : 1-18.

Pettigrew, S. (2002). A grounded theory of beer consumption in Australia. *Qualitative Market Research: an International Journal*. **5** : 112-122.

Pettigrew, S. (2003). Wine consumption contexts. *International Journal of Wine Marketing*. **5** : 37-46.

Pettigrew, S., and Charters, S. (2006). Consumers' expectations of food and alcohol pairing. *British Food Journal*. **108** : 169-180.

Poelmans, E., and Swinnen, J.F.M. (2011). A Brief Economic History of Beer. **In**: The Economics of Beer, cap. 1. Swinnen J.F.M. Oxford Scholarship Online.

Portaria n. 1/96 de 3 de Janeiro, Diário da República I serie B N.º 2. Available at http://dre.pt/pdf1sdip/1996/01/002B00/00080009.pdf, April 2013.

PHNS - Portuguese Health National Survey, 2005-2006. Eds., Instituto Nacional de Estatística and Instituto Nacional Ricardo Jorge, Portugal. Available at http://www.insa.pt/sites/INSA/Portugues/Publicacoes/Outros/Documents/Epidemiologia/INS_05_06.pdf, April 2013.

Quester, P., and Smart, J. (1998). The influence of consumption situation and product involvement over consumers' use of product attribute. *Journal of Consumer Marketing*. **15** : 220-238.

Ramful, P., and Zhao, X. (2006). Individual Heterogeneity in Alcohol Consumption: the Case of Beer, Wine and Spirits in Australia. *Economic Record*. **84** : 207-222.

Ritchie, C. (2007). Beyond drinking: the role of wine in the life of the UK consumer. *International Journal of Consumer Studies*. **31** : 534-540.

Saliba, A., and Moran, C. (2010). The influence of perceived healthiness on wine consumption patterns. *Food Quality and Preference*. **21** : 692-696.

Silva, A.P., Figueiredo, I., Hogg, T., and Sottomayor, M. (2014). Young adults and wine consumption a qualitative application of the theory of planned behaviour. *British Food Journal*. **116** : 832-848.

SIRC (1998). Social and Cultural Aspects of Drinking. An eight-part report to the Amsterdam Group. Eds., The Social Issues Research Centre, UK. Available at http://www.sirc.org/publik/drinking_contents.html, May 2013.

SIRC (2008). Football Passions. Eds., The Social Issues Research Centre, UK. Available at http://www.sirc.org/football/football_passions.pdf, July 2013.

SN - Statistics Netherlands. Available at http://www.cbs.nl/en-GB/menu/themas/industrie-energie/publicaties/artikelen/archief/2006/2006-2024-wm.htm, April 2013.

Sohrabvandi, S., Mortazavian, A.M., and Rezaei, K. (2012). Health-related aspects of beer: a review. *International Journal of Food Properties*. **15** : 350-373.

Thach, E.C., and Olsen, J.E. (2006). Market Segment Analysis to Target Young Adult Wine Drinkers. *Agribusiness*. **22** : 307-322.

Thach, L. (2012). Time for wine? Identifying differences in wine-drinking occasions for male and female wine consumers. *Journal of Wine Research*. **23** : 134-154.

Thompson, N.J., and Thompson, K.E. (1996). Reasoned action theory: an application to alcohol-free beer. *Journal of Marketing Practice: Applied Marketing Science*. **2** : 35-48.

Thomson, D., Crocker, C., and Marketo, C. (2010). Linking sensory characteristics to emotions: an example using dark chocolate. *Food Quality and Preference*. **21** : 1117-1125.

Vlek, O., and Peters, W. (2012). National Bieronderzoek Nederland. Een kwantitatief onderzoek naar de beleving en waardering van bier. Eds., Nederlandse Brouwers, The Netherlands. Available at http://www.nederlandsebrouwers.nl/sites/nederlandsebrouwers.nl/files/downloads/nationaal_bieronderzoek_2012.pdf, April 2013.

WHO - 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 2013.

