



# The perceived impact that alcohol policy could have on Brazilian and British students' pre-drinking behaviour

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## ABSTRACT

**Background:** Evidence on how pre-drinking (i.e., drinking in private or in unlicensed settings before going out) varies across cultures and its implications for defining policies and prevention strategies is needed. We explored the perceived impact that various alcohol policies could have on pre-drinking practices amongst Brazilian and British students that pre-drink. **Methods:** A cross-sectional, online survey amongst student drinkers aged 18–29 in England (N = 387) and Brazil (N = 1,048) explored sociodemographic, pre-drinking habits, and attitudes towards alcohol policies (increasing prices, regulating availability, and restricting promotions). **Results:** A greater proportion of British students were aged between 18 and 21 years old (67.2%) than Brazilian students (45.2%;  $p < 0.001$ ). More British (ENG 85.8%) than Brazilian (BRA 44.8%,  $p < 0.001$ ) students reported pre-drinking. Pre-drinkers' main motivation was to save money (BRA 66.5%, ENG 46.2%,  $p < 0.001$ ). In multivariate analyses, in Brazil, male (Odds Ratio [OR]: 1.53, CI: 1.04–2.24) and white (OR: 1.60, CI: 1.03–2.49) pre-drinkers were more likely to believe that increasing prices policies could reduce their pre-drinking habits. In Brazil, white pre-drinkers (OR: 1.86, CI: 1.10–3.15) were more likely to believe that restricting alcohol promotions policies could reduce their pre-drinking habits. Regarding the perceived impact that the combined alcohol policies could have on students' pre-drinking practice, only in Brazil there were significant statistical results. **Conclusions:** Whilst in Brazil none of the investigated alcohol policies are currently implemented, more Brazilian pre-drinkers believed that such legislation could reduce their pre-drinking practices (when compared with British pre-drinkers). These data may help legislators and stakeholders to better understand the characteristics of a more acceptable alcohol policy amongst university students.

## 1. Background

Alcohol is a leading risk factor for disease burden with harmful drinking responsible for about 3 million deaths (5.3% of all deaths) in 2016 (World Health Organization, 2018). In Brazil, evidence shows high levels of alcohol consumption amongst university students (Machado, Finelli, Jones, & Soares, 2015; Pinheiro et al., 2017). Likewise, data suggests that young adults attending university in the United Kingdom drink more alcohol than their non-student peers (Davoren, Demant, Shiely, & Perry, 2016; de Visser, Wheeler, Abraham, & Smith, 2013). Amongst students, alcohol can affect academic performance, such as missing class, falling behind, and having lower grades (Atwell, Abraham, & Duka, 2011; Santos, Pereira, & Siqueira, 2013; Wechsler et al., 2002), and also increases exposure to other risky behaviours, such

as drink driving, violence, road traffic accidents (Cardoso, Barbosa, Costa, Vieira, & Caldeira, 2015), and use of other drugs (Castaldelli-Maia et al., 2014).

Pre-drinking is part of students' nightlife culture (Foster & Ferguson, 2014; Santos, Paes, Sanudo, Andreoni, & Sanchez, 2015). It refers to drinking in private or in unlicensed settings before going out to parties, bars, and nightclubs (LaBrie & Pedersen, 2008; Pedersen & Labrie, 2007), and can be socially and financially motivated (Read, Merrill, & Bytschkow, 2010; Wells, Graham, & Purcell, 2009). Pre-drinking can significantly add to alcohol consumption during a night out (Østergaard & Skov, 2014; Santos et al., 2015), resulting in higher blood alcohol concentration (Barry, Stellefson, Piazza-Gardner, Chaney, & Dodd, 2013), and thus contributing to further harm (Caudwell & Hagger, 2014; Merrill, Vermont, Bachrach, & Read, 2013).

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In England, pre-drinking is widespread (Hughes et al., 2011; McClatchley, Shorter, & Chalmers, 2014). In Brazil, however, this practice is still not well studied (Carlini et al., 2014; Santos et al., 2015). Understanding university students' nightlife drinking patterns and the practices they engage in (Griffin, Bengry-Howell, Hackley, Mistral, & Szmigin, 2009; Hughes, Anderson, Bellis, Morleo, Jarman, & Lisboa, 2009; Hunt, Moloney, & Fazio, 2014) is as important as understanding the implications that alcohol can cause at individual and societal levels (Craigs, Bewick, Gill, O'May, & Radley, 2012; de Visser et al., 2013). Gaining knowledge in students' drinking attitudes and beliefs could help creating opportunities to change perceptions.

