

Assessment of Moderate Wine Consumption and Alcohol Abuse from the Perspective of German and Hungarian Consumers

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Abstract

◦*Purpose* – The health effects of alcoholic beverages and the differentiation between moderate consumption and alcohol abuse are discussed controversially in medicine, sociology and politics. This raises the question of how consumers assess the relation between health, wine consumption and alcohol abuse.

◦*Design/methodology/approach* – A representative survey in Germany and in Hungary was conducted with 2,000 and 1,500 respondents, respectively. The survey included questions regarding the assessment and definition of alcohol abuse and moderate wine consumption.

◦*Findings*: The results show that in Hungary, moderate wine consumption is defined similarly as in Germany; on the contrary, in the case of alcohol abuse, there are significant differences. The general assessment of alcohol abuse was estimated in the same way, both in Germany and in Hungary.

◦*Practical implications* – Regardless of cultural background, the respondents agreed that excessive wine consumption harms health and certain consumer groups (pregnant women or people under 16 years old) should avoid drinking wine.

Keywords: wine, moderate wine consumption, alcohol abuse, Germany, Hungary

1. INTRODUCTION

The consumption of alcoholic drinks as a “glass” of wine with dinner or a “beer in the evening” with friends, is part of everyday life for many people. Regarding the amount of alcohol per day, there are completely different recommendations from national or international organizations, such as the Chief Medical Officer (2019) in the UK and the Centers for Disease Control and Prevention (2019) in the USA. Despite partly contradictory scientific results, there is an increasing requirement for lower guideline values for alcohol than defined in several countries. However, these guideline values range worldwide from 10 up to 40 g alcohol per day.

The health effects of alcoholic beverages – and in this context, the differentiation between moderate consumption and alcohol abuse – are controversially discussed in medicine, sociology and politics. Some institutions increasingly emphasize the negative aspects of even small amounts of alcohol on health, and generally demand lower guidance levels for alcohol than those established in many countries (Wood, 2018; WHO, 2010). Also, the drinking pattern plays an important role: it does matter whether 30 g of alcohol are consumed in the form of wine combined with a Mediterranean meal, or in the form of spirits without a meal (Boban, 2016; Gea, 2014). Although countries with above-average GDP generally have higher levels of alcohol consumption, this does not imply that most alcohol-related harms and high-risk drinking habits occur in these countries (WHO, 2014).

2. LITERATURE OVERVIEW

2.1. Standard drink

Different alcoholic beverages contain different amounts of alcohol. The question of a standardized standard drink (SD) is becoming more and more important, in order to achieve comparability. By now, each country has its own SD defined (alcohol/ethanol in grams) and set in different recommendations for harmful drinking behaviour. The World Health Organisation (WHO) defines an SD as “a volume of beverage alcohol (e.g. a glass of wine, a can of beer, or a mixed drink containing distilled spirits) that contains approximately the same amounts (in grams) of ethanol regardless of the type of beverage” (WHO, 2014).

In accordance with the WHO (WHO, 2001), low risk includes limited alcohol absorption that makes it unlikely to harm consumers themselves and others. Joshua’s (2017) scientific data showed that the risk increases noticeably if more than two drinks per day are consumed (e.g. Grant, 1994; Joshua, 2017). According to the WHO, the following rules apply:

- Not more than 2 standard drinks per day;
- Not more than 5 times a week;
- No alcoholic drinks:
 - when driving or driving machinery;
 - while pregnancy or lactating;
 - together with certain medications;
 - in case of problems with alcohol.

The fact that men and women metabolize alcohol at different rates is reflected in many guidelines. Most, but not all, recommendations consider women to consume 50-75% of the amount suitable for men.

Between 2013 and 2016, there was a trend towards changes in the guidelines in different countries:

- Lower recommendations for women and men (g alcohol/day)
- Different thresholds for different age groups (youth, young adults, adults over 64)
- Daily rather than weekly limits (or both)
- Abstinence recommendations for 2 days a week
- Definitions for low, moderate and risky alcohol consumption

In 2014, Italy introduced a new policy that marked a drastic change compared to the former policy from 2003. Ethanol was first described as a toxic, carcinogenic and psychoactive substance for which there are no recommendations. Low-risk consumption was defined as only one SD for women and maximal two SD for men. In addition, there was no moderate, risk-free alcohol consumption, but only consumption with low risk. The drinking guidelines shifted from potentially positive aspects to potentially harmful ones (SINU, 2014). This new approach is expected to be reflected in many policies.