Wright, C.A., Bruhn, C.M., Heymann, H., and Bamforth, C.W. (2008a). Beer and Wine Consumers' Perceptions of the Nutritional Value of Alcoholic and Nonalcoholic Beverages. *Journal of Food Science*. **73** : 8-11.

Wright, C.A., Bruhn, C.M., Heymann, H., and Bamforth C.W. (2008b). Beer Consumers' Perceptions of the Health Aspects of Alcoholic Beverages. *Journal of Food Science*. **73** : 12-17.

Yang, S., Alienby, G.M., and Fennell, G. (2002). Modeling Variation in Brand Preference: The Roles of Objective Environment and Motivating Conditions. *Marketing Science*. **21** : 14-31.

Yeomans, M.R. (2006). The role of learning in development of food preferences. **In**: The psychology of food choice, pp 93-112. Shepherd R., and Raats M., Eds., CAB International, UK.

Yoo, Y.J., Saliba, A. J., MacDonald, J.B., Prenzler, P.D., and Ryan D. (2013). A cross-cultural study of wine consumers with respect to health benefits of wine. *Food Quality and Preference.* **28** : 531-538.

Yuksel, D. (2007). The Netherlands. **In**: MNL55 - International Consumer Product Testing Across Cultures and Countries, pp 114-119. Muñoz, A., and King, S., Eds. ASTM International, USA.

Zanten van, R. (2005). Drink Choice: Factors Influencing the Intention to Drink Wine. *International Journal of Wine Marketing*. **17** : 49-61.

List of Tables and Figures

Table 7 – Summary of the studies reporting emotions related with wine or beer consumption published in scientific papers until November 2013.

Figure 1 – Contribution of wine and beer to the total per capita alcohol consumption in Portugal and in the Netherlands (in percentage) (WHO).

Figure 2 - Comparison of weekdays and weekend consumption of wine and beer in Portugal (PT) and in the Netherlands (NL) (in percentage) (PHNS, 2005-2006, DNFCS, 2007-2010).

Figure 3 – Main motivational factors for wine and beer consumption and apparent degree of importance (Yang et al., 2002, Pettigrew and Charters, 2006, Olsen et al., 2007, Charters and Pettigrew, 2008, Donadini et al., 2008, Barrena and Sanchez, 2009, Duarte et al., 2010, Melo et al., 2010, McCluskey and Shreay, 2011, Moran and Saliba, 2012).

Tables

Table 1 – Mean per inhabitant wine and beer consumption (mL/inhabitant/day), in Portugal and in the Netherlands based on the total amount consumed in the country divided by the total number of inhabitants over the period 2003-2011 (BoE, Instituto Nacional de Estatística: INE, NB, OIV).

	Portugal					The Netherlands				
	2003	**2005**	**2007**	**2009**	**2011**	**2003**	**2005**	**2007**	**2009**	**2011**
Beer (mL/inhabitant/day)	164	168	167	162	145	217	213	212	199	196
Wine (mL/inhabitant/day)	139	128	124	121	121	60	58	61	60	62

Table 2 – Methodology for data collection, total number of participants and number of wine and beer drinkers, of Portuguese and Dutch national surveys (PHNS, 2005-2006, DNFCS, 2007-2010).

Methodology	**Participants**	**Wine drinkers**	**Beer drinkers**
Portuguese Health National Survey (2005-2006) Face-to-face interviews to all members of families	29 098 (>15 <69 years old)	9833	5403
Dutch National Food Consumption Survey (2007-2010) Two 24-hour recalls carried out by individual telephone interviews	2523 (>16 < 69 years old)	496	533

Table 3 – Estimate of per capita consumption based on data from national databases (PHNS, 2005-2006, DNFCS, 2007-2010, INE, SN).

	Portugal		The Netherlands	
	wine	beer	wine	beer
Consumption calculated from drinkers inquired in the national surveys (mL/day)	306,4	593,5	186	735,4
Wine or beer drinkers (%) (from the national surveys)	34	19	21	20
Adult population in each country (%)	67		66	
Per capita consumption - national surveys (mL/inhabitant/day)	69,8	75,6	25,8	97,1

Table 4 – Comparison of per capita consumption estimated from different sources (PHNS, 2005-2006, DNFCS, 2007-2010, BoE, INE, NB, OIV).

