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'It's somewhere here, isn't it'? The provision of information and health warnings for alcoholic beverages sold online in New Zealand and the United Kingdom

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Abstract

Introduction: Alcohol beverages in many countries are required to display health information and warnings on all product packaging, given the individual and societal harm caused by alcohol. It is unclear whether consumers purchasing alcohol online are able to easily view such information. This study examines the presence, type and location of mandatory and voluntary health information and warnings consumers are exposed to when entering online alcohol retail shopping environments in the United Kingdom (UK) and New Zealand (NZ).

Methods: Using an observational study design, 1407 randomly sampled alcoholic beverages from 14 online alcohol retailers (7 per country) were reviewed to ascertain the visual presence or absence of mandatory and voluntary health information and warnings.

Results: UK online alcohol retailers were more compliant than NZ retailers in showing mandatory health information (e.g., alcohol by volume percentage was visible on 92% of alcoholic beverages sold online in the UK, compared to 31% in NZ, $p < 0.001$). A similar pattern was noted for voluntary health warnings. Online retailers in both countries had a low proportion of alcohol products with the viewable mandatory information, and voluntary health warnings were rarely present and/or viewable.

Discussion and Conclusions: Mandatory health information and warnings for alcoholic beverages are not fully adhered to within the UK and NZ online retail environments, impacting the ability of consumers to make informed purchase decisions. In both countries, alcohol policy needs to stipulate that mandatory

health information and warnings should be clearly viewable on the product page and product imagery of online alcohol retailers.

KEYWORDS
alcohol, labelling standards, New Zealand, policy, United Kingdom

1 | INTRODUCTION

Alcohol-related harms are well-known, with alcohol an attributable risk factor for over 200 disease and injury conditions, including cardiovascular disease, liver cirrhosis, road traffic crashes, suicides, multiple cancers (including larynx, breast, colorectal and liver) and harm to unborn children [1–3]. Furthermore, the impact of alcohol extends beyond the user, causing physical, psychological, social and economic burdens to other individuals and society [1, 3]. Despite the above, research indicates there is low general awareness by consumers of the link between alcohol consumption and alcohol-related harms [4, 5], with awareness higher for common short-term consequences (e.g., traffic accidents) compared to long-term consequences (e.g., cancer) [4]. These findings highlight the need for better communication of risks to alcohol consumers. One way to educate consumers is to add health information and warning labels on alcoholic beverage packaging. Research indicates that such labels can increase awareness of alcohol-related harm, increase discussion about the various risks, reduce intentions to purchase and consume alcohol and reduce alcohol purchase [6–10].

Despite this evidence, in many countries, health warning labels for alcoholic beverages are only voluntary, meaning manufacturers have a choice of whether to apply them. For example, in New Zealand (NZ) and the United Kingdom (UK), two countries that have similar economic productivity [4] and similar levels of alcohol consumption [5], no mandatory alcohol warning labels are required on alcoholic beverages (although pregnancy warning labels, approved by Food Safety Australia New Zealand [FSANZ], have been available for use by manufacturers since June 2020 in NZ, and will become mandatory for all alcoholic beverages manufactured after July 2023 [11]). Since such labels are not mandatory, not all consumers in these countries will be aware of the risks associated with alcohol, and therefore do not have the necessary information to make informed and safe decisions (particularly at the point of sale) around reducing purchase and consumption of alcohol as a way of mitigating alcohol-related harms.

Alcohol manufacturers in these two countries do however have to comply with mandatory labelling standards for alcoholic beverages, and these standards are relatively similar between NZ and the UK (Table 1) [12, 13]. Specifically, in both countries, there is a mandatory requirement for all alcoholic beverages to display the net volume, alcohol by volume percentage (%ABV: required for all products in NZ, or for products with %ABV > 1.2 in the UK), and an allergen declaration [12, 13]. In NZ, an ingredients list is required for all alcoholic beverages (with the exception of beer, spirits, cider, perry, mead,

TABLE 1 Labelling requirements and guidelines in New Zealand and in the United Kingdom

