Research Article

Understanding the Association between Alcohol Stigma and Alcohol Consumption within Europe: A Cross-Sectional Exploratory Study

Johanna Leona Kummetat[a]   Anya Leonhard[a]   Jakob Manthey[a, b, c]
Sven Speerforck[a]   Georg Schomerus[a]

[a]Department of Psychiatry, Medical Faculty, University of Leipzig, Leipzig, Germany; [b]Institute of Clinical Psychology and Psychotherapy, Technical University, Dresden, Germany; [c]Department of Psychiatry and Psychotherapy, Center for Interdisciplinary Addiction Research, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Abstract

Introduction: Stigma towards alcohol-related conditions is more pronounced than stigma against any other mental illness and has remained high throughout past decades. Although alcohol consumption is a known and persistent contributor to the burden of disease and interpersonal threat and may thus shape public attitudes towards consumption, no study to date has provided an overview of the prevalence of alcohol stigma and its association with (a) alcohol consumption and (b) harm attributable to alcohol across Europe. As a social reaction to thresholds of accepted use of alcohol, stigma could impact consumption, resulting in a reduced quantity or at least less harmful drinking patterns. This contribution provides an initial overview by addressing the following research questions. (i) What are the country-level prevalence rates of alcohol stigma compared across European countries? (ii) Is alcohol stigma associated with (a) alcohol consumption and (b) alcohol-attributable harm? (iii) Is there an association between alcohol stigma and alcohol consumption by type of beverage? ***Methods:*** We combined data on country-level desire for social distance towards "heavy drinkers" (European Values Survey, operationalization of "alcohol stigma") with indicators of alcohol consumption, including adult per capita consumption (APC), heavy episodic drinking, consumption by type of beverage (wine, beer, spirits), and harm attributable to alcohol, namely age-standardized disability-adjusted life years lost to alcohol consumption (AADALYs) for 28 countries. Linear regression models were applied. ***Results:*** (i) Social distance varied noticeably across countries (M = 62.9%, SD = 16.3%) in a range of 28.3% and 87.3%. (ii) APC was significantly positive related to social distance (β = 0.55, p = 0.004). (iii) Wine consumption was significantly negative related to social distance; the opposite was true for spirits consumption. No association was found for beer consumption. The best model fit was achieved with APC (β = 0.48, p = 0.002) and wine per capita consumption (β = −0.55, p < 0.001) explaining 57.0% (adjusted R^2) of the variance in social distance. ***Conclusion:*** Our study shows a strong relationship between country-level alcohol stigma and alcohol consumption. If stigma was to deter people from harmful alcohol consumption, it would be expected that higher levels of alcohol stigma are associated with lower levels of overall alcohol consumption or consumption of spirits in particular. Instead, stigma seems to be a reaction to harmful drinking patterns without changing these patterns for the better.

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Published by S. Karger AG, Basel

Correspondence to:
Johanna Leona Kummetat, johanna.kummetat @ medizin.uni-leipzig.de

Introduction

Stigma towards people diagnosed with alcohol use disorder (AUD) is disturbingly prevalent and has remained stable over the past decades [1]. It has been conceptualized as a way to "keep people in" by defining perceived boundaries of socially acceptable behaviour and punishing those who cross these boundaries [2]. However, alcohol stigma has not been monitored in the context of corresponding consumption on population level.

The highest proportion of morbidity and mortality attributable to alcohol consumption worldwide remains in Europe, with an estimated one in four deaths among young adults aged 20–24 years caused by alcohol [3]. Despite moderate consumption being the general practice across Europe, patterns differ [4, 5]. Drinking patterns and associated harm are linked to diverse environmental factors such as physical availability of retailed alcohol [6], exposure to advertisements [7], and socioeconomic inequalities [8]. In the long run, screening for AUD, brief interventions, and referral to treatment successfully reduce country-level consumption, indicated by a reduction in alcohol per capita consumption (APC) [9]. However, differences in beverage choices and drinking occasions contribute to different consumption patterns and associated harm beyond the quantity of alcohol consumed; in a model-based approach, Kilian et al. [4] characterized varying drinking patterns in European countries by the choice of specific types of alcoholic beverages. While individual and collective preferences for wine consumption have been associated with less harmful drinking, higher levels of spirit consumption are related to more harmful consumption patterns and intoxication [4, 5].