Preventing alcohol harms within nightlife settings is a growing global concern. England has implemented interventions to protect the safety of nightlife patrons and to stop violence and disorder, such as increasing awareness of legislation that prevent sales of alcohol to drunken people and promoting responsible drinking (2018; Quigg et al., 2014). Measures to deal with alcohol content and information has also been introduced by implementing warning labels on alcohol beverages related to alcohol units and the dangers of drinking during pregnancy (Blackwell, Drax, Attwood, Munafó, & Maynard, 2018; Shemilt, Hendry, & Marteau, 2017; Vasiljevic, Couturier, & Marteau, 2018). Conversely, in Brazil there are no restrictions on alcohol-selling venues (Carlini et al., 2014) and no laws to control the sale of alcohol to inebriated people (Sanchez, 2017). This highlights the need for data on alcohol consumption and policy-relevant behaviours particularly in Brazil where there is no well-established prevention activity in place. Furthermore, international comparisons between countries and policies can help determine how variations in social and cultural environment can influence drinking behaviours (Kuntsche & Labhart, 2012; Kuntsche et al., 2014).

Alcohol policy actions can influence drinking patterns (Brand, Saisana, Rynn, Pennoni, & Lowenfels, 2007; Graham et al., 2013; Middleton et al., 2010). The most effective ways to reduce alcohol harm are to increase the price of alcohol, to restrict the physical availability of alcohol, and to make alcohol less attractive (World Health Organization, 2010). These are considered as the "best buys" interventions for preventing alcohol harm (Chisholm et al., 2018; World Health Organization, 2017). Understanding the perceived impact of these policies on students' pre-drinking practice is important to preventing this harmful drinking behaviour.

The cultural position of alcohol has been challenging policymakers as alcohol has become more available (Room, Babor, & Rehm, 2005). In England and Brazil, the legal age for buying and drinking alcohol is 18 years, and alcohol is easily available to purchase from off-licensed premises (e.g., supermarkets) at lower prices and from on-licensed premises (e.g., nightclubs, bars, and pubs) (Carlini et al., 2014; Laranjeira, 2007; Wells et al., 2009). However, Brazil's efforts to introduce effective public policies on alcohol control have not been successful; and the few existing evidence-based policies and laws focus on reducing drinking and driving issues, leaving a gap for alcohol sales regulation policies, such as price and availability (de Oliveira et al., 2021). In contrast, the UK alcohol policy is broader, focusing on the regulation of alcohol sales and consumption (Act, 2003 (c 17), 2003).

Though trends in alcohol consumption show decreasing drinking levels in the UK (Office for National Statistics, 2018), drinking and drunkenness have been considered a normalised feature of British students' social nightlife (Gant & Terry, 2017; Hughes, Quigg, Ford, & Bellis, 2019) often facilitated by an environment that encourages alcohol consumption through the promotion of alcoholic drinks (Ross-Houle & Quigg, 2019). In England, it is argued that changes that have occurred within nightlife settings, such as deregulation, the dominance of alcohol promotions, and increased density of drinking venues encouraged even more consumption amongst students, which has contributed to a determined "culture of intoxication" when going out (Measham, 2006). Likewise, in Brazil, despite alcohol advertising being regulated by law (Bill No 9.294 (15/07/1996) Regarding Restrictions on

the Use and Advertising of Tobacco Products, Alcohol, Medicines and Agricultural Pesticides, 1996), it is not effectively restricted (Babor et al., 2018; Noel, Babor, & Robaina, 2017; Sanchez, 2017). This lack of control can allow a more permissive environment for excessive drinking (Ally et al., 2014; Purshouse, Brennan, Moyo, Nicholls, & Norman, 2017) reinforcing the need for a better understanding of students' drinking culture and its context-specific drinking for the development of effective, targeted prevention and policy measures (e.g., banning alcohol discounts prices and combo promotional nights so that students would not have access to cheap alcohol).

To develop effective alcohol policy strategies within different social norms context, we must first understand the factors associated with students' drinking culture, such as their motivations and expectancies, particularly in low-middle income countries like Brazil, where there is a lack of epidemiological and sociological studies on alcohol policy. Thus, this study aims to explore the factors associated with students' support for alcohol policies and the perceived impact that alcohol policies could have on students' pre-drinking practice in Brazil and England.

## 2. Methods

A cross-sectional, online survey was conducted amongst university students who have consumed alcohol, were 18 + years of age and enrolled at Liverpool John Moores University (LJMU), in England, and at Federal University of São Paulo (UNIFESP), in Brazil, between March and July 2017. Ethical approval was granted by both institutions' ethics committees (LJMU 16/CPH/005 and UNIFESP 1.845.314 CAAE: 61290216.3.0000.5505).

### 2.1. Participants

Students were recruited via e-mail invitations<sup>1</sup> and social media (LJMU/UNIFESP Facebook online groups and Twitter). The online invitation detailed the research aims and methods and provided a link to the online participant information sheet and questionnaire. In Brazil, 10,261 students accessed the link. Of 1,491 that completed the questionnaire, 340 were screened out (22.8%), which generated a final sample of 1,151 students (response rate of 14.5%). In the UK, 13,466 students accessed the survey. Of 493 that completed it, 69 were screened out (i.e., declared they were abstainers) (14.0%), which generated a final sample of 424 students (response rate of 3.7%). More details on study design and sampling are described in Santos, Sanchez, Hughes, Gee, and Quigg (2022). For this paper we restricted the analysis to participants aged 18–29 (N = 1,435). Students aged 30 + were excluded (N = 140).