	NZ [12]	UK [13]
Mandatory health information and warnings		
All alcoholic beverages		
Net volume	✓	✓
Alcohol by volume percentage (%ABV)	✓	
Allergen declaration	✓	✓
Pregnancy warning label	(✓)[a]	
Alcoholic beverages with a certain alcohol content		
Number of standard drinks per bottle (%ABV > 0.5)	✓	
Alcohol by volume percentage (%ABV > 1.2)		✓
Ingredient list (%ABV > 1.2)		✓
Nutrition declaration (%ABV > 1.2)		✓
Certain types of alcoholic beverages		
Ingredient list (excludes beer, spirits, cider, perry, mead, wine and liqueur)[b]	✓	
Alcoholic beverages with a nutrition claim		
Nutritional information panel (excludes gluten-free claims)	✓	
Restricted representations		
Low-alcohol claim (%ABV > 1.15 [NZ] or %ABV > 1.2 [UK])	✓	✓
Alcohol-free claim (if it contains any alcohol [NZ] or %ABV > 0.05 [UK]	✓	✓
Non-intoxicating claim (%ABV > 0.5)	✓	

Abbreviations: ABV, alcohol by volume percentage; NZ, New Zealand; UK, United Kingdom.

[a]There is currently a 3-year transition period, with pregnancy warning labels becoming mandatory for all alcoholic beverages in New Zealand on 31 July 2023 [11].

[b]For alcoholic beverages such as gin and tonic an ingredient list is mandatory in New Zealand [12].

wine and liqueur), a nutritional information panel is required if a nutrition claim is made, and a label showing the number of standard drinks per bottle is required for beverages with %ABV > 0.5 [12]. In contrast, in the UK an ingredient list and nutrition declaration is only required for alcoholic beverages with a %ABV < 1.2 [13]. There are no regulations stipulating that mandatory labels for alcoholic beverages should be clearly visible within an online retail environment.

Both countries also have claims that are not permitted on alcoholic beverages, specifically an 'low-alcohol' claim if products have a %ABV > 1.15 (NZ) or %ABV > 1.2 (UK) and a 'alcohol-free/non-alcoholic' claim if a product contains any alcohol (NZ) or %ABV > 0.05 [12, 13]. In NZ, a 'non-intoxicating' claim is not permitted if the product has a %ABV > 0.5 [12]. Health claims on alcoholic beverages are also prohibited in both countries, however, certain nutrition claims that relate to energy, carbohydrate or gluten are permitted [12, 13]. There are no mandatory health warning labels for alcohol for either country although, as noted previously, a pregnancy warning label will become mandatory in NZ in 2023.

In 2019, 83.5% of alcohol in NZ was bought in physical retail outlets; however, the proportion of alcoholic beverages sold online has been steadily increasing from 10% in 2015 to 16.5% in 2019, indicating a 65% increase [14]. Likewise, the proportion of alcohol purchased online in the UK increased from 8.4% to 9.4% in the same period [15]. The current COVID pandemic has forced many 'brick and mortar' retail outlets to close their doors to customers and switch to an online retail environment, with door-to-door contactless delivery [14]. As such, the pandemic has accelerated the growth of e-commerce and this trend is likely to continue in the foreseeable future as the sale of alcohol online is expected to grow by 66% globally between 2020 and 2025 [16]. This growth poses important questions regarding information provision to consumers in online retail environments, specifically whether consumers can easily view mandatory alcohol health information, and/or voluntary health warnings online. While strict mandatory labelling requirements apply to the product packaging of an alcohol container allowing it to be visible in retail stores [12, 13], visibility may be compromised for alcohol containers that are sold online (e.g., shoppers may be unable to rotate the image to view the back of a bottle where a label may be placed).

We therefore undertook a study to address the above evidence gap, by reviewing the websites of online alcohol retailers in the UK and NZ to ascertain whether mandatory health information and voluntary health warnings were shown on the product page and/or on product imagery. A secondary aim was to provide evidence on whether consumers had the same opportunity to be exposed to such health information and warnings, regardless of which country they lived in, the types of alcoholic beverages they were viewing online, and the type of online store (supermarket or bottle store) they were accessing.

2 | METHODS

A descriptive research design is most appropriate to address the above evidence gap. This choice is also in line with similar previous studies [17, 18]. Specifically, we conducted a large observational study to determine the visibility and content of mandatory alcohol health information, and/or voluntary health warnings on alcoholic beverage labels across NZ and the UK, 14 retailers, and more than 1400 alcoholic beverages viewable online. We utilised a two-step sampling approach: retailer selection and the selection of alcoholic beverages.

