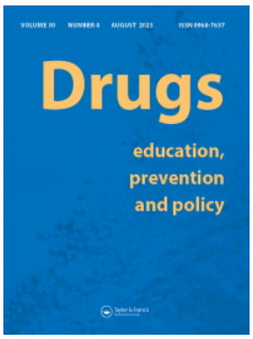

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The influence of individual and cultural factors on perceptions of alcohol control strategies among university students in Europe

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ABSTRACT

Alcohol control strategies vary between countries and reflect differences in drinking cultures. This study explored how perceived effectiveness of alcohol control strategies varies according to individual characteristics and country of residence. A cross-sectional online survey was completed by 1910 university students in Denmark, England, Germany, Italy, Portugal, and Switzerland. It assessed the perceived effectiveness of 11 alcohol control strategies. Correlates included sensation-seeking, alcohol outcome expectancies, drink refusal self-efficacy, and Alcohol Use Disorders Identification Test (AUDIT) scores. Bivariate analysis using mixed-measures MANOVA and Pearson correlations were followed by linear regression to identify multivariate correlates. These analyses revealed that educational strategies (e.g. teaching people skills to resist peer pressure) were considered more effective than restrictive strategies (e.g. raising the legal drinking age). Perceived effectiveness was greater among women and lighter drinkers. Country of residence also explained unique variance. The findings highlight the need to consider the potential impact of drinking culture in alcohol-related harm-reduction strategies.

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Alcohol; policy; beliefs; culture; Europe; university students

Introduction

Alcohol control strategies – measures that address alcohol distribution and marketing, consumption, or problems – are an important way to reduce harms arising from excessive alcohol consumption (Babor et al., 2010; World Health Organization, 2010). In some countries, alcohol control consists of prohibition, but in most countries, alcohol control strategies seek to minimise harm while allowing adults to determine and regulate their own alcohol intake. The strategies employed in each country are likely to reflect specific patterns of alcohol-related harm as well as the sociocultural meanings of alcohol.

Systematic reviews have identified several effective alcohol control strategies (Anderson et al., 2009; Burton et al., 2017; Llopis et al., 2021). Restrictive strategies appear to be the most effective. These include activities such as regulating marketing, availability, and service; regulating advertising; enforcing minimum purchase ages; and raising prices. Education campaigns can also be an important part of broader alcohol control strategies (Anderson et al., 2009; Burton et al., 2017).

In addition to examining the actual effectiveness of different alcohol control strategies, it is important to explore perceived effectiveness of strategies, because strategies that people believe to be effective may be easier to introduce and enforce (House of Lords, 2011; Tobin et al., 2011). Research in various countries has revealed weaker public support for strategies that restrict or control alcohol availability or increase prices for all drinkers, and greater support for policies focused on irresponsible service or problem drinkers (Holmila et al., 2009; Li et al., 2017; Storvoll et al., 2014; Tobin et al., 2011; van der Sar et al., 2011). It is perhaps not surprising that support for strategies that restrict availability is lower among people who drink more, and among younger people (Callinan et al., 2014; Cook et al., 2011; Giesbrecht et al., 2005; Holmila et al., 2009; Kilian et al., 2019; Li et al., 2017; Storvoll et al., 2015; van der Sar et al., 2011; Wilkinson et al., 2009).

Among the sub-population of young people, there is important variation in reactions to alcohol control strategies: adolescents are less positive about control strategies than are young adults, and heavier drinkers are less positive than abstainers and moderate drinkers (de Visser et al., 2014; van der Sar et al., 2012). Beliefs about alcohol use are also important: in one UK study of 16–21 year olds, greater belief in the effectiveness of control strategies was expressed by people who expected more negative outcomes from alcohol

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use, and who were more concerned about the health effects of alcohol (de Visser et al., 2014). In addition, less favourable views of alcohol control strategies were related to greater impulsivity, greater sensation-seeking, greater extraversion, and less conscientiousness. Furthermore, more favourable views of control strategies were associated with consuming less alcohol and having greater drink-refusal self-efficacy.

