What about 100% juice and non-sugar sweeteners? A national study of support for taxes, labelling and marketing bans applied to sugary drinks, non-sugar sweetened beverages and 100% juice in Australia

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Abstract

Objective: To assess levels of support for potential policy interventions (labelling, banning marketing to children, taxes) to reduce sugarsweetened beverage consumption; and to assess levels of support when these policies were extended to non-sugar sweetened beverages and 100% fruit juice.

Methods: Data, collected via a nationally representative online survey of Australian adults (*N*=2,876), measured support (5-point Likert scales; strongly/somewhat in favour/against, or neutral) for front-of-pack warning labels, banning marketing to children, and taxes, applied to the three beverages. Chi-square (unadjusted) and logistic regressions (adjusted) assessed support.

Results: Support was highest for sugar-sweetened beverage policies, followed by non-sugar-sweetened beverages, and lowest for juice. Across all beverages, support was highest for labelling (83%, 82%, 71%, respectively), followed by marketing bans (73%, 60%, 25%), and taxes (56%, 39%, 14%). Support was typically lower among younger, less educated, most socioeconomically disadvantaged and regular consumers.

Conclusions: Results indicate high receptiveness among the Australian community for beverage policies, especially warning labels, with lower receptiveness towards some policies targeting juice.

Implications for Public Health: These findings can inform the development of effective public health strategies for encouraging healthier beverage consumption, and point to prioritising front-of-pack warning labels, given the consistently high support for this policy.

Key words: sugar-sweetened beverages, non-sugar sweetened beverages, 100% fruit juice, policy support, front-of-pack labelling, marketing bans

Background

he World Health Organization (WHO) recommends daily intake of free sugars be less than 10% of total daily energy intake,¹ equating to approximately 50 grams per day (for adults). Sugarsweetened beverages (SSBs) are a primary source of excess sugar consumed globally, and have been linked to increased risk of cardiovascular disease, type II diabetes, tooth decay and periodontal disease.² In 2018, SSBs were consumed at an average of 2.7 serves per week globally, and 31.4% of countries reported average consumption of over 7 serves per week.³ In Australia, SSBs accounted for 40.2% of daily non-alcoholic beverage consumption in 2020-21.⁴ Interventions to reduce consumption of SSBs are a focus of public health policy, globally.

Many countries have policies to target the overconsumption of SSBs, largely through sugar taxes.⁵ The inclusion of non-sugar sweetened beverages (NSSBs) or 100% juice in policies varies. While 77% of tax policies include NSSBs, largely by default through targeting

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"sweetened" products/drinks,⁶ policies such as front-of-pack (FOP) labelling or marketing bans rarely incorporate NSSBs. Many policies, including taxes, explicitly exclude 100% juice despite their high free sugar content, with only 43% of beverage taxes incorporating 100% juice.⁶ Real world evaluations and experimental research indicate the impact of policies for successfully reducing SSB consumption. However, findings also indicate corresponding increases in consumption of alternative beverages, including NSSBs and 100% juice, as well as industry responses of reformulating drinks to replace sugar with non-sugar sweeteners.^{7–11}

Experimental research indicates that switching to NSSBs and juice would likely follow the implementation of SSB policies in Australia.¹² This is concerning given increasing evidence linking NSSB consumption to adverse health effects,¹³ and that WHO guidelines caution against the consumption of non-sugar sweeteners, encouraging the use of alternative strategies to reduce sugar intake.¹³ Despite this, NSSBs are often marketed as healthier alternatives to SSBs, resulting in uncertainty among consumers with respect to the health effects of NSSB consumption.^{14,15} NSSBs are currently a popular beverage choice, and consumption is increasing. In 2020-21 NSSBs accounted for 19.6% of daily non-alcoholic beverage consumption in Australia, and daily consumption increased by 13% among Australian adults between 2019-20 and 2020-21 (compared to a 1.2% increase in daily SSB consumption).⁴ Fruit juice is high in free sugars and associated with similar health outcomes as SSB consumption, yet is often marketed and perceived as a healthy beverage.^{15–17} A large nationally representative survey in Australia found that 59% of participants perceive fruit juice to be healthier than soda.¹⁴ Fruit juices accounted for 8.6% of daily nonalcoholic beverage consumption in 2020-21.⁴ There is a growing need for comprehensive policies that target all drinks high in free sugars and mitigate potential substitution towards NSSBs, to encourage healthier beverage choices.