2.1 | Retailer selection

To maximise the value of this study, we utilised judgemental sampling to focus on the largest alcohol retailers, selling a broad range of alcoholic beverages. Retailers were included if they: (i) had an alcohol online shopping option; (ii) offered >100 alcoholic products across all available alcohol product categories; and (iii) offered at least three alcohol product categories (e.g., beer, wine and ready-to-drink). Second, we selected the largest alcohol retailers in each respective country. In the absence of free public data, we determined the largest alcohol retailers based on their total number of physical stores. A total of seven retailers were selected for each country. For NZ, three supermarkets and four bottle stores were selected [19–25] while six supermarkets and one bottle store were selected in the UK [26–28].

2.2 | Alcoholic beverage selection

To include a wide range of alcoholic beverages, we utilised a stratified sampling approach. Strata were the five most commonly bought alcohol categories: beer, cider, ready-to-drink (RTD), spirits and wine [15, 18]. At least 100 alcoholic beverages were randomly sampled from each retailer's website, with equal numbers of beverages selected from each of the five alcohol categories, resulting in at least 20 beverages sampled per category. If there were <20 beverages within any given alcohol category, the number of beverages needed to ensure a total sample size of at least 100 beverages per retailer was equally split between all other alcohol categories available at that retailer.

As a second step, we utilised systematic random sampling to select alcoholic beverages from each category. To achieve this, we followed the same procedure at each retailer: all products were sorted by price, from lowest to highest. Then, starting with the lowest-priced alcoholic beverage, every *n*th beverage was selected, whereby *n* was the quotient determined by the total number of alcoholic beverages available in the retailer's product category divided by the number of alcoholic beverages sampled per product category.

2.3 | Data collection

The mandatory and voluntary health information and warnings for alcohol products available on each retailer's website were recorded in a spreadsheet. We used coding frameworks from similar studies [17, 18] as starting points and then adapted these to the unique purpose of this study. The coding framework was used to document the presence and form of health-related information and warnings visible on all sampled beverages (e.g., a drink-driving warning, information about the alcohol by volume), nutritional claims and information (e.g., a claim about the sugar content), as well as any links to industry-led initiatives on alcohol drinking guidelines (e.g., 'Cheers' in NZ and 'Drinkaware' in the UK). Both product information available on the retailer's product page (i.e., product name, description and logo) and information visible on the given product images were accounted for. We pre-tested and refined the coding framework on a pilot sample.

The visibility of health information and/or warnings was evaluated by coders [17, 29]. To increase the validity of the data, and similar to previous research [29], we provided coders with three unambiguous descriptions to assess visibility, namely: (i) 'visible' if the information was clear and could be read without any difficulty; (ii) 'somewhat visible' if information that was not as clear or easy to read but was none-the-less present; or (iii) 'not visible' if the information was not legible or absent [29].

Two trained coders independently recorded data in a spreadsheet using the same coding framework. To ensure that the same visuals were used to code each alcoholic beverage, screenshots of the website and product images were saved in a shared folder, prior to the data extraction.

After data collection was completed, the coders compared their data. Discrepancies were resolved by re-visiting product images and re-evaluating the image until an agreement was reached. A third trained coder was consulted when an agreement could not be reached between the two coders. The final spreadsheet combined the two independently coded spreadsheets and was used for analysis.

2.4 | Analysis

Descriptive statistics were used to report frequencies and proportions. Chi-squared tests were undertaken in R to determine the significance of any differences across countries, store types or product types. For cells with less than five counts, the Fisher exact test was used. Inter-rater agreement was determined by looking at the degree of agreement between the two coders.

3 | RESULTS

From 15 January to 3 February 2021 inclusive, data were collated on 1407 alcoholic beverages from 14 retailers across the two countries (7 retailers per country, 705 alcoholic beverages from NZ and 702 from UK retailers). Inter-rater agreement was high (95%).

The following results focus on health information that was shown on the product page and/or on product imagery (i.e., clearly 'visible' to the coder). Findings related to the 'somewhat visible' information are included in Tables 2 and 3.