### 2.2. Instrument and variable

The research tool used in the survey was a questionnaire developed after an extensive review of the literature and through a combination of existing measures. The questionnaire was based on previous questionnaires used to study nightlife patrons in the UK (Hughes, Quigg, Bellis, van Hasselt, Calafat, Kosir, Juan, Duch, & Voorham, 2011; Hughes et al., 2011) and in Brazil (Santos, Paes, Sanudo, & Sanchez, 2015; Santos, Paes, Sanudo, Andreoni, et al., 2015). It was developed with assistance from the supervisory team who had extensive experience in conducting survey research within nightlife settings. It was produced in both English and Portuguese languages and, although the validity and reliability of the measures from the current study were not tested, the items included in the survey were thoroughly discussed with the supervisory team and tested in the pilot study with 10 students who were invited to give qualitative feedback and to comment on the questionnaire to establish

<sup>1</sup> An estimated 12,896 e-mails were sent to Brazilian students and 860 to British students.

face validity and improve reliability. Back-translation was used to ensure reliability and validity in the translation process (Cha, Kim, & Erlen, 2007).

Questions explored participants' sociodemographic variables (e.g., age, gender, marital status, ethnicity, and academic year), and pre-drinking characteristics. Pre-drinking was measured by the response to "Would you normally pre-drink before going out?" with options of "Yes" and "No." To facilitate interpretation of results regarding the main motivation for pre-drinking, categories with low frequencies were grouped. More details about study motivation categories for pre-drinking have been previously published (Santos et al., 2022). Social/conviviality motives include "part of going out," "to socialize," and "to feel like part of a group"; fun/intoxication motives include "to not go out sober," "to lose control," "to deliberately get drunk," and "to have a good time"; and interpersonal enhancement motives include "to increase confidence," "to increase mood," "to relax," and "to reduce anxiety."

Aiming to measure students' perceptions of the impact that alcohol policy would have on their pre-drinking practice, participants were presented with a list of policy scenarios and asked to respond to the statement "My pre-drinking practice would," with the options of: "Reduce/Increase/No change." The following alcohol policy scenarios were investigated: increasing prices policies ("If alcohol price in on-licensed premises increased," "If alcohol price in off-licensed premises increased," "If nightclubs, bars/pubs were prohibited to offer alcohol discounts," and "If nightclubs, bars/pubs offer cheaper soft drinks options"); regulating alcohol availability ("If alcohol sales in off-licensed premises are restricted to designated time"; "If alcohol sales in off-licensed premises are restricted to designated areas," "If nightclubs, bars/pubs closed by 2am," "If nightclubs, bars/pubs did not serve alcohol for drunken people," and "Active enforcement of the ban on sales to drunken people in on and off-licensed premises"); and restricting alcohol promotions ("If all alcohol promotions and advertising were prohibited"). If the answer was "Reduce" to each italicised question within an alcohol policy group, then it was also "Reduce" for the overall alcohol policy variable (i.e., increasing prices, regulating availability, and restricting promotions). The categories "Increase" and "No change" were grouped since our interest is to understand the opinion about reduction.

### 2.3. Data analysis

Data were analysed using IBM SPSS Statistics 24. Frequency tables and descriptive statistics were computed using Chi-Square tests to investigate the characteristics of pre-drinking and students' perceived impact of alcohol policies on their pre-drinking practice for each country. Multivariable logistic regressions (enter method) were built and stratified by country to explore the differences regarding the factors associated with students' perceptions of reducing their pre-drinking practice according to alcohol policy. All models were adjusted for demographic covariates. Each alcohol policy was used as the dependent variable and the following independent variables were analysed: age, gender, marital status, ethnicity, academic year, and pre-drinking practice. The Poisson regression allowed to investigate the associations between age, gender, marital status, ethnicity, academic year, pre-drinking status, and a higher perception of alcohol policies in reducing students' pre-drinking practice, in each country. The dependent variable was the score for the perceived impact of alcohol policies by each participant. The answers could vary from 0 to 3 (score), in which 0 represents those who believed that none of the investigated alcohol policies could reduce their pre-drinking practice, and 1 to 3 the sum of the investigated policies that students believed that could reduce their pre-drinking (1 those who believed that only one of the three policies could reduce pre-drinking practice; 2 represents any two policies; and 3 represents all three policies). The results are presented as odds ratios (OR) and 95% confidence intervals (95%CI).

**Table 1**

Distribution of Brazilian (N = 469) and British pre-drinkers' (N = 332) socio-demographic characteristics and perceptions of the impact that alcohol policies could have on their pre-drinking practice.