Past research has explored a range of strategies, but not all of them. For example, although de Visser et al. (2014) found that the most effective strategies were perceived to be enforcing responsible service legislation, strictly monitoring late-night premises, and teaching alcohol refusal skills, they did not assess the perceived effectiveness of other important strategies, including school-based alcohol education, and youth outreach/drop-in programs, which are especially relevant to young people.

A further limitation of many studies is their focus on single cities or countries (e.g., Callinan et al., 2014; Cook et al., 2011; de Visser et al., 2014; Giesbrecht et al., 2005; Holmila et al., 2009; Li et al., 2017; Stanesby et al., 2017; Storvoll et al., 2014; van der Sar et al., 2011; Wilkinson et al., 2009). However, perceptions of alcohol control strategies may vary between countries with different drinking cultures and different patterns of alcohol-related harms. In relation to drinking cultures, a 'wet/dry' distinction is often invoked (Room & Mäkelä, 2000). Wet cultures are exemplified by Mediterranean countries in which drinking is part of everyday life, but drinking to drunkenness and alcohol use disorders are uncommon. Dry cultures are exemplified by northern European countries where drinking is reserved for 'time out', and drunkenness and alcohol use disorders are more common. Although this distinction has some support, it has been critiqued (Aresi & Bloomfield, 2021; Beccaria & Prina, 2010; Mäkelä et al., 2012; Rolando & Beccaria, 2021; Savic et al., 2016). For example, researchers commonly equate 'country' with 'culture', thereby potentially obscuring or overlooking cultural variation within countries. Furthermore, there has been increasing homogenisation of drinking cultures in the context of increasingly globalised lifestyles, leisure, and marketing (Aresi & Bloomfield, 2021; Beccaria & Prina, 2010; Mäkelä et al., 2012; Rolando & Beccaria, 2021; Savic et al., 2016). Nevertheless, some cross-national differences persist: for example, Italy still has much lower levels of annual alcohol consumption, heavy episodic drinking, alcohol use disorders, alcohol dependence, and alcohol-related deaths than many northern European countries (World Health Organization, 2019a, 2019b, 2019c, 2019d, 2019e, 2019f, 2021).

The aim of this study was to explore perceptions of alcohol control strategies among university students across Europe. It was designed to expand on the number and type of strategies explored in previous research, and to move beyond a monocultural approach. University students are an important focus because they tend to be heavier drinkers that non-students and are therefore more likely to experience acute alcohol-related harms (Carter et al., 2010; de Visser et al., 2006). Furthermore, reducing alcohol consumption during young adulthood could reduce the likelihood of problematic alcohol use in later life (Sørensen et al., 2021). The study was designed to allow assessment of the relative importance of individual-level variables – alcohol use, alcohol-specific beliefs, general personality variables – and broader drinking culture (including the wet/dry distinction) in explanations of variance in the perceived effectiveness of different alcohol control strategies.

Methods

Data came from the CALIBRATE study of university students in Europe, which is described in detail in the Open Science Framework (https://osf.io/xc8au). Appropriate ethical approval was obtained as required in each country. Links to the online survey were distributed via several channels: emails sent to students, Facebook pages, Twitter accounts, press releases in local media, and face-to-face contact. All participants provided informed consent. The study was advertised as 'European survey of undergraduate alcohol consumption': the focus on alcohol control strategies was not apparent in recruitment materials, so participants could not have self-selected based on their beliefs about alcohol control strategies.