Per capita consumption	Portugal		The Netherlands	
	wine	beer	wine	beer
1. National surveys (mL/inhabitant/day)	70	76	26	97
2. Commercial figures (mL/inhabitant/day)	128	168	61	212
Ratio between the two sources (1/2) (%)	55%	45%	42%	46%

Table 5 – Percentage of consumers, frequency distribution and mean number of glasses of wine (100 mL) and beer (200 mL) consumed per day by gender in Portugal and in the Netherlands (PHNS, 2005-2006, DNFCS, 2007-2010).

Beverage		WINE				BEER			
Country		**Portugal n=9833**		**The Netherlands n=533**		**Portugal n=5403**		**The Netherlands n=491**	
Gender		**M: 69**	**F: 31**	**M: 51**	**F: 49**	**M: 86**	**F: 14**	**M: 83**	**F: 17**
Number of glasses / day	≤ 1	4	9	19	18	13	5	16	7
	2	14	**11**	**22**	**20**	**32**	**6**	**20**	4
	3	**19**	6	7	7	18	1	16	2
	4	7	2	2	2	4	0,5	12	1
	5	13	2	1	1	11	1	6	1
	≥6	12	1	0	1	8	0,5	13	2
Average /day		3,6	1,8	1,8	1,9	3,1	1,9	3,8	2,7

n = number of drinkers in the sample; M = male; F = female; In bold the highest percentage of each group (modal value).

Table 6 – Comparison of Portuguese and Dutch wine and beer consumers' profile (in percentage) (PHNS, 2005-2006, DNFCS, 2007-2010).

Beverage	WINE				BEER			
Country	Portugal n=9833		The Netherlands n=533		Portugal n=5403		The Netherlands n=491	
Gender	M: 69	F: 31	M: 51	F: 49	M: 86	F: 14	M: 83	F: 17
Educational Level*								
Lower	**56**	23	2	6	**67**	8	11	3
Intermediate	7	4	**44**	41	11	3	**67**	13
University	6	4	5	2	8	3	5	1
Age (years)								
1 (15-34)	10	5	12	10	28	5	**31**	6
2 (35-54)	**34**	15	19	16	**42**	7	30	6
3 (55-69)	25	11	**20**	23	16	2	22	5
Income (€/month)								
Up to 900	**33**	14	1	2	**39**	6	2	2
901 - 1500	21	9	6	10	28	4	12	4
> 1500	15	8	**44**	37	19	4	**69**	11

n = number of drinkers in the sample; M = male; F = female; In bold the highest percentage of each group (modal value); * Lower: ≤ 4 years of education; Intermediate: between lower and university education; University: university degree or frequency ≥ 12 years of school.

Table 7 – Summary of the studies reporting emotions related with wine or beer consumption published in scientific papers until November 2013.

Beverages	Methodology	Emotions		Authors
		Positive	Negative	
Alcoholic beverages including wine and beer	Self-reported questionnaire based on a set of 22 emotions (11 pleasant / 11 unpleasant)	Amusement, Enjoyment, Love and Pride	None	Desmet and Schifferstein, 2008
Wine (in general)	Exploratory, based on three studies self-reported	Amusing, Curious, Desirable, Elegant, Euphoric, Happy, Interesting, Joyful, Keen, Passionate, Peaceable and Pleasant	Aggressive, Bland, Disgusting and Overwhelming	Ferranini et al., 2010
Beer (with different hop and ester aromas)	Measurement of brainwaves related with psychologically evaluated values (positive/negative, arousal and degree of comfort) and sensory evaluation	Relaxed, Refreshed, Peace and Relief	None	Kaneda et al., 2011