	Settings				p value
	BRAZIL N = 469		ENGLAND N = 332		
	N	%	N	%	
<b>Age (years)</b>					<0.001
18–21	212	45.2	223	67.2	
22–29	257	54.8	109	32.8	
<b>Gender</b>					0.003
Male	211	45.2	113	34.8	
Female	256	54.8	212	65.2	
<b>Marital status</b>					<0.001
Single	326	69.5	157	47.3	
In a relationship	143	30.5	175	52.7	
<b>Ethnic group</b>					<0.001
White	341	72.7	301	90.7	
Other	128	27.3	31	9.3	
<b>Academic year</b>					<0.001
Undergraduate	432	92.1	271	81.6	
Post-graduate	37	7.9	61	18.4	
<b>Pre-drinking main reason</b>					<0.001
Social/conviviality	70	14.9	85	25.8	
Financial	312	66.5	152	46.2	
Fun/intoxication	67	14.3	67	20.4	
Interpersonal enhancement	20	4.3	25	7.6	
<b>Students' perceptions of the impact that increasing pricing policies could have on their pre-drinking practice</b>					<0.001
Reduce	288	61.4	141	42.5	
Increase/no change	181	38.6	191	57.5	
<b>Students' perceptions of the impact that regulating alcohol availability could have on their pre-drinking practice</b>					<0.001
Reduce	293	62.5	126	38.0	
Increase/no change	176	37.5	206	62.0	
<b>Students' perceptions of the impact that restricting alcohol promotions could have on their pre-drinking practice</b>					0.033
Reduce	74	15.8	35	10.5	
Increase/no change	395	84.2	297	89.5	
<b>Students' perceptions of the impact that the combined* alcohol policies could have on their pre-drinking practice</b>					<0.001
Believed that all three alcohol policies could reduce their pre-drinking practice	55	11.7	20	6.0	
Believed that two out of three policies could reduce their pre-drinking practice	178	38.0	68	20.5	
Believed that one of the policies could reduce their pre-drinking practice	134	28.6	106	31.9	
Believed that none of the policies could reduce their pre-drinking practice	102	21.7	138	41.6	

Note: \*The policies were increasing prices, regulating alcohol availability, and restricting alcohol promotions.

### 3. Results

A greater proportion of British students (ENG) reported pre-drinking (85.8%) than Brazilian students (BRA) (44.8.0%;  $p < 0.001$ ). Further analyses were limited to these pre-drinking participants (BRA N = 469; ENG N = 332). A greater proportion of British students were aged between 18 and 21 years old (67.2%) than Brazilian students (45.2%;  $p < 0.001$ ). Most participants were women (BRA 54.8%, ENG 65.2%;  $p = 0.003$ ), self-categorised as being of white ethnicity (BRA 72.7%, ENG 90.7%;  $p < 0.001$ ), and undergraduate students (BRA 92.1%, ENG 81.6%;  $p < 0.001$ ). Most Brazilian pre-drinkers were single (69.5%,

**Table 2**

Factors associated with the different perceptions of the impact that *increasing prices policies* could have on Brazilian (N = 469) and British students' (N = 332) pre-drinking practices.

Settings																
Increasing prices policies																
Descriptive statistics										Logistic regression*						
BRAZIL N = 469					ENGLAND N = 332					BRAZIL N = 469			ENGLAND N = 332			
Reduce		Increase/ No change		p value	Reduce		Increase/ No change		p value	OR	95% CI	p value	OR	95% CI	p value	
N	%	N	%		N	%	N	%								
<b>Age</b>																
18–21	139	65.6	73	34.4	0.093					0.211						
22–29 (ref)	149	58.0	108	42.0	100	44.8	123	55.2		0.77	0.52–1.15	0.210	0.68	0.37–1.24	0.212	
<b>Gender</b>																
Male	119	56.4	92	43.6	0.033					0.116						
Female (ref)	169	66.0	87	34.0	41	37.6	68	62.4		–	–	–	–	–	–	
<b>Marital status</b>																
Single	203	62.3	123	37.7	0.562					0.413						
On a relationship (ref)	85	59.4	58	40.6	98	46.2	114	53.8		–	–	–	–	–	–	
<b>Ethnic group</b>																
White	201	58.9	140	41.1	0.074					0.950						
Other (ref)	87	68.0	41	32.0	63	40.1	94	59.9		0.91	0.60–1.38	0.679	1.14	0.71–1.84	0.565	
<b>Academic year</b>																
Undergraduate	270	62.5	162	37.5	0.097					0.795						
Post-graduate (ref)	18	48.6	19	51.4	78	44.6	97	55.4		–	–	–	–	–	–	
					116	42.8	155	57.2		0.63	0.31–1.30	0.218	1.17	0.57–2.39	0.658	
					25	41.0	36	59.0		–	–	–	–	–	–	

Note: reference for categories for each sociodemographic variable used in the regressions are identified with (ref). \*Multiple logistic regression - reference is increase/no change.

**Table 3**

Factors associated with the different perceptions of the impact that *regulating alcohol availability* could have on Brazilian (N = 469) and British students' (N = 332) pre-drinking practices.