The WHO recommends implementation of a range of policy interventions for targeting sugar consumption behaviours, including taxes, mandatory FOP labelling and mandatory marketing regulations.^{18,19} More than 100 countries have implemented some form of beverage tax,⁶ with real-world policy evaluations demonstrating effectiveness in reducing SSB consumption.^{7,8,10,20,21} Implementation of other policy approaches is less widespread. Just over 30 countries have implemented FOP warning labelling schemes, although these are mandatory in only 10 countries, and even fewer countries have implemented marketing bans.⁵ Chile was the first to implement a mandatory FOP warning label system in 2016, highlighting foods and beverages as "high in" particular nutrients (e.g. sugar). Several other countries have followed suit, with the implementation of similar mandatory labelling systems in Peru, Mexico, Uruguay, Argentina, Israel, Canada, Colombia, Brazil and Venezuela.²² Real-world policy evaluations and experimental research have demonstrated the success of labelling systems, especially FOP warning labels, for discouraging SSB consumption.9,12,23-27 Some countries (e.g. Chile, Mexico, South Korea, Sweden, Slovenia, the United Kingdom and Quebec, Canada) have regulations on marketing directly to children across some media, especially television.²⁸ While comprehensive marketing regulations are limited, emerging evidence indicates their success in reducing SSB consumption.^{26,27} Currently, Australia does not have an SSB tax or mandatory FOP labelling, nor does it ban marketing of unhealthy products to children. Australia has a voluntary interpretive FOP labelling scheme, with limited

uptake and some state-based junk food advertising restrictions (e.g. removing junk food advertising from public transport).^{22,29}

Understanding consumer receptiveness towards policy options is important for the success of policy implementation. Policy makers benefit from a strong evidence base demonstrating both the potential effectiveness of interventions, as well as community support (or opposition) for potential policies.³⁰ Existing evidence demonstrates high support for a range of policy interventions specifically focused on targeting SSBs, ranging, for example, from 59-95% in Australia,^{31,32} 58-99% in Canada,³³ 55-85% in Singapore³⁴ and 22-65% in the USA.³⁵ Generally, support is lower for taxing policies and higher for educative and child-centred policies, such as education campaigns, on-bottle labelling, education programs for children, banning or restricting marketing to children and banning the sale of products to children in certain settings (e.g. in schools).^{31–35} Levels of support for policy interventions targeting NSSBs and 100% juice have not been explicitly assessed. Understanding consumer attitudes towards policy approaches targeting a range of beverages is important to consider for developing successful public health strategies while mitigating unintended consequences. Substantial political support is needed for the implementation of such policies to combat strong industry opposition. Providing insight into specific population subgroups with higher or lower support for particular strategies is also important for identifying key target groups. For instance, results of several studies indicate that support for SSB policies tends to be lower among regular SSB consumers, less educated, and more socioeconomically disadvantaged consumers.^{36,37} The present study aimed to ascertain consumer receptiveness towards potential SSB policy interventions (taxing, FOP labels, banning marketing to children) extended to NSSBs and juice, and to determine degrees of variation in level of support for these policies according to participant demographics and health risk factors.

Methods

A nationally representative sample of Australian adults were surveyed in April 2022. Participants were recruited via the Social Research Centre's Life in Australia[™] panel. This panel is comprised of people recruited via random-digit dialling of landline and mobile phone numbers who have agreed to regular survey participation. The panel is regularly refreshed using sampling approaches that maintain the panels' comparability to the Australian population, with the panel for the current study consisting of those recruited in 2015. Life in Australia'sTM approach, using probability-based sampling methods to recruit participants, enables generalisability to the Australian adult population. For the present study, active panel members were randomly selected and invited to participate via email and SMS. Up to seven follow-up email, SMS and/or telephone reminders were administered during the 14-day study period. A total of 2,876 participants completed the online survey, representing a response rate of 74%. Participants who completed the survey received \$10 AUD compensation. Ethical approval was granted by the Human Research Ethics Committee at the University of Adelaide (approval number H-2022-050).