Germany is associated as a typical Western European state with a wealthy status, while Hungary bridges Europe and the Balkans. These two countries, therefore, represent different cultural and social backgrounds within the European Union. Despite their differences, these two countries have a comparable per capita alcohol consumption of 11.8 l (Germany) and 13.3 l of pure alcohol, and a wine consumption level of 24 l per capita is almost the same as in Hungary. In Germany, depending on the institution, the daily dose of moderate alcohol consumption is defined as follows: woman 12-14 g, and for men twice as much. In Hungary, it is 17 g (woman) and 34 g (men) alcohol.

2.2. Health and social aspect of wine consumption

Wine and health is a frequently discussed, ambivalent topic. For centuries, wine has been used as a natural remedy and medicine. Scientifically, it has been proven several times that the effects follow a so-called J-curve: low to moderate wine consumption might have health benefits but from a certain dose, it is undoubtedly harmful to health (Gaetano, 2017).

According to Guilford and Pezzuto (2011), as well as Flamini et al. (2013), polyphenols in wine are supposed to have a positive health impact thanks to their antioxidant effect and their direct action on cellular lipid homeostasis (Vecchio et al., 2017). Low to moderate consumption has protective effects against the following diseases:

- Cardiovascular diseases (Brien et al., 2011; McCambridge and Hartwell 2014; O'Keefe et al., 2014; Flesch et al., 2016; Bell et al., 2017; Colpani et al., 2018; Wood et al., 2018);
- Neurodegenerative diseases (Letenneur, 2004; Pinder and Sandler, 2004);
- Type 2 diabetes mellitus (Knott et al., 2015; Cai et al., 2016; Hirst et al., 2016; Holst, 2017; Zhang, 2017);

- Different cancer types (Bianchini and Vainio, 2003; Kamholz, 2006; Chao, 2007; Kubo et al., 2009);
- Age-related dementia (Neafsey and Collins, 2011; Weyerer et al., 2011; Xu et al., 2017).

In spite of several studies with positive impacts, Tomera (1999) warned in his study against the negative effects of excessive alcohol consumption, such as liver cirrhosis, physical risk of drunk driving, alcoholism, violence and socialization issues. The Wine Information Council (2016) quoted several studies that have analysed the negative effects of alcohol on different cancer types and embryos' malformation during pregnancy.

The abuse of alcoholic beverages harms health and has negative social and economic consequences. The number of alcohol-dependent persons in Germany varies. According to Terpe (2014), in 2012 the number of alcoholics in Germany increased to 1.8 million.

Every year, about 15,000 people in Germany die due to high alcohol consumption. In addition, a survey conducted by the Institute for Therapy Research (Munich) revealed that too many people under the age of 25 still consume alcoholic beverages in a way that increases the risk of a manifested addictive disorder in adulthood (Tauner, 2014).

A new study on tobacco and alcohol consumption by young people in Germany (15,023 participants) showed that more than half of the 17-year-old population (51%) have ever drunk alcohol. Around 12% of them practise risky alcohol consumption, while 7% reported regular binge drinking. However, the share of the two latter groups (high-risk alcohol consumption and regular binge drinking) decreased significantly in the survey period 2014-2017, compared to 2009-2012. This points out the success of preventive programs in Germany (RKI, 2018).

The fact that socio-economic status has an effect on alcohol consumption across Europe is no longer in doubt (Katikireddi, 2017). At the same time, the willingness to consume wine is fundamentally not dependent on socio-demographic factors. It can be said that wine is widely accepted by the population as a drink. However, when comparing the consumption intensity of wine drinkers, it becomes clear that income, education and age have a significant impact on the amount consumed (Szolnoki, Hoffmann, 2014).

2.3. Research objectives

As mentioned in the first chapter, the results of different studies are controversially discussed worldwide. This study, however, attempts to analyse the problem of alcohol from consumers' point of view, and to find out how German and Hungarian wine consumers assess the relationship between health, wine consumption and alcohol abuse. These two countries represent two different worlds. Due to the completely different development, both on the political and on the economic level, of these two countries, there is a certain scientific interest in investigating wine consumers with various cultural backgrounds. We suppose that differences in culture, economy and politics also have their influence on wine consumption behaviour and on evaluating moderate wine drinking and alcohol abuse.

3. MATERIAL AND METHODS

Representative consumer surveys were conducted in May 2018 in Germany and Hungary. The random sampling of 2,000 and 1,500 participants, respectively is representative of the basic socio-demographic structure of the German population from age 16 and of the Hungarian

population from age 18 (the legal drinking ages in each nation). Therefore, the provided information was generalized for the total population of each country. In order to increase the validity and reliability of the results, the survey was carried out in the form of a personal interview (face-to-face survey) in the households of the interviewees, by using quota sampling [37]. The interviews were conducted by a professional market research company, GfK (Nürnberg, Budapest). For quotas, we used official statistics from the Federal Office of Statistics on the national level. The questionnaire was based on the study Szolnoki and Hoffmann (2014) and included not only specific questions on moderate wine consumption and alcohol abuse, but also socio-demographic and behavioural issues. The data was evaluated with the software SPSS 25.0 (IBM). Statistical methods such as frequency, mean, cross table and ANOVA were used for the evaluation.