Settings																
Regulating alcohol availability																
Descriptive statistics										Logistic regression*						
BRAZIL N = 469					ENGLAND N = 332					BRAZIL N = 469			ENGLAND N = 332			
Reduce		Increase/ No change		p value	Reduce		Increase/ No change		p value	OR	95% CI	p value	OR	95% CI	p value	
N	%	N	%		N	%	N	%								
<b>Age</b>																
18–21	129	60.8	83	39.2	0.509					0.076						
22–29 (ref)	164	63.8	93	36.2	92	41.3	131	58.7		1.13	0.76–1.69	0.518	0.68	0.36–1.26	0.223	
<b>Gender</b>																
Male	134	63.5	77	36.5	0.691					0.592						
Female (ref)	158	61.7	98	38.3	34	31.2	75	68.8		–	–	–	–	–	–	
<b>Marital status</b>																
Single	210	64.4	116	35.6	0.189					0.146						
On a relationship (ref)	83	58.0	60	42.0	78	36.8	134	63.2		–	–	–	–	–	–	
<b>Ethnic group</b>																
White	206	60.4	135	39.6	0.132					0.927						
Other (ref)	87	68.0	41	32.0	66	42.0	91	58.0		0.76	0.50–1.15	0.201	0.78	0.48–1.27	0.331	
<b>Academic year</b>																
Undergraduate	270	62.5	162	37.5	0.968					0.358						
Post-graduate (ref)	23	62.2	14	37.8	60	34.3	115	35.7		–	–	–	–	–	–	
					114	37.9	187	62.1		1.40	0.91–2.17	0.124	1.00	0.45–2.20	0.994	
					12	38.7	19	61.3		–	–	–	–	–	–	
					106	39.1	165	60.9		1.03	0.49–2.15	0.937	1.06	0.50–2.23	0.868	
					20	32.8	41	67.2		–	–	–	–	–	–	

Note: reference for categories for each sociodemographic variable used in the regressions are identified with (ref). \*Multiple logistic regression - reference is increase/no change.

compared with 47.3% in England,  $p < 0.001$ ). Pre-drinkers' main motivation for pre-drinking was to save money (BRA 66.5%, ENG 46.2%;  $p < 0.001$ ). More Brazilian pre-drinkers believed that increasing the price of alcohol (61.4%, compared with 42.5% in England,  $p < 0.001$ ), regulating its availability (BRA 62.5%, compared with 38.0% in England,  $p < 0.001$ ), and restricting its promotions (BRA 15.8%, compared with 10.5% in England,  $p = 0.033$ ) could reduce their pre-drinking practices. Considering all three alcohol policies together, 21.7% of Brazilian pre-drinkers believed that none of the investigated

policies could reduce their pre-drinking practices (ENG 41.6%,  $p < 0.001$ ) (Table 1).

In Brazil, male (OR: 1.53, CI:1.04–2.24) and white pre-drinkers (OR: 1.60, CI:1.03–2.49) were more likely to believe that increasing prices policies could reduce their pre-drinking practices. In England, no statistically significant difference was observed (Table 2).

Regarding students' perceived impact that restricting alcohol availability policies could have on their pre-drinking practices, in both countries no statistically significant difference was observed (Table 3).

**Table 4**

Factors associated with the different perceptions of the impact that *restricting alcohol promotions* could have on Brazilian (N = 469) and British students' (N = 332) pre-drinking practices.

Settings																	
Restricting alcohol promotions																	
Descriptive statistics										Logistic regression*							
BRAZIL N = 469					ENGLAND N = 332					BRAZIL N = 469			ENGLAND N = 332				
Reduce		Increase/No change			p value	Reduce		Increase/No change			p value	OR	95% CI	p value	OR	95% CI	p value
N	%	N	%	N		%	N	%	N	%							
<b>Age</b>																	
0.366																	
18–21	37	17.5	175	82.5		22	9.9	201	90.1		0.83	0.49–1.40	0.490	1.48	0.60–3.67	0.392	
22–29 (ref)	37	14.4	220	85.6		13	11.9	96	88.1		–	–	–	–	–	–	
<b>Gender</b>																	
0.715																	
Male	32	15.2	179	84.8		10	8.8	103	91.2		1.14	0.68–1.90	0.599	1.57	0.70–3.51	0.264	
Female (ref)	42	16.4	214	83.6		25	11.8	187	88.2		–	–	–	–	–	–	
<b>Marital status</b>																	
0.126																	
Single	57	17.5	269	82.5		19	12.1	138	87.9		0.64	0.35–1.16	0.148	0.60	0.28–1.27	0.186	
On a relationship (ref)	17	11.9	126	88.1		16	9.1	159	90.9		–	–	–	–	–	–	
<b>Ethnic group</b>																	
0.026																	
White	46	13.5	295	86.5		32	10.6	269	89.4		<b>1.86</b>	<b>1.10–3.15</b>	<b>0.020</b>	0.79	0.22–2.84	0.722	
Other (ref)	28	21.9	100	78.1		3	9.7	28	90.3		–	–	–	–	–	–	
<b>Academic year</b>																	
0.694																	
Undergraduate	69	16.0	363	84.0		28	10.3	243	89.7		0.95	0.34–2.66	0.925	0.91	0.31–2.69	0.876	
Post-graduate (ref)	5	13.5	32	86.5		7	11.5	54	88.5		–	–	–	–	–	–	

Note: reference for categories for each sociodemographic variable used in the regressions are identified with (ref). \*Multiple logistic regression - reference is increase/no change.