Measures

SSBs were referred to as "sugary drinks" throughout the survey and defined as "drinks with added sugar, including soft drinks, energy drinks, sports drinks, iced teas, natural mineral water, flavoured

milks and cordials." NSSBs were described as "drinks that contain sweeteners", including "drinks such as 'diet', 'no sugar' and 'zero' varieties." 100% juice drinks were defined as "fruit drinks that have no added sugar." Example images within each drink category were presented to increase clarity for participants.

Level of support for policies

Assessment of levels of support for policies was based on measures previously used to assess SSB policy perceptions among adults³² and adolescents³⁸ in prior national surveys, and similar to measures used to assess support for tobacco³⁹ and food policies.⁴⁰ Participants were asked to indicate whether they were or were not in favour of each of the policies (text warning labels, banning marketing to children and taxes) as applied to each of the targeted beverages (SSB, NSSB and 100% juice), with the following response options: strongly against, somewhat against, neither for nor against, somewhat in favour, or strongly in favour. For each participant, the order of policy options (labelling, marketing ban, tax) was randomised for each drink type (SSB, NSSB and juice) to mitigate any potential impact of policy order on levels of support.

Beverage consumption

Beverage consumption was assessed using measures from previous population surveys.^{14,37} Participants were asked how often (daily, weekly, monthly, less than monthly, never) they usually consume each of the following drinks: sugary drinks, including soft drinks, energy drinks, sports drinks, iced teas, flavoured waters, fruit drinks, flavoured milks and 100% fruit juices; and drinks that contain sweetener, including low or no sugar soft drinks, energy drinks, sports drinks, iced teas and flavoured waters. In line with previous research,^{12,41} participants were considered regular consumers of that beverage type if they reported consuming at least one of the beverages in that category (SSBs, NSSBs and 100% juice) weekly or more, or low consumers if they reported consuming beverages in that category monthly or less.

Sociodemographic characteristics

Participant sociodemographic characteristics, including age, sex, education, postcode and self-reported height and weight were collected. Postcodes were used to calculate the level of disadvantage according to the Socio-Economic Indexes for Areas, which were categorised into three levels of disadvantage: most (quintiles 1-2), mid (quintile 3) and least (quintiles 4-5) disadvantaged. Body mass index (BMI) was calculated using participants' self-reported height and weight and categorised into overweight/obese (BMI \geq 25 kg/m²), or healthy/underweight (< 25 kg/m2). Educational attainment was categorised into two groups: completed vocational training or below, and completed some tertiary and above.

Statistical analyses

Data were weighted to bring the obtained sample in line with the population distribution of Australian adults (18+ years). A multi-step weighting procedure was used to adjust for the initial chance of panel selection and chance of responding to the survey wave, and then adjusted so that the distribution of respondents matched the relevant population benchmarks for location, main language spoken at home, number of adults in the household, age and education (sourced from the Australian Bureau of Statistics). Statistical Package for the Social

Sciences version 22 was used for all statistical analyses. A series of bivariate (unadjusted) chi-square analyses were used to assess variation in policy support according to sociodemographic characteristics and beverage consumption. After determining there were no violations of assumptions, a series of binary logistic regressions, adjusting for all sociodemographic and consumption characteristics simultaneously, were used to determine odds of demographic and beverage consumption subgroups that were "in favour" (strongly or somewhat) or "not in favour" (strongly or somewhat against, or neither for nor against) for each policy option, in comparison to a specified reference subgroup. In line with similar previous research,^{32,38} analyses adjusted for all sociodemographic and consumption characteristics simultaneously to determine unique variance explained, and all characteristics found to explain unique variance for at least one outcome were included in the multivariable results table. A conservative significance level of p < 0.01 was set due to the large sample size and number of analyses undertaken.