Sample

Online questionnaires were completed by 1910 participants (1375 women, 535 men) aged 18–25 (mean = 21.1, sd = 2.0) from Denmark ($N = 298$), England ($N = 388$), Germany ($N = 269$), Italy ($N = 262$), Portugal ($N = 356$), and Switzerland ($N = 337$). Samples were recruited from these countries because they vary in population-level prevalence of hazardous alcohol consumption, and alcohol control strategies (World Health Organization, 2014, 2021). Table 1 includes demographic data: there were similar proportions of women and men in each country ($\chi^2_{(5)} = 5.60$, $p = .35$; Cramer $V = .02$). There were significant between-country differences in age ($F_{(5,1904)} = 94.80$, $p < .01$; partial-$\eta^2 = .20$), ethnicity ($\chi^2_{(5)} = 198.55$, $p < .01$; Cramer $V = .14$), religion ($\chi^2_{(10)} = 235.83$, $p < .01$; Cramer $V = .11$), sensation-seeking ($F_{(5,1904)} = 43.05$, $p < .01$; partial-$\eta^2 = .10$), positive outcome expectancies ($F_{(5,1904)} = 39.42$, $p < .01$; partial-$\eta^2 = .09$), negative outcome expectancies ($F_{(5,1904)} = 25.06$, $p < .01$; partial-$\eta^2 = .06$), drink-refusal self-efficacy ($F_{(5,1904)} = 22.38$, $p < .01$; partial-$\eta^2 = .06$), and alcohol consumption ($F_{(5,1904)} = 74.58$, $p < .01$; partial-$\eta^2 = .16$), but the effects sizes were small.

Measures

Respondents used 7-point scales (anchors: 'not at all effective', 'extremely effective') to indicate their belief in the effectiveness of 11 alcohol control strategies. The introductory statement 'Please indicate how well each approach would address alcohol-related problems' was followed by 11 strategies. Eight of these were the same as those used by de Visser et al. (2014), who chose them because of variations in effectiveness. Three strategies – 'School-based alcohol education', 'Youth outreach/drop-in programs', 'Alcohol treatment and relapse prevention' – were added because they are especially relevant among young people. Principal components analysis identified two factors (Factor 1 eigenvalue = 3.60; 33% of total variance explained; Factor 2 eigenvalue = 2.32;

Table 1. Demographic profile of respondents in each country: cells report mean (sd) or frequency (%).

	Range	Sample ($n = 1910$)	Denmark ($n = 298$)	England ($n = 388$)	Germany ($n = 269$)	Italy ($n = 262$)	Portugal ($n = 356$)	Switzerland ($n = 337$)
Age	(18–25)	21.1 (2.0)	22.0 (2.0)	19.6 (1.5)	21.6 (2.2)	21.9 (1.8)	20.7 (1.8)	21.8 (2.0)
Gender								
Female	.	1375 (71.2%)	204 (68.5%)	283 (72.9%)	204 (75.8%)	195 (74.4%)	249 (69.9%)	240 (71.2%)
Male	.	535 (28.8%)	94 (31.5%)	105 (27.1%)	65 (24.2%)	67 (25.6%)	107 (30.1%)	97 (28.8%)
Ethnicity								
White	.	1708 (89.5%)	288 (96.6%)	276 (71.1%)	244 (91.4%)	235 (89.7%)	355 (99.7%)	310 (92.0%)
Other	.	200 (10.5%)	10 (3.4%)	112 (28.9%)	23 (8.6%)	27 (10.3%)	1 (0.3%)	27 (8.0%)
Religion								
None	.	714 (43.1%)	80 (51.3%)	203 (56.2%)	147 (56.1%)	97 (41.3%)	84 (26.5%)	103 (31.7%)
Christian	.	868 (52.4%)	75 (48.1%)	107 (29.6%)	108 (41.2%)	134 (57.0%)	231 (72.9%)	213 (65.5%)
Other	.	74 (4.5%)	1 (0.6%)	51 (14.1%)	7 (2.7%)	4 (1.7%)	2 (0.6%)	9 (2.8%)
Sensation-seeking	(1–5)	2.68 (0.74)	2.84 (0.68)	2.91 (0.79)	2.80 (0.63)	2.23 (0.66)	2.44 (0.74)	2.77 (0.66)
AOE positive	(1–5)	3.71 (0.95)	4.09 (0.73)	4.06 (0.74)	3.42 (0.91)	3.68 (0.89)	3.38 (1.15)	3.54 (0.90)
AOE negative	(1–6)	2.82 (0.74)	3.01 (0.59)	2.93 (0.68)	2.87 (0.71)	2.79 (0.69)	2.45 (0.88)	2.87 (0.70)
DRSE	(1–7)	5.64 (1.05)	5.73 (0.88)	5.29 (1.13)	5.72 (0.99)	5.33 (1.09)	5.91 (1.08)	5.84 (0.91)
AUDIT	(0–40)	6.90 (5.34)	9.45 (5.38)	9.97 (6.10)	5.39 (3.91)	5.55 (4.56)	4.70 (4.05)	5.69 (4.59)

AOE: alcohol outcome expectancies; DRSE: Drink refusal self-efficacy; AUDIT: Alcohol Use Disorders Identification Test.