4. RESULTS AND DISCUSSION

4.1. Consumption frequency of alcoholic beverages

First, the consumption frequency of three alcoholic beverage types (still wine, sparkling wine and beer) was determined, in order to provide preliminary insight into differences between German and Hungarian consumer behaviour. Table 1 shows that there were significant consumption differences in all three beverage types. These consumption patterns reflect that Hungarian frequent wine drinkers (at least once per week) number significantly higher than in Germany (22% vs 12%). According to this result, the share of occasional drinkers and non-wine drinkers in Germany is higher than in Hungary.

Germany's annual per-capita sparkling wine consumption is number one in the world, with a value of 3.4 l [3]. In Hungary, sparkling wine is also popular; however, the drinking frequency is lower than in Germany.

Beer consumption in Germany exceeds that of Hungary [3, 42]; comparing frequent beer drinkers, 45% of the German population consumes beer at least once a week, while in Hungary, this share is only 24%.

Table 1. Consumption frequency of selected alcoholic beverages in Germany and Hungary

	Still wine		Sparkling wine		Beer	
	Germany	Hungary	Germany	Hungary	Germany	Hungary
	n = 2,000	n = 1,500	n = 2,000	n = 1,500	n = 2,000	n = 1,500
Several times per week	6%	11%	1%	0%	28%	13%
Once a week	8%	11%	3%	1%	17%	11%
Two or three times per month	13%	14%	9%	3%	11%	15%
Once a month	10%	12%	12%	6%	6%	8%
Less than once per month	24%	19%	49%	54%	13%	19%
Never	39%	34%	27%	37%	25%	35%
Chi-square	68.421*		144.739*		177.311*	
Cramer-V	0.198		0.284		0.302	

* significant differences between Germany and Hungary, $\chi^2 = p < 0.05$

4.2. Moderate and excessive wine consumption

In order to find out how German and Hungarian consumers define moderate or excessive wine consumption, two self-assessment questions were asked: “Up to how many glasses of wine would you consider to be a ‘moderate’ amount to drink?”, and “At what point (amount of glasses) do you think wine consumption becomes excessive?” The question also defined the size of the glass, as well as the alcohol level of wine – a glass of 200 ml of a wine at 13% vol. Alc.

As Table 2 shows, the results of moderate consumption differ significantly between countries and between wine drinkers and non-wine drinkers. In general, Hungarians set a higher limit on both moderate and excessive alcohol consumption than Germans. The moderate wine consumption in Germany is defined as 0.3 l wine/day. This corresponds to 32.2 g of pure alcohol. In Hungary, however, it is 0.36 l, or 37.4 g of pure alcohol. The German Department for Addiction Issues sets a threshold for low-risk consumption at 12 g of pure alcohol for women and 24 g for men, while other authorities advise no more alcohol than 20 g for women and 30 g for men. The values of the investigation are above the recommended limit. In Hungary, the recommended amount is 17 g (female) and 34 g (male). These values also exceed the official limits.

Table 2. Evaluation of moderate wine consumption per day (13% vol. Alc. wine) in litres and grams of pure alcohol

	Wine drinkers	Non-wine drinkers	All participants
Germany	0.34 l (35.4 g)	0.27 l (28.1 g)	0.31 l (32.4 g)
Hungary	0.38 l (39.5 g)	0.32 l (33.3 g)	0.36 l (37.4 g)
F-Value	23.179*	11.003*	48.992*
Sign	0.000	0.001	0.000

* Significant differences at $p < 0.05$, ANOVA-test

When comparing male and female respondents, there was a significant difference, regardless of the country. Men value modest wine consumption significantly more than women do. However, by comparing the recommended amount of consumption, it becomes clear that the deviation of women from the recommended amount is significantly greater than that of men. The different age groups rated moderate wine consumption similarly – but Hungarian consumers at a significantly higher level.

From the point of view of the total population, excessive wine consumption is more than twice the moderate amount of consumption (Table 3).

Table 3. Evaluation of excessive wine consumption per day (13 vol. Alc. wine) in litres and grams of pure alcohol

	Wine drinkers	Non-wine drinkers	All participants
Germany	0.80 l (83.2 g)	0.70 l (72.7 g)	0.76 l (79.0 g)
Hungary	1.10 l (114.4 g)	0.85 l (88.4 g)	1.0 l (104.0 g)
F-Value	280.256*	80.024*	240.959*
Sign	0.000	0.000	0.000

* Significant differences at $p < 0.05$, ANOVA-test

Wine drinkers in Germany estimated the value of excessive wine consumption at 0.8 l, while non-wine drinkers reported 0.1 l less. In Hungary, the values are significantly higher. Wine drinkers gave an average of 1.1 l and non-wine drinkers 0.85 l as excessive (Table 3).