Alcohol stigma itself can facilitate harm on many levels, including jeopardizing one's social standing and employability [10] as well as drinking refusal self-efficacy expectation when stigma is internalized [11], and contributes to health care inequalities as highlighted in the report of the World Health Organization's Special Initiative for Mental Health [12]. With the goal of countering alcohol stigma at its roots, a number of studies have explored determinants of stigma: models of belief regarding the development of alcohol-related disorders have found to account for variance in stigma [13]. Such etiological models were found to be specific to geographic regions, indicating that beliefs about mental illness are embedded in sociocultural contexts [13]. To this end, research interests have been shifting toward the context-specificity of stigma, evaluating its potential precursors including political attitudes [14–16], cultural values [17, 18], cultural context [19], and professional context [20]. Although alcohol consumption is a known and persistent contributor to burden of disease [21, 22], interpersonal threat when fuelling harm to others [23–27], and is thus likely to shape public attitudes towards consumption, not much attention has been given to its potential influence on alcohol stigma. As a social reaction to people consuming alcohol beyond thresholds perceived as acceptable, alcohol stigma could also impact consumption, resulting in reduced consumption quantity or at least less harmful drinking patterns. Hence, knowing about transnational stigma prevalence and its links to alcohol consumption in the general population could aid initiatives that target geographic areas especially vulnerable to alcohol stigma and stigmatized consumption patterns. This contribution provides an initial overview based on the following research questions:

1. What are country-level prevalence rates of alcohol stigma compared across European countries?
2. Is alcohol stigma associated with (a) alcohol consumption and (b) alcohol-attributable harm?
3. Is there an association between alcohol stigma and alcohol consumption by type of beverage?

Materials and Methods

Data Sources

We combined data from different sources: national alcohol consumption provided by World Health Organization (WHO) [28], the stigma item from large-scale epidemiologic data acquired from European Values Survey (EVS), and country-specific alcohol-attributable burden of disease rates from openly available sources [22] (see Table 1 for a detailed description).

Alcohol Stigma

The use of study-reported desire for social distance in everyday situations is an established method to depict discriminatory attitudes against labelled groups [29] and was evaluated as outcome variable in our analysis using the operational term *social distance*.

Alcohol Consumption Measures

APC is the sum of recorded and unrecorded pure alcohol consumed per capita in litres (L) in a given year, corrected for inbound and outbound tourists in each country. Divided by the adult population size (≥15 years), national per capita consumption is calculated. Heavy episodic drinking (HED) is an indicator for consumption patterns associated with harm and is a potential antecedent of social distance. HED is defined as the proportion of adults (15+ years) who have had at least 60 g of pure alcohol, corresponding approximately to six standard alcoholic drinks, on at least one occasion in the past 30 days [30].

Table 1. Data sources and variables

Data sources	Questionnaire/measure	Variables	Operational term
EVS [32]	Large-scale, cross-national, repeated cross-sectional survey research program on basic human values and attitudes. EVS is carried out every 9 years as national probability sampling of the household population aged 18 years and older, mainly conducted via computer-assisted telephone or computer-assisted personal interviews		
	Modified Link's social distance scale [29] "On this list are various groups of people. Could you identify any that you would not like to have as neighbours?" participants were asked to identify groups they would not like to have as neighbours from a list including "heavy drinkers," responding with no (= 0) and yes (= 1) for each group. Country-level percentages (%) were used for the analysis	**Alcohol stigma**	**Social distance**
WHO [30]	Alcohol consumption data is periodically collected and calculated within the GISAH by WHO for member states		
	Alcohol, recorded per capita (15+) consumption (in litres of pure alcohol)	**Alcohol consumption (quantity)**	**Adult** per capita consumption
	Proportion of adults who have consumed at least 60 g of pure alcohol on at least one occasion in the past 30 days (who.int)	**Alcohol consumption (pattern)**	**HED**
	Adult per capita consumption in litres consumed in – Wine Spirits Beer	**Type of beverage**	**Wine** per capita **Spirits** per capita **Beer** per capita
Shield et al. [22], 2020	DALYs is a "time-based measure that combines years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health, or years of healthy life lost due to disability" [34] – data obtained by WHO Global health estimates		
	The country-specific alcohol-attributable burden of disease is measured by age-standardized disability-adjusted life years per 100,000 people in 2016. One AADALY represents the loss of the equivalent of one life year of full health by causes attributable to alcohol	**AADALYs**	**Harm attributable to alcohol consumption**