21% of total variance explained). Varimax rotation was performed to clarify the factor structure. Six strategies loaded on the first factor: 'Enforce the law against serving drunk people', 'Increase the price of alcohol', 'Raise the legal drinking age', 'Reduce the number of outlets that sell alcohol', 'Restrict late-night sales', and 'Strictly monitor late-night licensed premises'. This factor was labelled *restrictive strategies* ($\alpha = .80$). The four strategies that loaded on the second factor – 'School-based alcohol education', 'Teach people skills for resisting pressure to drink', 'Alcohol treatment and relapse prevention', and 'Youth outreach/drop-in programmes' – were labelled *educational strategies* ($\alpha = .84$). Scores for each factor were computed as the mean of the component items. The item 'Ban alcohol sponsorship' did not load highly on either factor, so it was used as a single item. For all three variables, higher scores denote greater perceived effectiveness.

Sensation-seeking was assessed using the Brief Sensation-Seeking scale (Hoyle et al., 2002), which comprises 10 items (e.g., "I do unexpected things") and a 5-point scale (1 = unlike me; 5 = like me). The scale had good internal consistency ($\alpha = .86$), with higher scores denoting greater sensation-seeking.

Alcohol outcome expectancies were assessed using a 34-item scale (Leigh & Stacy, 1993), with 6-point response scales (anchors: 'no chance', 'certain to happen'). Nineteen items assessed the likelihood of positive outcomes from drink (e.g. 'I am more outgoing', $\alpha = .95$), with higher scores denoting perception of more positive outcomes. Fifteen items assessed the likelihood of negative outcomes (e.g. 'I get a hangover', $\alpha = .87$), with higher scores indicating perception of more negative outcomes.

Drink refusal self-efficacy (DRSE: Young et al., 1991) – an individual's perception of their capacity to refuse alcohol in different contexts – was assessed via nine statements (e.g. 'When someone offers me a drink') using 7-point scales (anchors: 'very difficult', 'very easy to refuse'). Items were internally consistent ($\alpha = .84$), with higher scores denoting greater DRSE.

The 10-item Alcohol Use Disorders Identification Test (AUDIT) assessed consumption frequency and volume, dependence, and alcohol-related problems (Saunders et al., 1993). Higher scores indicated a greater likelihood of problematic or hazardous alcohol use.

Data analysis

Mixed-measures MANOVA was conducted to test differences in perceived effectiveness of the strategies, with the fixed factors of gender and country, and a gender-country interaction term. Pearson correlations were computed to identify associations between perceived effectiveness and continuous variables. Subsequently, linear regressions were run to identify multivariate correlates of perceived effectiveness. For these analyses, data from the MANOVA were used to create dummy variables that denoted clusters of countries with significant differences in mean perceived effectiveness (see Results for further explanation). No variables showed excessive skewness or kurtosis.

Results

Table 2 shows perceived strategy effectiveness scores for the total sample, by gender, and by country. Within-subjects comparisons revealed that respondents' scores for all three strategy types were significantly different: perceived effectiveness was greatest for educational strategies, significantly lower for restrictive strategies, and significantly lower still for banning sponsorship ($F_{(2,3816)} = 792.44$, $p < .01$, partial $\eta^2 = .29$).

Compared to men, women expressed significantly greater belief in the effectiveness of all three strategy types, but effect sizes were small (Cohen, 1988).

Significant between-country differences were found for all three variables, with small effect sizes. For restrictive strategies, students in Italy and Portugal perceived significantly greater effectiveness than did all other students, and students in Switzerland gave significantly less positive ratings than did all other students except those in Denmark. For educational strategies, Italian, Swiss and Portuguese students perceived significantly greater effectiveness than German and English students, and Danish students gave significantly less positive ratings than did all other students. For banning

Table 2. Perceived effectiveness of alcohol control strategies[a] by gender and country ($n = 1910$).