Results

Participant characteristics

A total of 2,876 participants completed the study. Participants were distributed evenly across sex (50.5% female, 49.0% male) and age groups (30.7% aged 18-34 years, 33.4% aged 35-54 years, 35.8% aged 55+ years). With respect to level of disadvantage, 42.8% were from least disadvantaged areas, with fewer from mid- and most-disadvantaged areas (20.2% and 36.8%, respectively). Regular consumption of beverages was 43.6% for SSBs, 27.5% for NSSBs and 20.7% for 100% fruit juice.

Policy support

Levels of support (strongly/somewhat in favour) were generally higher for policies that targeted SSBs, followed by NSSBs, and lower for 100% fruit juice (see Table 1). Support for text warning labels received the highest level of support within each beverage group; support was equivalent for SSBs (83.0%) and NSSBs (81.5%) but lower for juice (71.1%). Banning marketing to children was the second most supported policy within each beverage group, with high levels of support for SSBs (73.1%) and NSSBs (59.5%); taxing received the lowest support within each beverage group. Levels of support for banning marketing to children and a beverage tax were especially low for 100% juice at 25.2% and 13.8%, respectively.

Variation in policy support

Results of unadjusted chi-square analyses indicated significant variation in level of support for policies according to sociodemographic and beverage consumption factors (see Table 2). Overall, the level of support for policies was generally higher among females, older participants, those with higher levels of educational attainment, participants from the least disadvantaged areas and those with a BMI in the healthy/underweight range (under 25 kg/m²). Level of policy support was also higher among low consumers of the affected beverage, compared to regular consumers. Support for some policies also varied according to the consumption of different drink types. For example, regular (versus low) SSB consumers expressed significantly lower levels of support for policies targeting NSSBs and juice (see Table 2 for more detailed results).

Table 1: Level of support for policy interventions (N=2,876).									
	Proportion in favour (strongly/somewhat)	Proportion neither for nor against	Proportion not in favour (strongly/somewhat against)						
	% (95% Cl)	% (95% Cl)	% (95% Cl)						
Policy targeting Sugar-Sweetened Beverages (SSBs) Text advisory labels on the front of sugary drinks disclosing it contains added sugar	83.0 (81.6-84.4)	12.2 (11.0-13.4)	4.7 (3.9-5.5)						
Banning the marketing of sugary drinks to children	73.1 (71.5-74.7)	15.7 (14.4-17.0)	11.1 (10.0-12.2)						
The government taxing sugary drinks that are high in added sugar	55.8 (54.0-57.6)	17.8 (16.4-19.2)	26.4 (24.8-28.0)						
Policy targeting Non-Sugar-Sweetened Beverages (NSSBs) Text advisory labels on the front of drinks with sweeteners disclosing they contain sweeteners	81.5 (80.1-82.9)	13.5 (12.3-14.7)	5.0 (4.2-5.8)						
Banning the marketing of all drinks containing sweeteners to children	59.5 (57.7-61.3)	25.7 (24.1-27.3)	14.8 (13.5-16.1)						
The government taxing drinks containing sweeteners	38.9 (37.1-40.7)	26.7 (25.1-28.3)	34.4 (32.7-36.1)						
Policy targeting 100% juice									
Text advisory labels on the front of 100% juice disclosing it is high in sugar	71.1 (69.4-72.8)	18.5 (17.1-19.9)	10.3 (9.2-11.4)						
Banning the marketing of 100% juice to children	25.2 (23.6-26.8)	29.7 (28.0-31.4)	45.1 (43.3-46.9)						
The government taxing 100% juice	13.8 (12.5-15.1)	21.2 (19.7-22.7)	65.0 (63.3-66.7)						

Adjusted logistic regression results were similar to results of bivariate analyses, with some exceptions, which generally related to associations between level of consumption and policy support (see Table 3). In line with results from bivariate analyses, after adjustment for all other variables, support for policies was generally higher among females than males, the oldest (versus youngest and middleaged) participants, those with a higher level of educational attainment, participants from the least versus most (but not mid-) disadvantaged areas, those with a BMI in the healthy/underweight range, and low (versus regular) consumers. After adjustment for all other variables, regular SSB consumers were significantly less likely than low SSB consumers to support all policies targeting SSBs and NSSBs consistent with bivariate analyses. Significant associations also remained between NSSB consumption and levels of support for marketing bans and taxes on NSSBs, but not with support for "contains sweetener" labelling on NSSBs or policies targeting other beverages. Significant associations between juice consumption and levels of support remained for marketing bans and taxes on juice drinks, but not with support for "high in sugar" labelling on juice or policies targeting other beverage types.