GISAH, Global Information System for Alcohol and Health.

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Table 2. Descriptive statistics and correlation coefficients for alcohol stigma, consumption and harm

	M	SD	Stigma	APC	HED	AADALYs	Wine, L	Spirits, L	Beer, L
Stigma	62.87	16.33	1	–	–	–	–	–	–
APC, L	11.01	1.82	0.56**	1	–	–	–	–	–
HED	33.14	8.20	0.49**	0.46**	1	–	–	–	–
AADALYs	2,202.4	1,749.8	0.63***	0.42*	0.41*	1	–	–	–
Wine, L	3.25	1.74	−0.73***	−0.44*	−0.52**	−0.66***	1	–	–
Spirits, L	2.91	1.58	0.67***	0.32	0.25	0.69***	−0.74***	1	–
Beer, L	4.52	1.64	0.15	0.23	−0.34*	−0.16	−0.38	−0.28	1

M, mean; SD, standard deviation; APC, adult per capita consumption of pure litres of alcohol per year; HED, heavy episodic drinking prevalent in the past 30 days; AADALYs, age-adjusted alcohol-attributable disability-adjusted lost years, Pearson correlation coefficients with significance level indicated. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Type of Beverage

As consumption patterns and behavioural outcomes have been associated with consumption of specific beverages [4, 5, 31], we included type of beverage as measured in APC consumed in spirits, wine, or beer in exploratory analysis.

Harm Attributable to Alcohol Consumption
AADALYs

We included country-specific alcohol-attributable burden of disease, measured by age-standardized disability-adjusted life years per 100,000 people (AADALYs) [22] to account for the link of alcohol stigma and harm attributable to alcohol, independent of quantity or pattern of consumption.

Sample

$N = 56,491$ individuals participated in EVS 5th wave [32]. $N = 28$ countries with available data on all relevant variables were included: Albania (ALB); Austria (AUT); Azerbaijan (AZE); Belarus (BLR); Bosnia and Herzegovina (BIH); Bulgaria (BGR); Croatia (HRV); Czech Republic (CZE); Denmark (DNK); Estonia (EST); Finland (FIN); France (FRA); Georgia (GEO); Germany (DEU); the UK (GBR); Iceland (ISL); Italy (ITA); Lithuania (LTH); Norway (NOR); Poland (POL); Romania (ROU); Russian Federation (RUS); Serbia (SRB); Slovakia (SVK); Slovenia (SVN); Sweden (SWE); Spain (ESP); and Switzerland (CHE). Due to the effects of clustering and selection probabilities, response rates among the individual countries for EVS ranged from 21.2% in Sweden to 74.7% in Romania [33]. Details of the methodological procedures are reported elsewhere and can be downloaded from the WHO [S1] and EVS websites [33].

Statistical Analysis

All statistical analyses were performed using Stata SE version 16 [34]. On average, 3% of missing values per country (minimum = 0.4%; maximum = 7%) were reported in EVS individual level data and excluded from our analysis. Using scatterplots of social distance and APC, outliers were observed in Albania, Azerbaijan, and Bosnia and Herzegovina. We know that lifetime abstinence is strongly associated with the proportion of Muslims within a population [35]. The exclusion of $n = 3$ countries with Muslim majorities (ALB, AZE, BIH) is based on the observation that these countries have significantly lower APC and thus become statistical outliers that strongly influence the regression model. It is also based on the assumption that in countries with strong religious norms, alcohol stigma follows different processes, so that alcohol stigma in these countries should be considered separately. The final sample comprised a total of $n = 46,910$ respondents with a country average of M = 1,675 (SD = 552) respondents each. We conducted a stepwise approach to address our research question. First, pairwise Pearson's product-moment correlations were examined for all variables (shown in Table 2). Scatterplots (shown in Fig. 1) were used to visualize the association of population-level social distance with (a) APC and (b–d) beverage-specific consumption. The normal distribution of all variables was confirmed by the Shapiro-Wilk test. Second, a series of linear regressions were performed with social distance as the outcome variable, first entering APC, then HED, beverage-specific consumption, and AADALYs afterwards by mixed variable selection (shown in Table 3). Due to the collinearity of the beverage-specific predictors, only wine consumption per capita was included in the model.