3.1 | Mandatory health information and warnings

3.1.1 | Net volume

Net volume information is mandatory in both NZ and the UK. Overall, 98% of sampled beverages in NZ and 100% of beverages in the UK visibly displayed the net volume on either the product page or product imagery, with no difference by store type (supermarket or bottle store, Table 2). While net volume information was mainly displayed on the product page (91% of beverages in NZ and 100% of beverages in the UK), two in every five products in both countries also displayed the net volume on the product imagery in a visible format.

3.1.2 | %ABV

%ABV information is mandatory in NZ but not the UK. Approximately half (53%) of sampled beverages in NZ had %ABV visible on either the product page or product imagery, compared to 97% in the UK ($p < 0.001$, Table 2). Typically, NZ online supermarkets chose to display %ABV information on the product page (31%, Supporting Information Table S1), while NZ bottle stores were more likely to have information visible on product imagery (37%, Table S2). UK supermarkets and bottle

TABLE 2 Prevalence of mandatory health information and warnings on alcoholic beverages sold online in New Zealand and the United Kingdom, across supermarkets and bottle stores

Mandatory health information and warnings			NZ ($N = 705$), % (n)	UK ($N = 702$), % (n)	p-value*
Net volume[a,b]	Visibility on product page	Visible	91% (641)	100% (702)	<0.001
		Not visible	9% (64)	(0)	
	Visibility on product imagery	Visible	45% (315)	42% (296)	<0.001
		Somewhat visible	7% (48)	3% (18)	
		Not visible	49% (342)	55% (388)	
	Visibility on either the product page or imagery	Visible	98% (690)	100% (702)	<0.001
		Somewhat visible	(0)	(0)	
		Not visible	1% (10)	(0)	
Alcohol by volume percentage[a,b]	Visibility on product page	Visible	31% (220)	92% (644)	<0.001
		Not visible	69% (505)	8% (58)	
	Visibility on product imagery	Visible	38% (267)	43% (301)	0.001
		Somewhat visible	10% (69)	5% (35)	
		Not visible	52% (369)	52% (366)	
	Visibility on either the product page or imagery	Visible	53% (373)	97% (678)	<0.001
		Somewhat visible	5% (38)	(1)	
		Not visible	42% (294)	3% (23)	
Standard drinks (per bottle)[a]	Visibility on product page	Visible	(0)	69% (482)	<0.001
		Not visible	100% (705)	31% (220)	
	Visibility on product imagery	Visible	5% (33)	4% (31)	0.038
		Somewhat visible	5% (35)	2% (17)	
		Not visible	90% (637)	93% (654)	
	Visibility on either the product page or imagery	Visible	5% (34)	69% (486)	<0.001
		Somewhat visible	6% (40)	(0)	
		Not visible	90% (631)	31% (216)	
Ingredient list[a,b]	Visibility on product page	Visible	2% (15)	14% (97)	<0.001
		Not visible	98% (690)	86% (605)	
	Visibility on product imagery	Visible	(4)	(1)	0.140
		Somewhat visible	(3)	(0)	
		Not visible	99% (698)	99.9% (701)	
	Visibility on either the product page or imagery	Visible	2% (17)	14% (97)	<0.001
		Somewhat visible	(0)	(0)	
		Not visible	98% (688)	86% (605)	
Allergen declaration[a,b]	Visibility on product page	Visible	9% (66)	47% (330)	<0.001
		Not visible	91% (639)	53% (372)	
	Visibility on product imagery	Visible	2% (16)	4% (28)	0.148
		Somewhat visible	(3)	(3)	
		Not visible	97% (686)	96% (671)	
	Visibility on either the product page or imagery	Visible	10% (67)	47% (333)	<0.001
		Somewhat visible	(0)	(0)	
		Not visible	91% (638)	53% (369)	

(Continues)

TABLE 2 (Continued)