Figures

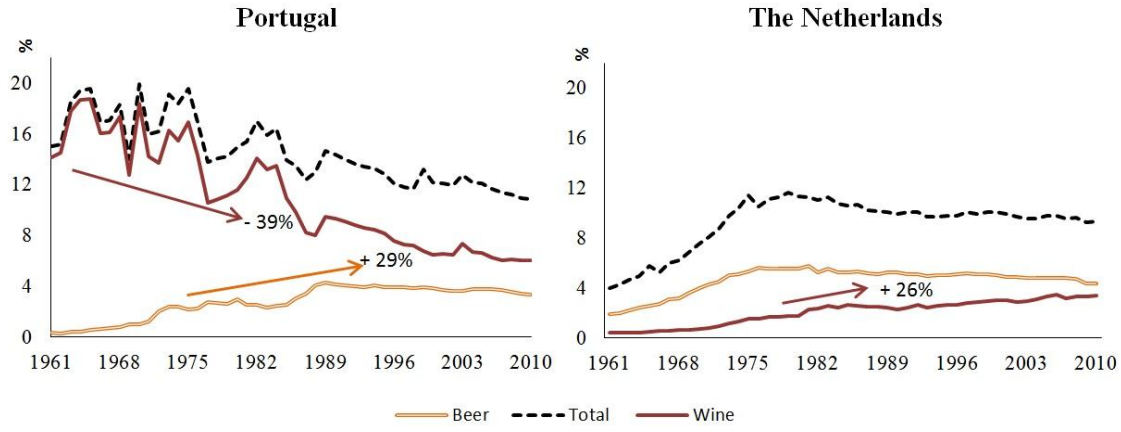

Figure 1 – Contribution of wine and beer to the total per capita alcohol consumption in Portugal and in the Netherlands (in percentage) (WHO).

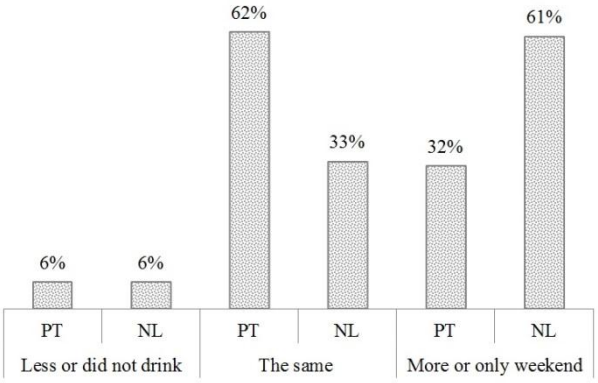

Figure 2 - Comparison of weekdays and weekend consumption of wine and beer in Portugal (PT) and in the Netherlands (NL) (in percentage) (PHNS, 2005-2006, DNFCS, 2007-2010).

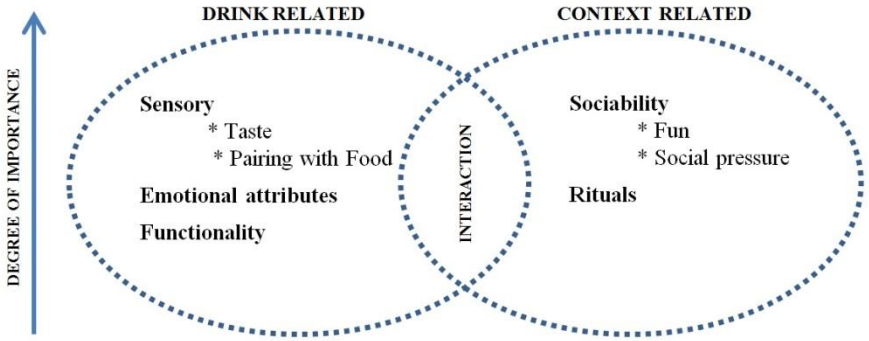

Figure 3 – Main motivational factors for wine and beer consumption and apparent degree of importance (Yang et al., 2002, Pettigrew and Charters, 2006, Olsen et al., 2007, Charters and Pettigrew, 2008, Donadini et al., 2008, Barrena and Sanchez, 2009, Duarte et al., 2010, Melo et al., 2010, McCluskey and Shreay, 2011, Moran and Saliba, 2012).