Results

- Mean prevalence of social distance across all countries included in the study was 62.0% (SD = 16.3%) respondents indicating the desire not to have heavy drinkers as neighbours. Social distance was lowest in Norway (28.3%) and highest in Estonia (87.3%).
- Pairwise correlations of social distance and alcohol consumption and attributable harm are shown in Table 2. Social distance was significantly positively associated with APC, HED, and AADALYs. Consumption indicators APC and HED showed inter-correlations and were both moderately associated with AADALYs, thus representing that consumption pattern is linked to harm.
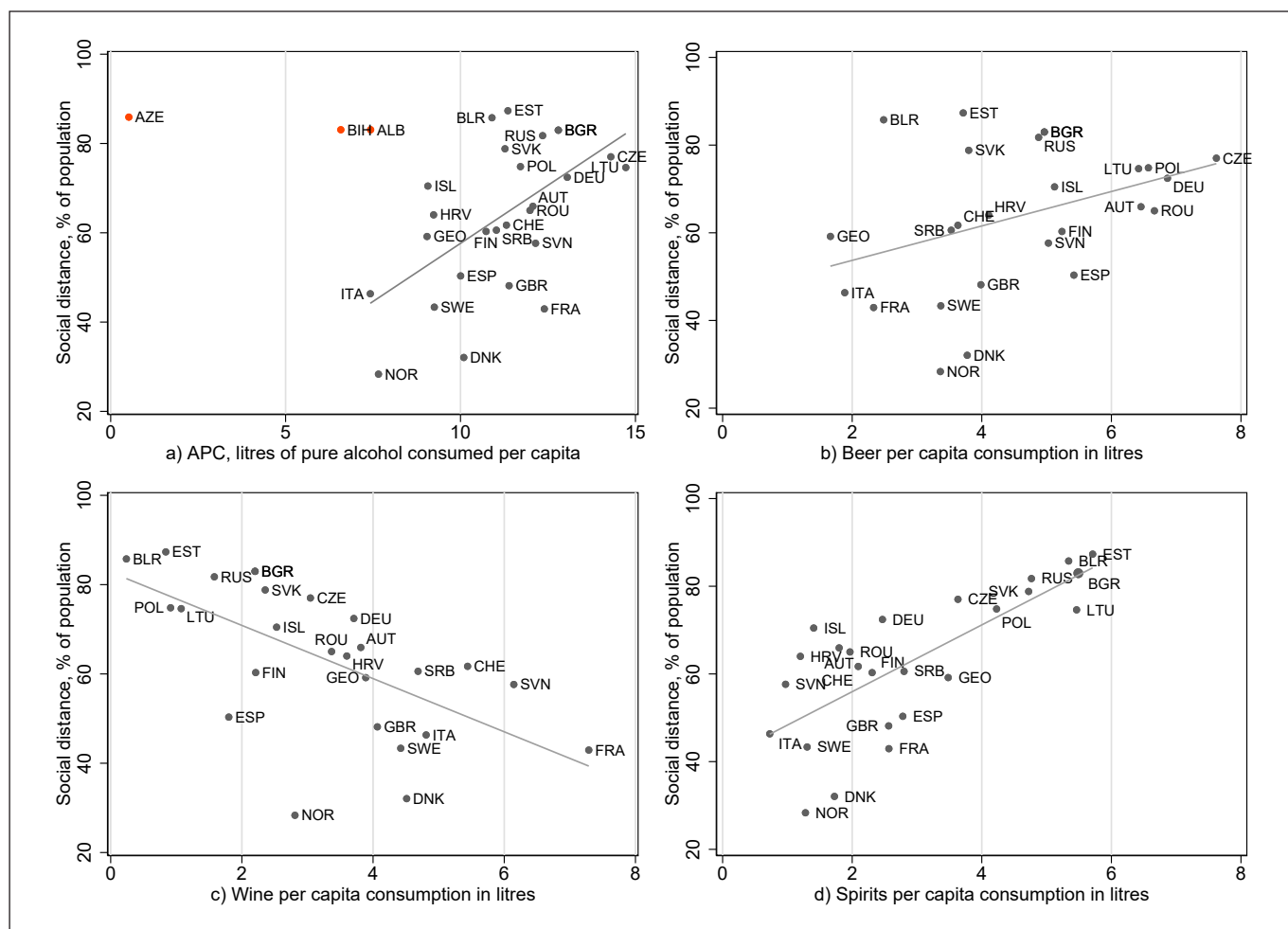
Fig. 1. Scatterplots of the association between alcohol stigma (social distance in % per year) and (**a**) APC, adult per capita consumption of pure litres of alcohol per year and per capita consumption by pure litres of alcohol consumed as (**b**) beer, (**c**) wine, and (**d**) spirits per year. Each dot indicates country-level values. Regression lines are linear least squares regression fits to data points, excluding $n = 3$ countries with Muslim majority (Albania, Azerbaijan, Bosnia, and Herzegovina) from analysis.