Mandatory health information and warnings					
			NZ ($N = 705$), % (n)	UK ($N = 702$), % (n)	p-value*
Pregnancy warning[c]	Visibility on product page	Visible	(1)	5.3% (37)	<0.001
		Not visible	99.9% (704)	95% (665)	
	Visibility on product imagery	Visible	5% (35)	8% (54)	0.008
		Somewhat visible	1% (8)	(1)	
		Not visible	94% (662)	92% (647)	
	Visibility on either the product page or imagery	Visible	5% (36)	12% (86)	<0.001
		Somewhat visible	1% (8)	1% (6)	
		Not visible	94% (661)	87% (610)	

Abbreviations: FSANZ, Food Safety Australia New Zealand; NZ, New Zealand; UK, United Kingdom.
[a]This information is mandatory in NZ.
[b]This information is mandatory in the UK.
[c]Specific pregnancy warning labels as prescribed by the FSANZ will become mandatory in NZ in 2023 but manufacturers have the option to start applying from July 2020 [11]. This study accounts for all types of pregnancy labels, including those mandated by the FSANZ.
*Significance tests relate to comparisons within rows and across columns.

stores were more likely to have %ABV information visible on the product page (91% and 99% respectively, Table 3 and Table S3).

3.1.3 | Allergy declaration

An allergy declaration is mandatory in both NZ and the UK. An allergy declaration was visible on 47% of sampled alcoholic beverages sold in UK online retailers, compared to 10% in NZ online retailers ($p < 0.001$, Table 2). For both countries, viewable declarations were more common on the product page than on the product imagery. UK supermarkets had a significantly higher proportion of alcoholic beverages with a viewable allergy declaration on their product page than NZ supermarkets (55% vs. 22% respectively, $p < 0.001$, Table S1). There was no significant difference between NZ and UK bottle stores, as to whether an allergy declaration could be viewed.

3.1.4 | Standard drinks

Information about the number of standard drinks per bottle is mandatory in NZ for beverages with an %ABV of 0.5 or above. This information is not mandatory in the UK. Overall, 69% of sampled beverages available for sale in the UK had the number of standard drinks on either the product page or product imagery in a visible format, compared to 5% of beverages in NZ ($p < 0.001$, Table 2), with a significant difference also noted between supermarkets across countries (70% in the UK vs. 9% in the NZ, Table S1), as well as between bottle stores (62% vs. 2% respectively, Table S2).

3.1.5 | Ingredient list

An ingredient list is mandatory in NZ for alcoholic beverages except beer, spirits, cider, perry, mead, wine and liqueur. In the UK, an ingredient list is mandatory for beverages with an %ABV of 1.2 or below. In the UK, 14% of sampled beverages had an ingredient's list visible on either the product page or imagery, compared to 2% in NZ. Both countries were more likely to provide an ingredient list on the product page, compared to on the product imagery (Table 2). When comparing across countries (Table 2) and between different supermarkets (Table S1), alcoholic beverages sold in the UK were significantly more likely than NZ to have an ingredient list either on the product page or product imagery ($p < 0.001$), but no significant difference was found between bottle stores (Table S2).

3.2 | Voluntary health information and warnings

3.2.1 | Pregnancy warning

In NZ, displaying pregnancy warning information will become mandatory on 31 July 2023. The presence and visibility of any type of pregnancy warning (graphical or textual) on either the product page or imagery were low in both countries, and more common in the UK than NZ

TABLE 3 Prevalence of voluntary health information and warnings on alcoholic beverages sold online in New Zealand and the United Kingdom, across supermarkets and bottle stores