In Brazil, white pre-drinkers (OR: 1.86, CI:1.10–3.15) were more likely to believe that restricting alcohol promotions policies could reduce their pre-drinking practices. In England no statistically significant difference was observed (Table 4).

Compared to students who believed that none of the alcohol policies could reduce their pre-drinking practice, in Brazil, white pre-drinkers (OR: 0.34, CI:0.16–0.71) were less likely to believe that all three alcohol policies could reduce their pre-drinking practice. Also, Brazilian male pre-drinkers (OR: 0.54, CI:0.31–0.91) were less likely to believe that at least one alcohol policy could reduce pre-drinking (Table 5).

No statistically significant difference was observed regarding British students' perceived impact that all three alcohol policies could have on their pre-drinking practices (Table 6).

#### 4. Discussion

This study explores university students' perceptions of the impact that alcohol policy could have on their pre-drinking behaviour in Brazil and England. To our knowledge, this is the first study of its kind to research students' perspectives on pre-drinking and its association with alcohol policy in countries that have different policies and regulations. One country has limited implementation and scientific evidence on alcohol policy and nightlife, including pre-drinking practices (Brazil), and the other has more research and relevant implementation of alcohol policy (England). Although the samples cannot be considered representative, amongst drinkers our results suggest higher prevalence of pre-drinking in England when compared with Brazil and that individuals are often motivated by the higher cost of alcohol. Our study illustrates that in both countries, many factors can influence students' pre-drinking behaviour. Furthermore, the results suggests that Brazilian and British pre-drinkers have different opinions on the perceived impact that the three alcohol policies could have in reducing their pre-drinking practices.

Previous studies suggest that Brazilian and British students' nightlife patrons can be at increased risk of harmful drinking when pre-drinking (Hughes, Anderson, Morleo, & Bellis, 2008; Santos et al., 2015). Although drinking patterns can be influenced by the culture of alcohol

use (Gilligan, Kuntsche, & Gmel, 2012; Kuntsche et al., 2014), alcohol policy can also contribute to an individuals' drinking behaviour (Brand et al., 2007; Paschall, Grube, Thomas, Cannon, & Treffers, 2012). Increasing the price of alcoholic beverages, restricting the physical availability of alcoholic beverages, and restricting alcohol advertising are the three "best buy" policies for preventing alcohol harm (World Health Organization, 2017), which could be beneficial for the society as a whole by decreasing levels of alcohol burden, such as road traffic injuries, violence, and crime (Chisholm et al., 2018).

In England, evidence suggests that alcohol is easily available for students in on- and off-licensed premises and this can have a negative impact on their drinking behaviours (Quigg, Hughes, & Bellis, 2013). Act, 2003 (Act, 2003 (c 17), 2003) makes licensed premises responsible for refusing alcohol sales to drunk people to control violent behaviour and drunkenness amongst nightlife patrons (Boyd, Farrimond, & Ralph, 2018; Farrimond, Boyd, & Fleischer, 2018). Whereas, in Brazil, selling alcohol to drunk people seems to be rooted within the country's culture and there is no regulation on this matter (Sanchez, 2017), highlighting the fact that effective responsible drinking initiatives developed to change drinking behaviours in Brazil are still scant and need to be investigated. Interestingly, the current results show that more Brazilian pre-drinkers (when compared with British pre-drinkers) perceived that regulating alcohol availability could reduce their pre-drinking levels. This gives supports for the Brazilian scenario to formally regulate alcohol sales and restrict its availability in Brazil. However, the effectiveness of implementing such interventions would depend on successful awareness campaigns to stimulate and raise public opinion, political mobilisation, and commitment alongside bar owners and even media representatives training to regulate the availability to alcohol.

Alcohol consumption can be reduced by making it less affordable (Cook, Bond, & Greenfield, 2014; Hahn et al., 2012). Current results corroborate previous studies in which pre-drinking is associated with the consumption of cheaper alcohol (Østergaard & Andrade, 2013; Østergaard & Skov, 2014; Wells et al., 2009). Nonetheless, the reasons to pre-drink go beyond finance (Barton & Husk, 2014; Davies & Paltoglou, 2019). Our findings highlight the importance of economic influence and developing stricter alcohol policy target at this population (Casswell &

**Table 5** Distribution and estimates from multinomial logistic regression for Brazilian pre-drinker's (N = 469) sociodemographic characteristics and perceptions of reducing their pre-drinking practices according to combined alcohol policies\*.