- Beverage-specific consumption in Europe was highest for beer (minimum = 1.76 L in Georgia, maximum = 7.62 L in Czechia) followed by wine (minimum = 0.24 L in Belarus, maximum = 7.29 L in France) and spirits (minimum = 0.73 L in Italy, maximum = 5.71 L in Estonia). Country-level consumption of wine was strongly and inversely correlated with social distance. In contrast, country-level consumption of spirits was positively correlated with social distance. No association was found for beer. The specific relationships between social distance and APC as well as beverage-specific consumption are shown in Figure 1.

Table 3 presents the results of the linear regression analysis. The significant positive association between social distance and APC ($\beta = 0.55$, $p < 0.001$) remained after entering HED, wine consumption and AADALYs in the equation ($\beta = 0.40$, $p = 0.03$). The best model fit was achieved including APC and wine per capita consumption ($\beta = 0.48$, $p < 0.001$), explaining 57.0% (adjusted R^2) of the variance in social distance. Wine consumption was most indicative for lower social distance. Additional regression analysis with AADALYs were conducted to test for effects of harm independently from specific consumption quantity or pattern. These are provided in online supplementary Table 1 (for all online suppl. material, see

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Table 3. Linear regression models of variables associated with alcohol stigma as outcome

Alcohol stigma	Model 1 (n = 25)		Model 2 (n = 25)		Model 3 (n = 25)	
	p value	β	p value	β	p value	β
APC, L	0.004	0.55	0.03	0.40	0.002	0.48
HED			0.77	0.05		
AADALYs			0.34	0.19		
Wine, L	0.28		0.03	−0.43	<0.001	−0.55
Adjusted R				0.55		0.57

APC, Adult per capita consumption of pure litres of alcohol per year; HED, heavy episodic drinking prevalent in the past 30 days; AADALYs, age-adjusted alcohol-attributable disability-adjusted lost years; Wine, adult per capita consumption in litres of wine; β, standardized betas.

www.karger.com/doi/10.1159/000526200), showing that while medical harm attributable to alcohol consumption is related to stigma, quantity and type of beverage consumed better explain the variance of stigma.