Age did not seem to significantly affect the assessment of excessive wine consumption.

In the whole sample, as well as in the group of wine drinkers, the values were clearly rated higher than the official values.

4.3. Consumers' image of wine and alcohol consumption

To analyse consumers' attitudes towards "alcohol and wine consumption" and its link to health, six statements were evaluated on a scale of -3 (totally disagree) to +3 (totally agree). Five of the statements were wine- and one alcohol-related. When comparing the German and Hungarian results, it becomes clear that consumers from both countries rated the statements more or less in a similar way (see Table 4). Both German and Hungarian consumers agree that certain persons (pregnant women, adolescents below 16 years in Germany and 18 years in Hungary) should not drink wine, and that excessive wine consumption is detrimental to health – these statements were, in both countries, rated significantly higher compared to other statements.

The questions on "moderate wine consumption" combined with "lifestyle", "wine consumption" and "alcohol abuse" were similarly assessed by both nations, though Hungarian consumers rated all three statements slightly higher than the Germans.

The statement "any alcohol consumption is dangerous" was rated higher in Germany. This is due to the fact that the proportion of non-wine drinkers in Germany is much higher than in Hungary.

Table 4. Comparing statements regarding alcohol consumption and health by country

	Germany	Hungary	F-value	Sign
Some people (e.g. pregnant women, underage people, etc.) should avoid drinking	2.5	2.2	15.498*	0.020
Excessive drinking of wine is bad for your health	2.3	2.1	7.194	0.064
Moderate consumption of wine can be compatible with a healthy lifestyle	1.5	1.7	7.954	0.061
Moderate wine consumption is not alcohol abuse	1.4	1.5	6.532	0.075
I believe that wine is best appreciated in small amounts	1.3	1.7	17.075*	0.010
Drinking alcoholic beverages is dangerous no matter the quantity or the type of alcoholic beverage	0.7	0.3	20.011	0.000

* Significant differences at $p < 0.05$, ANOVA-test

Comparing wine drinkers with non-wine drinkers, it became clear that the assessment of statements very much depended on personal experience and the consumption of wine. Non-wine drinkers from both countries were much less in agreement with statements such as “moderate wine consumption can be combined with a healthy lifestyle”, “I do not consider moderate wine consumption as an alcohol abuse” and “wine consumption is only possible in modest amounts” than wine drinkers. Surprisingly, however, both groups rated the first two statements quite identically, with no significant differences. This signals a general sensitization of the population, regardless of the intensity of wine consumption, to critical issues such as vulnerable target groups and alcohol consumption, as well as excessive wine consumption and health.

Gender also caused differences in the assessment of the statements. Accordingly, women rated almost all statements significantly higher than men. This testifies to a pronounced sensitivity of female consumers, as opposed to men, in terms of alcohol and health.

Age difference did not seem to significantly influence opinions on wine consumption and health. In Germany, only the youngest generation (16-29 years old), with their much softer opinion, stood out against alcohol and wine consumption, while in Hungary all age groups judged the statements similarly.

Frequent wine drinkers who consume wine at least once a week were more indulgent to the statements listed here than occasional or rare drinkers. This phenomenon occurred both in Germany and in Hungary.

5. CONCLUSION AND MANAGERIAL IMPLICATIONS

Although wine generally has the image of being healthier than other alcoholic beverages (Higgins and Llanos, 2015; Chang et al., 2016), consumers have a clear idea of where moderate wine consumption ceases and where excessive wine consumption begins. However, the values estimated by the consumers are above the officially recommended limits. Consumers in Germany defined moderate consumption as 32.4 g and in Hungary as 37.4 g of pure alcohol/day. When asked “Where does excessive wine consumption per day begin”, consumers responded even more cautiously, giving 79 g in Germany and 104 g of pure alcohol/day in Hungary.

The majority of Germans and Hungarians surveyed agree that vulnerable audiences, such as pregnant women or minors, should avoid wine consumption and too much wine is harmful to their health. Other statements about moderate wine consumption were judged significantly differently depending on gender, age and frequency of use, but there were no major differences between the German and Hungarian results.

The respondents rated the danger of any alcohol consumption more moderately – this statement reached an average of 0.7 in Germany and 0.3 in Hungary (measured on a scale of -3 to +3).

The results presented here help to understand how consumers perceive moderate and excessive wine consumption in everyday life, and how they judge wine as an alcoholic beverage. With these results, the target group of frequent drinkers can be accurately described. These findings can contribute to a long-term goal-oriented wine in moderation strategy for consumers, and support policy advice on “moderate and excessive wine consumption”.

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