Voluntary health information and warnings					
			NZ ($N = 705$), % (n)	UK ($N = 702$), % (n)	p-Value*
Drink-driving warning	Visibility on product page	Visible	(0)	(2)	0.249
		Not visible	100% (705)	99.7% (700)	
	Visibility on product imagery	Visible	2% (11)	(1)	0.002
		Somewhat visible	(2)	(0)	
		Not visible	98% (692)	99.9% (701)	
	Visibility on either the product page or imagery	Visible	2% (11)	(3)	0.029
		Somewhat visible	(2)	(0)	
		Not visible	98% (692)	99.6% (699)	
Drink responsibly	Visibility on product page	Visible	(4)	31% (219)	<0.001
		Not visible	99.9% (701)	69% (483)	
	Visibility on product imagery	Visible	(4)	7% (50)	<0.001
		Somewhat visible	(4)	(0)	
		Not visible	99% (697)	93% (652)	
	Visibility on either the product page or imagery	Visible	(4)	32% (221)	<0.001
		Somewhat visible	(4)	(0)	
		Not visible	99% (697)	69% (481)	
Minimum age warning	Visibility on product page	Visible	(0)	31% (216)	<0.001
		Not visible	100% (705)	69% (486)	
	Visibility on product imagery	Visible	(1)	(0)	1
		Somewhat visible	(1)	(0)	
		Not visible	99.7% (703)	100% (702)	
	Visibility on either the product page or imagery	Visible	(1)	31% (216)	<0.001
		Somewhat visible	(4)	(0)	
		Not visible	99.3% (700)	69% (486)	
Other health information	Visibility on product page	Visible	(1)	24% (169)	<0.001
		Not visible	99.9% (704)	76% (533)	
	Visibility on product imagery	Visible	(2)	7% (52)	<0.001
		Somewhat visible	(3)	(1)	
		Not visible	99.3% (700)	92% (649)	
	Visibility on either the product page or imagery	Visible	(1)	31% (218)	<0.001
		Somewhat visible	(0)	(1)	
		Not visible	99.9% (704)	69% (484)	
Industry-led initiatives	Visibility on product page	Visible	(0)	34% (238)	<0.001
		Not visible	100% (705)	66% (464)	
	Visibility on product imagery	Visible	3.3% (23)	6.8% (48)	0.003
		Somewhat visible	1% (6)	(2)	
		Not visible	96% (676)	93% (652)	
	Visibility on either the product page or imagery	Visible	3% (23)	34% (238)	<0.001
		Somewhat visible	1% (6)	(0)	
		Not visible	96% (676)	66% (464)	

Abbreviations: NZ, New Zealand; UK, United Kingdom.

*Significance tests relate to comparisons within rows and across columns.

(12% vs. 5% respectively, $p < 0.001$, Table 2). Pregnancy warnings were more likely to be present and viewable on product imagery, rather than the product page in both countries.

3.2.2 | Drink-driving warning

Drink-driving warnings were rarely present and viewable on either the product page or imagery for the sampled alcoholic beverages (1.6% in NZ vs. <1% in UK retailers, Table 3). No significant difference was found between supermarkets in the presence and visibility of drink-driving warnings on the product imagery for alcoholic beverages sold in NZ and the UK.

3.2.3 | 'Drink responsibly' warning

Across all retailers, a 'drink responsibly' warning was present and visible on 32% of sampled alcoholic beverages in the UK, compared to <1% NZ ($p < 0.001$, Table 3). A statistically significant difference was also apparent between UK and NZ supermarkets (37% vs. <1%, $p < 0.001$, Table S3). There was no significant difference between UK and NZ bottle retailers in the presence and visibility of a 'drink-responsibly' warning.

3.2.4 | Minimum age warning

Overall, alcoholic beverages sold in UK retailers were more likely to have minimum age warnings present and viewable on the product pages, compared to NZ retailers (31% vs. <1%, respectively, $p < 0.001$, Table 3). This trend extended to supermarkets (36% vs. <1%, respectively, $p < 0.001$, Table S3), and UK and NZ bottle stores did not differ in this regard. In both countries, there was an absence of minimum age warnings on the product imagery (0% of alcoholic beverages in the UK and <1% in NZ, Table 3). While minimum age warnings were not always present and viewable, both countries had minimum age checks before entry to the retailer website (bottle stores) and before processing payment for alcohol (supermarkets and bottle stores).

3.2.5 | Industry-led initiatives

'Cheers' and 'Drinkaware' are country-specific alcohol awareness websites that provide information to consumers and are funded by the alcohol industry. Information on such industry-led initiatives was about 11 times more prevalent on alcoholic beverages in the UK compared to NZ (34% vs. 3% respectively, $p < 0.001$, Table 3). A statistically significant difference was also apparent between UK and NZ supermarkets (40% vs. 8%, respectively, $p < 0.001$, Table S3).