Perceived (combined) alcohol policies* that could reduce pre-drinking behaviour												
Descriptive statistics												
BRAZIL N = 469												
	None of the policies			One of the policies			Two of the three policies			All three policies		
	N	%	p value	N	%	p value	N	%	p value	N	%	p value
Age	44	20.8	0.772	57	26.9		85	40.1		26	12.3	
18–21	58	22.6		77	30.0		93	36.2		29	11.3	
22–29 (ref)	54	25.6	0.103	51	24.2		84	39.8		22	10.4	
Gender	47	18.4		82	32.0		94	36.7		33	12.9	
Male	69	21.2	0.262	88	27.0		125	38.3		44	13.5	
Female (ref)	33	23.1		46	32.2		53	37.1		11	7.7	
Marital status	79	23.2	0.025	102	29.9		129	37.8		31	9.1	
On a relationship (ref)	23	18.0		32	25.0		49	38.3		24	18.8	
Ethnic group	91	21.1	0.463	123	28.5		168	38.9		50	11.6	
White	11	29.7		11	29.7		10	27.0		5	13.5	
Other (ref)												
Academic year												
Undergraduate												
Post-graduate (ref)												

Note: The policies were increasing prices, regulating alcohol availability, and restricting alcohol promotions. Reference for categories for each sociodemographic variable used in the regressions are identified with (ref). For the multinomial logistic regression, the reference category is NONE of the policies could reduce pre-drinking.

Thamarangsi, 2009; Lonsdale, Hardcastle, & Hagger, 2012). Our results showed that, in Brazil, male and white pre-drinkers were more likely to believe that implementing policies to increase prices could reduce their pre-drinking practices, compared with England, where no associations were found with demographics. Notably, the Brazilian alcohol market is not regulated and none of the “best buys” policies are implemented in the country (Laranjeira, 2007). In the UK, the Scottish and Welsh governments have introduced a minimum price per unit of alcohol, yet no such legislation has yet been introduced in England (Anderson et al., 2021; O'Donnell et al., 2019). This is an interesting finding because policy acceptance can be influenced by the cultural context and previous experience of a country with alcohol legislation, i.e., England has more experience with implementing increasing prices policies, regulating alcohol availability, and restricting alcohol promotions, yet British students seem less likely to believe that implementing such policies could reduce their pre-drinking practices (as opposed to the Brazilian scenario).

The context of alcohol use in British young adults' social life seems to be market driven through the spread of new alcoholic drinks and constant alcohol advertising associating drinking with pleasure (Measham & Brain, 2005; Szmigin et al., 2008) which has been identified as a influencing factor in students' drinking, including pre-drinking (Atkinson, Ross-Houle, Begley, & Sumnall, 2017). The system of self-regulation of alcohol marketing in Brazil and in England seems to be not effectively restricted (Ross-Houle & Quigg, 2019; Sanchez, 2017). Our results on students' perceptions of restricting alcohol promotions with reduced pre-drinking levels highlight the importance of understanding the wider context of drinking (e.g., alcohol market) on students' pre-drinking, since it plays an important role in supporting the normalised excessive drinking culture amongst students (Griffin et al., 2009).

England has already introduced a mix of alcohol control-based policies aimed at better managing nightlife drinking environments (including during pre-drinking practice) as well as encouraging behaviour change (Quigg, Butler, Hughes, & Bellis, 2022). Whilst in Brazil none of the “best-buys” alcohol policies are currently implemented; more Brazilian pre-drinkers still believed that such legislation could reduce their pre-drinking practices than when compared with British pre-drinkers. More Brazilian qualitative studies on the populations' perceptions of alcohol policies options are needed to provide key information for policy makers and local authorities to develop proper and adapted interventions aimed at reducing harmful drinking and drunkenness during pre-drinking practice (and consequently throughout the night), according to national priorities and contexts (World Health Organization, 2010). Finally, it is important to acknowledge that understanding the individuals' perceptions of alcohol policy and its effectiveness do not necessarily mean that policies are effective.

#### 4.1. Limitations

Limitations of this study include the low response rates. Online surveys are much less likely to achieve responses rates as high as in-person or paper administrative surveys (Nulty, 2008). Despite the lower rates, this study managed to achieve a large Brazilian sample, which was very interesting because, unlike England, in Brazil it is not as common for students to receive invitations for online research. The questionnaire was designed and adapted for both countries. Yet, since Brazil and the UK have different nightlife structures (e.g., distinction between on- and off-licensed premises), type of drinks, alcohol strengths, and serving sizes, findings regarding the perceived impact that alcohol policy could have on Brazilian and British students' pre-drinking behaviour may not be comparable and generalizable since there might have been some difficulties with Brazilian students' interpretation of the survey. Furthermore, asking about people's alcohol consumption can be a problem, especially when reporting socially or culturally “unacceptable” behaviours (e.g., pre-drinking), because

**Table 6** Distribution and estimates from multinomial logistic regression for British pre-drinker's (N = 332) sociodemographic characteristics and perceptions of reducing their pre-drinking practices according to combined alcohol policies\*.