	Restrictive strategies		Educational strategies		Ban sponsorship	
	Mean (sd)	Difference	Mean (sd)	Difference	Mean (sd)	Difference
Gender		$F_{(1,1897)} = 38.27$, $p < .01$		$F_{(1,1897)} = 42.47$, $p < .01$		$F_{(1,1897)} = 19.80$, $p < .01$
Female	4.00 (1.42)	partial $\eta^2 = .02$	5.28 (1.35)	partial $\eta^2 = .02$	3.46 (2.00)	partial $\eta^2 = .01$
Male	3.55 (1.43)		4.81 (1.49)		3.00 (1.96)	
Country		$F_{(5,1897)} = 12.68$, $p < .01$		$F_{(5,1897)} = 18.43$, $p < .01$		$F_{(5,1897)} = 2.20$, $p = .05$
Denmark	3.64 (1.40)	partial $\eta^2 = .03$	4.11(1.48)	partial $\eta^2 = .05$	3.19 (1.84)	partial $\eta^2 = .01$
England	3.88 (1.42)		4.57 (1.49)		3.61 (1.97)	
Germany	3.71 (1.43)		4.92 (1.39)		3.49 (2.08)	
Italy	4.30 (1.44)		5.27 (1.26)		3.23 (2.11)	
Portugal	4.23 (1.42)		4.94 (1.63)		3.13 (2.02)	
Switzerland	3.48 (1.34)		5.19 (1.29)		3.28 (1.98)	
Interaction:		$F_{(5,1897)} = 2.43$, $p = .03$		$F_{(5,1897)} = 1.96$, $p = .08$		$F_{(5,1897)} = 1.22$, $p = .30$
Gender/country		partial $\eta^2 = .01$		partial $\eta^2 = .01$		partial $\eta^2 < .01$
Total	3.87 (1.44)		5.15 (1.40)		3.33 (2.00)	

[a]Range = 1–7.

sponsorship, English and German students perceived significantly greater effectiveness than did all other students. The effect sizes were small (Cohen, 1988).

There was a small significant sex-by-country interaction for perceived effectiveness of restrictive strategies: Portuguese women had the most positive scores, but Portuguese men's scores were lower than those of Italian and English men. There were no significant interaction effects for educational strategies or banning sponsorship.

Table 3 shows that perceived effectiveness of all three strategies was significantly greater among students who had less positive outcome expectancies and lower AUDIT scores. Perceived effectiveness of restrictive strategies and educational strategies was also greater among students lower on sensation-seeking and with greater DRSE. Perceived effectiveness of educational strategies was greater among older participants. Effect sizes were small to moderate (Cohen, 1988).

Simple linear regression was conducted to identify significant multivariate correlates of perceived effectiveness of the three strategies. For each of these analyses, dummy-coded country variables were constructed based on the MANOVA results presented above and in Table 2. For restrictive strategies, the comparison groups were 'Italy/Portugal' and 'all other countries', because students in Italy and Portugal perceived significantly greater effectiveness than did all other students. For educational strategies, the comparison groups were 'Denmark' and 'not Denmark', because Danish students gave significantly less positive ratings than did all other students. For banning sponsorship, the comparison groups were 'England/Germany' 'all other countries', because English and German students perceived significantly greater effectiveness than did all other students.

For perceived effectiveness of restrictive strategies, there were four independent correlates (Table 4). Greater belief in the potential impact of restrictive strategies was significantly related to lower sensation-seeking, less positive outcome expectancies, being female, and being from Italy or Portugal.

There were six independent correlates of perceived effectiveness of educational strategies (Table 4). Greater belief in the effectiveness of educational strategies was significantly related to less positive outcome expectancies, more DRSE, lower AUDIT scores, being female, being older, and being from a country other than Denmark.

For perceived effectiveness of banning sponsorship, there were three independent correlates (Table 4). Greater belief in the potential impact of banning sponsorship was significantly related to being female, having a lower AUDIT score, and being from England or Germany.