Discussion

General Discussion

The contribution of our findings to the literature consists of an expanded overview of alcohol stigma by providing a transnational perspective using national representative data from 25 countries. The results underline previous findings of persistent and pronounced alcohol stigma [1, 36] and additionally highlight relevant variations of stigma levels across Europe as a first study. Our study shows a strong relationship between country-level stigma and alcohol consumption. Although we cannot determine a causal relationship between high stigma and harmful alcohol consumption, our study makes clear that higher stigma is not associated with more healthy consumption patterns. Thus, our study provides an argument that although alcohol-related stigma is conceptualized as enforcing a social norm [36, 37], stigma does not seem to be a successful strategy of doing so. If stigma was to really deter people from harmful alcohol consumption, higher levels of stigma would correlate with lower levels of overall alcohol consumption, or consumption of spirits in particular. Instead, stigma seems to be a reaction to harmful drinking patterns without changing these patterns for the better.

Stigma could be the reaction of people who abstain from alcohol towards those who exhibit harmful drinking patterns. However, we know from social identity theory that people tend to identify with the denominated in-group. Regarding alcohol consumption, the in-group would be people who consume alcohol in healthy ways. Members of the in-group then discriminate against a defined outgroup, people with harmful alcohol consumption, as a function of assurance to preserve one's group membership when one's own social identity is at stake [38]. Higher country-levels of alcohol consumption probably make this construction of an outgroup of people with drinking problems even more pressing, to be able to contrast one's own potentially harmful drinking with the even more harmful drinking of the outgroup. Morris and co-workers [39], for example, argue that people who consume alcohol, tend to construct their drinking identity as positive and problem-free, actively setting themselves apart from the stigmatized "alcoholic other." This motivation to discriminate between "us" and "them" arguably results in higher levels of desire for social distance, the behavioural manifestation of stigma [40], particularly if contextual alcohol consumption is high. Finding higher levels of alcohol stigma in geographical regions where spirits consumption is higher and lower stigma levels in regions that preferred wine, points towards the concept of stigma as a response to the perceived threat caused by harmful drinking patterns and related behavioural outcomes [41]. Wine-preferring drinking cultures may indicate "healthier" drinking, characterized by Mediterranean drinking with meals that is socially accepted, despite potential medical relevance [4]. Some people also get drunk when consuming wine; however, the proportion of people using wine to get drunk is lower than amongst spirit drinkers [31]. In Mediterranean regions (e.g., France, Italy), the distinction from unacceptable consumption may be less pronounced since consumption is incorporated in a social environment to a greater extent. Accordingly, perceivable alcohol-attributable harm is

lower in wine-preferring countries, which also implies that people are less likely to associate alcohol consumption with unacceptable outcomes [4]. In contrast, high levels of spirits consumed in North-Eastern Europe (Estonia, Bulgaria, Lithuania, Belarus, Russia) possibly reflect the threat by drinking for intoxication; thus, the dissociation of "us and them" becomes more relevant [2, 38]. Consumption-associated behaviour and problems are proposed to "arise out of the interaction between the drinker's behaviour and the various responses of others" [42] (p. 360). According to our results, stigma as a collective response to alcohol-attributable harm does not seem to effectively "keep people in" and reduce detrimental consumption, despite promoting fear of consumption-related stigma as proposed in a recent publication [43]. Instead, stigma arguably exacerbates the consequences of alcohol consumption by dissociation from a defined "alcoholic other," fuelling marginalization [39, 44].

Strengths and Limitations

The overview on alcohol stigma by geographic prevalence allows us to explore links between alcohol stigma and alcohol consumption. By combining data sources, we had the opportunity to explore the prevalence and persistency of alcohol stigma and to adopt a new perspective that considers social responses contingent upon prevalent patterns of alcohol consumption. The inclusion of not only APC but per capita consumption of alcohol by type of beverage provides a starting point for socially located precursors of "othering" people that consume alcohol in deviant ways. However, several limitations of this study should be considered. First, the main limitation of correlational study designs is that the results do not allow for causal interpretation. Hence, regarding our findings, it could be interpreted that stigma could be both the cause of more harmful consumption patterns and, on the other hand, be an ineffective response to harmful alcohol consumption. Second, the large range of response rates of the countries studied may limit representativeness of the data due to selection bias and influence outcome. Additional regression analysis tested for effects of response rate did not reveal systematic influence of response rates. Although examination on aggregate-level seemed justifiable since relevant variance in the variables of interest was observed, applicability towards the general population of a country as a unit needs further examination on a micro-data level. Third, while potential bias of alcohol prohibition by religious faith was limited in excluding three countries with Muslim majorities, bias of other sources, for example mental health literacy, health care density, or differences in other belief systems across countries, were not addressed. Sub-populations often excluded from large-scale surveys, i.e., due to institutionalization or homelessness, may be especially relevant in this context, since consumption and attitudes towards alcohol potentially differ from those of the general population [45]. The fourth limitation concerns operationalization: the item used as a proxy for alcohol stigma is prone to bias due to subjective understanding of the term "heavy drinkers." To account for the effects of subjective interpretation, vignettes describing specific consumption scenarios should be applied rather than using a singular label.