Perceived (combined) alcohol policies* that could reduce pre-drinking behaviour												
Descriptive statistics												
ENGLAND N = 332												
	None of the policies			One of the policies			Two of the three policies			All three policies		
	N	%	p value	N	%	p value	N	%	p value	N	%	p value
Age	84	37.7	0.120	76	34.1		51	22.9		12	5.4	
18–21	54	49.5		30	27.5		17	15.6		8	7.3	
22–29 (ref)	50	44.2	0.777	36	31.9		20	17.7		7	6.2	
Gender	84	39.6		68	32.1		47	22.2		13	6.1	
Male	63	40.1	0.775	49	31.2		36	22.9		9	5.7	
Female (ref)	75	42.9		57	32.6		32	18.3		11	6.3	
Marital status	123	40.9	0.465	100	33.2		60	19.9		18	6.0	
Single	15	48.4		6	19.4		8	25.8		2	6.5	
On a relationship (ref)	109	40.2	0.691	90	33.2		56	20.7		16	5.9	
Ethnic group	29	47.5		16	26.2		12	19.7		4	6.6	
White												
Other (ref)												
Academic year												
Undergraduate												
Post-graduate (ref)												

Note: The policies were increasing prices, regulating alcohol availability, and restricting alcohol promotions. Reference for categories for each sociodemographic variable used in the regressions are identified with (ref). For the multinomial logistic regression, the reference category is NONE of the policies could reduce pre-drinking.

Multinomial logistic regression\*

ENGLAND  
N = 332

	One of the policies			Two of the three policies			All three policies		
	OR	95% CI	p value	OR	95% CI	p value	OR	95% CI	p value
Age	1.49	0.75–2.96	0.244	2.06	0.88–4.84	0.095	0.88	0.27–2.85	0.832
18–21	-	-	-	-	-	-	-	-	-
22–29 (ref)	0.94	0.54–1.65	0.845	0.68	0.35–1.33	0.268	0.89	0.32–2.48	0.829
Gender	-	-	-	-	-	-	-	-	-
Male	0.97	0.56–1.69	0.937	1.36	0.72–2.55	0.339	1.03	0.37–2.82	0.954
Female (ref)	-	-	-	-	-	-	-	-	-
Marital status	-	-	-	-	-	-	-	-	-
Single	1.91	0.70–5.25	0.206	0.90	0.35–2.34	0.843	1.11	0.22–5.53	0.895
On a relationship (ref)	-	-	-	-	-	-	-	-	-
Ethnic group	1.03	0.45–2.38	0.934	0.71	0.26–1.88	0.492	1.13	0.27–4.69	0.860
White	-	-	-	-	-	-	-	-	-
Other (ref)	-	-	-	-	-	-	-	-	-
Academic year	-	-	-	-	-	-	-	-	-
Undergraduate	-	-	-	-	-	-	-	-	-
Post-graduate (ref)	-	-	-	-	-	-	-	-	-

people tend to over- or under-estimate their alcohol consumption (van de Mortel, 2008). To avoid that, the pilot study tested not only whether interviewees understood the questions but also if they felt able to answer it. Moreover, the wording and translation process were carefully thought to avoid judgmental questions. This study aimed to gain understanding of university students' perceived impact that alcohol policy could have on their pre-drinking practice. Thus, the current results add to the literature regarding students' alcohol use and the possible influences in pre-drinking behaviour and its implication for policy and prevention.

4.2. Conclusions

Alcohol use amongst university students within nightlife settings (e.g., during pre-drinking practice) is a multifaceted behaviour influenced by many factors. Also, alcohol policies and interventions within nightlife contexts are important areas for practice and future research. Overall, Brazilian pre-drinkers were more likely to believe that implementing the “best-buys” alcohol policies could reduce their pre-drinking practices, when compared to British pre-drinkers. Brazilian research aimed at understanding alcohol use within the nightlife context, including during pre-drinking practice and its related harms (to develop effective policies and interventions) is still scant. There is a lack of political (including financial support) and populational commitment at both local and national level to develop and accelerate the application and control of existing policies in Brazil. Therefore, to establish what lessons can be learned across different cultures for addressing harmful drinking and drunkenness amongst students, particularly during pre-drinking practice, further qualitative research aimed at exploring students' ways of drinking alongside attitudes, beliefs, and (mis)perceptions is required to better understand how factors influencing students' pre-drinking behaviour may vary across cultures.

CRedit authorship contribution statement

**Mariana G.R. Santos:** Conceptualization, Methodology, Project administration, Validation, Visualization, Writing – original draft, Writing – review & editing. **Zila M. Sanchez:** Conceptualization, Supervision, Validation, Writing – review & editing. **Karen Hughes:** Methodology, Writing – review & editing. **Ivan Gee:** Supervision, Writing – review & editing. **Zara Quigg:** Conceptualization, Methodology, Supervision, Validation, Writing – review & editing.

Declaration of Competing Interest

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Data availability

The data that has been used is confidential.

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