Discussion

This study of university students recruited from six European countries found that restrictive strategies, such as raising the legal drinking age, were perceived to be less effective than educational strategies, such as teaching people skills to resist alcohol. Regression analyses showed that for all three strategy types, greater perceived effectiveness was significantly related to being female and having a lower AUDIT score. These results reflect the findings of previous studies (Callinan et al., 2014; Cook et al., 2011; de Visser et al., 2014; Giesbrecht et al., 2005; Holmila et al., 2009; Kilian et al., 2019; Li et al., 2017; Storvoll et al., 2015; van der Sar et al., 2011, 2012; Wilkinson et al., 2009).

A novel contribution of this study was comparison across countries: we found many similarities, but also some important differences. Of note was the finding that country explained variance that was not accounted for by demographics, psychological variables, or alcohol use. Although country was a significant multivariate correlate for all strategy types, the precise pattern of association varied between strategies. Italian participants gave the highest ratings and Danish participants tended to give the lowest scores, so there was some evidence of the persistence of a distinction between wet and dry drinking cultures (Room & Mäkelä, 2000). However, there were also exceptions: students from the 'wet' cultures (i.e. Italy and Portugal) were not always notably different from those of students from 'dry cultures' (e.g. England and Denmark). Although the wet/dry cultural distinction was apparent for perceived effectiveness of restrictive strategies, it was not obvious for educational strategies or banning sponsorship.

There are several ways to build on the strengths of this study to overcome its limitations. One would be to include a broader range of countries, including non-European countries. There would also be value in comparing the beliefs and behaviours of local and international students in different (drinking) cultures (Aresi et al., 2018; Dormal et al., 2019). A

Table 3. Correlations between perceived effectiveness of alcohol control strategies and continuous individual-level variables ($n = 1910$).

Variable	Range	Mean (sd)	Restrictive strategies	Educational strategies	Ban sponsorship
Age	(18–25)	21.14 (2.04)	$r = -.03$	$r = .10$	$r = -.04$
			$p = .24$	$p < .01$	$p = .11$
Sensation seeking	(1–5)	2.68 (0.74)	$r = -.18$	$r = -.07$	$r = -.05$
			$p < .01$	$p < .01$	$p = .05$
Alcohol outcome expectancies: positive	(1–6)	5.89 (3.70)	$r = -.18$	$r = -.08$	$r = -.06$
			$p < .01$	$p < .01$	$p = .01$
Alcohol outcome expectancies: negative	(1–6)	5.00 (2.82)	$r = -.03$	$r = -.03$	$r = .01$
			$p = .14$	$p = .19$	$p = .56$
Drink refusal self-efficacy	(1–7)	5.63 (1.05)	$r = .12$	$r = .14$	$r = .03$
			$p < .01$	$p < .01$	$p = .20$
Alcohol Use Disorders Identification Test	(0–40)	6.91 (5.34)	$r = -.19$	$r = -.20$	$r = -.08$
			$p < .01$	$p < .01$	$p < .01$

AOE: alcohol outcome expectancies; DRSE: Drink refusal self-efficacy; AUDIT: Alcohol Use Disorders Identification Test.

Table 4. Linear regression to identify multivariate correlates of perceived effectiveness of alcohol control strategies ($n = 1910$).

	B	s.e.(B)	β	t	Significance
Restrictive strategies					
$F_{(6,1903)} = 29.09$ $p < .01$					
Adjusted $R^2 = .08$					
DRSE	0.04	0.03	0.03	1.26	$p = .21$
AUDIT	−0.01	0.01	−0.05	−1.66	$p = .10$
Sensation seeking	−0.01	0.01	−0.07	−2.67	$p = .01$
Positive expectancies	−0.14	0.04	−0.09	−3.38	$p < .01$
Gender (female)	0.38	0.07	0.12	5.32	$p < .01$
Country (Italy/Portugal)	0.44	0.07	0.14	6.15	$p < .01$
Educational strategies					
$F_{(7,1902)} = 28.45$, $p < .01$					
Adjusted $R^2 = .09$					
Sensation seeking	0.01	0.01	0.02	0.77	$p = .44$
Positive expectancies	−0.09	0.04	−0.06	−2.30	$p = .02$
DRSE	0.13	0.03	0.10	3.96	$p < .01$
AUDIT	−0.04	0.01	−0.14	−4.97	$p < .01$
Gender (female)	0.38	0.07	0.12	5.43	$p < .01$
Age	0.09	0.02	0.13	5.89	$p < .01$
Country (not Denmark)	0.66	0.09	0.17	7.42	$p < .01$
Banning sponsorship					
$F_{(5,1904)} = 9.56$ $p < .01$					
Adjusted $R^2 = .02$					
Sensation seeking	−0.01	0.01	−0.01	−0.46	$p = .65$
Positive expectancies	−0.07	0.06	−0.03	1.18	$p = .24$
AUDIT	−0.03	0.01	−0.07	−2.59	$p = .01$
Gender (female)	0.39	0.10	0.09	3.78	$p < .01$
Country (England/Germany)	0.50	0.12	0.10	4.22	$p < .01$