Conclusions and Future Perspectives

This article aids the contextualization of alcohol stigma informed by alcohol consumption. Our observations are relevant because they clearly indicate that stigma is a dysfunctional strategy to control alcohol consumption. At best, it is a futile reaction to harmful drinking, and at worst, it contributes to drinking-related harm by assigning drinking problems to a stigmatized outgroup, hindering behavioural change of the drinking in-group. Further research on the determinants of alcohol stigma is necessary. Moreover, consumption-oriented anti-stigma interventions that counter the "othering" of people with harmful drinking patterns are necessary. Fostering the acceptance of consumption as continuous and associated with not only quantity but also patterns of consumption on the one hand, and the acceptance of AUD as a mental illness at the end of such a continuum on the other, could aid in acknowledging early signs of detrimental consumption [9] and decrease negative emotions towards people diagnosed with AUD [46].

If we consider alcohol indicative of the threat perceived alongside consumption behaviour, it is imperative that we need to not only combat harmful consumption but also understand its social interdependence. Consideration should be given to respondents' own consumption as well as the experiences with and interpretation of behavioural correlates of consumption. Application of the expanded Social Distance Scale [29] should be encouraged for future research since it provides more levels of intimacy by positing different social situations (rent a room, work together, take care of a young child, have married into family) and therefore allows a more nuanced understanding of stigma than can be drawn from the one item used in this survey. Simultaneously, evaluation of value orientations and belief systems as precursor for stigma on a cultural level [17] could inform knowledge of different attitudes to alcohol even within regions

of similar consumption characteristics. Starting from here, we propose to approach social thresholds of accepted alcohol consumption from different perspectives, including environment-specific prevention [47] as well as understanding variations in the perception of "drunkenness" [48], which is inconsistent across cultures and time periods. Expanded knowledge of the link between alcohol stigma and consumption patterns could aid a deeper understanding of the stigma process and its contextual embeddedness.

Statement of Ethics

Ethical approval and consent were not required as this study was based on publicly available data.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Author Contributions

Author 1 and Author 5 conceived the study; Author 1, Author 2, Author 4, and Author 5 developed the analytical strategy. Author 1 did statistical analysis, which was supervised by Author 3. All the authors contributed to writing the manuscript and have approved of its final version.

Data Availability Statement

Publicly available datasets were used in this study. These can be found at the following sites:

For social distance: EVS (2020). European Values Study 2017: Integrated Dataset (EVS 2017). GESIS Datenarchiv, Köln. ZA7500 Datenfile Version 4.0.0, https://doi.org/10.4232/1.13560.

For APC and HED: Manthey J, Shield KD, Rylett M, Hasan OSM, Probst C, Rehm J. Alcohol exposure between 1990 and 2017 and forecasts until 2030: A global modelling study. The Lancet 2019; 393(10,190): 2493-502.

For AADALYs: Shield K, Manthey J, Rylett M, Probst C, Wettlaufer A, Parry CDH, Rehm J. National, regional, and global burdens of disease from 2000 to 2016 attributable to alcohol use: a comparative risk assessment study. The Lancet Public Health. 2020; 5:e51–e61. doi:10.1016/S2468-2667(1930231-2).

For per capita consumption by type of beverage:

[S1] https://www.who.int/data/gho/data/indicators/indicator-details/GHO/alcohol-recorded-per-capita-(15-)-consumption-(in-litres-of-pure-alcohol).

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