3.2.6 | Other health information and warnings

A third (31%) of sampled alcoholic beverages in online UK retailers had other health warnings present and viewable on either the product page or imagery, compared to <1% in NZ retailers ($p < 0.001$, Table 3). Such information included daily and/or weekly alcohol consumption recommendations and limits from the UK Chief Medical Officers, and the Republic of Ireland Department of Health low risk limits. UK supermarkets were significantly more likely to have other health warnings viewable on alcoholic beverages, compared to NZ supermarkets (36% vs. <1% respectively, $p < 0.001$, Table S3). Bottle stores in both countries had no other health warnings viewable on either the product page or imagery for their alcoholic beverages.

3.3 | Differences by product type

Regarding mandatory health information, all alcoholic beverages in the UK, regardless of product type, had viewable net volume information either on the product page or product imagery. Excluding net volume information, no significant differences were found in the viewability of mandatory health information between product types. The product type with the highest proportion of at least one other mandatory information or warning viewable were RTDs (100%), followed by spirits (99%), wine (98%), beer (96%) and cider (94%). Similarly, RTDs were also more likely to have at least one voluntary health warning (61%) present and viewable, compared to other product types. Beer was the least likely to have voluntary health warnings (31%) present and viewable. A significant difference in the provision and visibility of voluntary health warnings was found, with RTDs more likely to provide voluntary health warnings when compared to beer ($p = 0.002$) and cider ($p < 0.001$).

For alcoholic beverages sold in NZ, net volume information was provided for all RTDs and spirits on either the product page or product imagery, followed by wine (99%), cider (98%) and beer (94%). Besides net volume information, at least one other mandatory information or warning was viewable for 96% of RTDs, followed by beer

(69%), cider (67%), spirits (50%) and wine (23%). In terms of voluntary health warnings, at least one was provided and viewable on 12% of ciders, 9% of beers, 5% of wines and 4% of RTDs. No voluntary health warnings were provided and viewable for any spirits. A significant difference in the provision of voluntary health warning was found, with cider more likely to provide viewable voluntary health warnings when compared to wine ($p = 0.014$), RTDs ($p = 0.038$) and spirits ($p = 0.001$).

4 | DISCUSSION

Providing consumers with information to raise awareness around the health risks of alcohol is just one step to consider in the wider alcohol policy environment. This study identified woeful inadequacies regarding the viewing of mandatory alcohol health information within an online retail setting, as well as a near absence of any voluntary health warnings on alcoholic beverages. Furthermore, the study identified clear differences between what types of mandatory and voluntary information consumers are provided with in an online alcohol purchasing setting across two countries. While consumers in both the UK and NZ do not have sufficient opportunity to be exposed to health information and warnings, NZ consumers are particularly at risk because of very low levels of information provision at the online point of sale. Differences in the visibility of labelling were also noted between supermarket and bottle store websites in each country. Greater information provision in the UK may be due to more evolved online shopping habits, as internet sales made up 19% of all retail sales there in 2019, compared to 9.8% in NZ for the same year [30].

The strengths of this study lie in the rigorous data extraction and coding employed, and high inter-rater agreement. Furthermore, the large number of alcoholic beverages sampled enabled meaningful comparisons across country, store type and product type. To the best of our knowledge, this is the first study to explore health information and warning provision for alcoholic beverages sold online, extending knowledge gained from earlier studies that examined the presence of health warnings on alcoholic beverages containers in NZ [17], Australia [31] and the UK [32]. The most recent audit of Australian alcohol warning labels (conducted in 2013) showed that these labels were only depicted on approximately one in three (37%) of the 251 products audited [31]. The UK audit of alcohol labelling information in 2014 found that three required elements, unit content, Chief Medical officer guidelines and pregnancy warnings, were present on 77.6% of the 156 products audited, but the information was usually found on the back of products [32]. A more recent New Zealand study (2016–2017) found that 85% of the 59 alcohol containers audited displayed at least one warning on product packaging, with pregnancy warnings and industry initiatives more prevalent than drink driving/heavy machinery warnings [17]. However, most warnings were neither on the front of the containers nor separated from brand promotional elements. These previous audits demonstrate that health warnings may be displayed on-pack but their preferential location on the back of products may partially explain the relatively low visibility of health warnings on alcohol retail websites.