DRSE: Drink refusal self-efficacy; AUDIT: Alcohol Use Disorders Identification Test.

more representative sample may have revealed a different profile of perceived strategy effectiveness (Carter et al., 2010; de Visser et al., 2006), and future research should expand the focus to older adults as well as non-student young adults. Furthermore, as was noted in the introduction, it has been suggested that future research should go beyond the 'country/nation = culture' equation, and should endeavour to combine macro-social and micro-social levels by studying sub-cultural entities and specific settings (Aresi & Bloomfield, 2021; Savic et al., 2016). This is important because differences between cosmopolitan cities in different countries (e.g. Paris and London) may be smaller than urban-rural differences within the same country (e.g. Paris versus the Pyrenees).

Although substantial academic work and service provision has been directed toward curbing heavy drinking among young people, little research has examined young people's perceptions of alcohol control strategies (de Visser et al., 2014; van der Sar et al., 2012). Our findings address a need for better understanding of why young people perceive particular strategies to be effective, and this may facilitate the development of strategies that are more acceptable and meaningful to them (Duff, 2008; de Visser & Smith, 2007; de Visser et al., 2013). However, this does not mean that unpopular effective strategies should not be implemented. Governments are often concerned about the acceptability and perceived legitimacy of health policies: strategies that young people support may be easier to implement (House of Lords, 2011; Tobin et al., 2011).

In addition to examining actual strategy effectiveness, it is important to explore perceived effectiveness of strategies, because strategies that people believe to be effective may be easier to introduce and enforce (House of Lords, 2011; Tobin et al., 2011). Our data facilitate strategy development and implementation by helping to formulate arguments to persuade young people of the need for effective unpopular strategies, and challenging support for less effective strategies. However, further quantitative and qualitative research would help to better understand why young people perceive strategies to be effective. Further work should also determine how best to develop and implement strategies in different countries.

In contrast to studies of support for strategies (Cook et al., 2011; Holmila et al., 2009; Tobin et al., 2011; van der Sar et al., 2011, 2012), this study examined perceived effectiveness of strategies. Despite this different focus, it is notable that correlates of perceived effectiveness were similar to correlates of support identified in past research. A remaining gap in knowledge is the correlation between perceived effectiveness of, and levels of support for, various strategies. This is an important focus, because there is more robust evidence for the actual effectiveness of restrictive strategies than there is for educational strategies (Anderson et al., 2009; Burton et al., 2017; Llopis et al., 2021).

Although one focus of this study was responses to different types of alcohol control strategies, it must be acknowledged that in reality, multiple strategies are used simultaneously (Burton et al., 2017). Indeed, it has been noted that combinations of coherent and complementary strategies may create a 'critical mass' effect, that leads to changes in the social normative context such that excessive alcohol consumption is less socially acceptable (Sassi, 2015). It is important to learn how best to create this critical mass in different countries with different drinking cultures.

The data presented here indicate that across strategy types, perceived effectiveness was greater among women, lighter drinkers, and people with less positive views of alcohol use. These data reflect existing knowledge, but a key additional contribution of this study was the finding that country of residence explained unique variance in perceived effectiveness. This finding highlights the need to consider different countries' drinking cultures, and how these may reflect and influence their alcohol harm-reduction strategies.

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