Some study limitations should be acknowledged. First, only one UK bottle store could be identified that met the study selection criteria. A greater number of UK supermarkets were therefore selected to ensure that beverages were sampled from an equal number of alcohol retailers across both countries, thus, ensuring a better comparison between the two countries. Second, due to variations in the availability of different alcohol product categories and the retailers selected for this study, the sample sizes of the five chosen categories (beer, cider, RTDs, spirits and wine) varied. One UK retailer displayed product information for beverages in two alcohol categories on its website, which were not however available for online sale but only for in-store purchases. These beverages, nevertheless, were displayed on a product page with product imagery, and were thus included in the present study process. Finally, multiple tests of significance were undertaken, increasing the risk of type 2 error. However, by having a large sample size, this risk was minimised. In addition, the consistency of findings in this study means we are not focussing on one potential chance finding.

In terms of mandatory alcohol labelling information, manufacturers must comply with labelling requirements in NZ and the UK as part of meeting the relevant food standards code (e.g., FSANZ requirements for a pregnancy warning label by 2023). Assuming compliance, any mandatory alcohol labelling information that is not viewable online is because the online retailer has not ensured its visibility. However, retailers are not obligated to make sure this information is viewable, as there are no laws in either country that require them to do so. This issue highlights a significant policy gap that needs to be addressed in both countries, although it remains unclear whether people shopping for alcohol online read the health information provided (and if they do, whether they only focus on what is on the retailer's product page, or whether they actively read the health information on the product imagery, as supplied by the manufacturer). However, the more important policy gap relates to the fact that manufacturers and online retailers have no obligation to ensure consumers are warned about the known and significant

health risks associated with alcohol consumption, because alcohol health warnings are currently voluntary in both the UK and NZ. Furthermore, the alcohol industry publicly opposes warning labels [33, 34] and thus self-regulation or co-regulation of alcohol policy is likely to prioritise the interests and profitability of the industry over the health and wellbeing of consumers. In NZ, the object of the *Sale and Supply of Alcohol Act* 2012 is that the 'sale, supply and consumption of alcohol should be undertaken safely and responsibly; and that the harm caused by the excessive or inappropriate consumption of alcohol should be minimised'. However, the Act falls short of recommending health warning labels and the visibility of mandatory alcohol labels in the online retail environment. It further needs to be emphasised that New Zealand is not in the position to mandate health warnings on its own as this falls under the responsibilities of the FSANZ, which determines food safety standards for New Zealand and Australia [11]. This issue now raises a legal question—is a manufacturer, distributor or retailer in breach of the object of the Act for a failure to provide adequate warnings on a product (in this case alcohol), if a consumer suffers harm because of consuming the product (e.g., injury, illness, disease or death)?

5 | CONCLUSIONS

Our finding of a large gap in the provision of alcohol-related health information and warnings between NZ and UK online alcohol retailers, despite relatively similar alcohol policy environments, is of significant concern. With online shopping becoming increasingly popular, it is fundamental that online retailers and the alcohol industry provide consumers with the necessary information to enable them to make safe and informed purchase decisions. The findings from this study suggest policy around the online sale of alcoholic beverages in NZ and the UK must be strengthened to ensure mandatory labelling is visible, and health warnings become mandatory (pregnancy warnings will be in NZ by 2023). Ideally, alcohol health information and warnings should be available to view on both the product page and imagery. However, it can be assumed that online shoppers will predominantly notice such information on the product page rather than the available imagery as the shopper must click on the product image for optimal visibility of given health information and warnings. To ensure that online alcohol retailers are not solely relying on supplied imagery from manufacturers, the provision of alcohol health information and warnings should be mandatory on product pages.

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CONFLICT OF INTEREST

Natalie Walker, Cliona Ni Mhurchu and Bodo Lang have received funding from the Health Research Council of New Zealand [Project Grant Number: 21/192] for the conduct of a mixed methods study to develop and test warning labels to reduce alcohol purchase. Cliona Ni Mhurchu is a Food Standards Australia New Zealand (FSANZ) Fellow, and member of the FSANZ Social Sciences and Economics Advisory Group. Natalie Walker is currently undertaking an investigator-initiated, randomised controlled trial which has smoking cessation medication provided (at no cost to the study) by Achieve Life Sciences (a pharmaceutical company). The company has no involvement in the design, conduct or analysis of the study. Other authors have no conflicts of interest to declare.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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