Discussion

This nationally representative study sought to determine consumer support for policy approaches of on-bottle text warning labels, banning marketing to children and taxing, as applied to SSBs, NSSBs and 100% fruit juices. Overall, while there was high support for most policy options, level of support varied by policy option and beverage type. Labelling policies and policies targeting SSBs consistently received the greatest levels of support. Labelling policies (i.e. text labels which advised consumers of sugar or non-sugar sweetener contents) consistently received the highest level of support overall and across the three beverage types (71% for juice, 82% for NSSBs, and 83% for SSBs). This was followed by policies pertaining to banning marketing to children, and support was lowest for taxing policies (albeit over half still supported a tax on SSBs). Levels of support for policies targeting SSBs were consistently higher than levels of support for equivalent policies targeting NSSBs and 100% juice.

These findings are similar to prior studies where support was higher for policies that were educative and/or focused on protecting children, and somewhat lower for taxes (noting that in this study taxes were not linked to funding complementary initiatives, which is known to lead to higher community support).^{32–35} In general, prior research has focused on support for policies targeting SSBs. This study provides new insights into levels of support for policies targeting NSSBs and juice, which many consumers are likely to switch to in the face of policies targeting SSB consumption. Across all three policy options, policies targeting SSB consumption consistently received the highest support, followed by those targeting NSSBs and then those targeting juice. While NSSB policies generally received moderate-high support, support for policies targeting juice were much more varied (e.g. only 25% supported banning marketing to children and 14% supported a tax).

Variation in levels of support by beverage type is likely due to consumer perceptions about the healthiness of these beverages. Support for SSB policies was relatively higher than for other beverages, which is in line with the moderate-high awareness that regular SSB consumption is linked to adverse health effects found in an Australian national study.¹⁴ In contrast, consumers have mixed views about NSSBs, and consistent with this, support was lower than that observed for SSBs.¹⁴ There is general uncertainty and lower awareness of potential health effects linked to NSSB consumption,¹⁴ particularly as this evidence is still growing.¹³ Furthermore, NSSBs are heavily marketed as healthier alternatives to SSBs, with names such as "no sugar" implying they assist with weight loss/management; a message that now conflicts with the WHO's recommendation to avoid the use of non-sugar sweeteners for weight control or reducing risk of noncommunicable diseases.¹³ Juice received the lowest levels of support overall, which is in line with perceptions of healthiness; there appears to be a widespread "health halo" effect for juice due to the fruit content, with some directly equating juice with whole fruit consumption.¹⁵ The 2013 Australian Dietary Guidelines incorporate juice as an example of a serving of fruit (for occasional consumption), which reinforces this perception.⁴² Furthermore, consumers tend to perceive juice drinks as healthier than SSBs, despite the equivalent levels of sugar.¹⁴ Juice consumption may therefore be perceived as a healthy practice to be encouraged among children; this would

Table 2: Support for policy op	otions by so	ciodemographic	factors a	and typic	al beverage	consumption.						
	Labelling		χ²	$\chi^2 p$ Marketing ban		χ²	р	Taxing		χ²	р	
	In Favour	Not in favour			In Favour	Not in favour			In Favour	Not in favour		
Sugar-sweetened beverages												
Total	83.0	16.9			73.1	26.8			55.8	44.2		
Gender Male	85.7	14.3	4.15	0.042	73.4	26.6	13,13	< 0.001	63.4	36.6	0.73	0.394
Female	88.4	11.6		010.12	79.2	20.8	10110		61.8	38.2	01/0	0.571
Age range (years)												
18-34	80.4	19.6	55.38	< 0.001	73.5	26.5	3.66	0.160	52.2	47.8	45.87	< 0.001
35-54	83.7	16.3			77.7	22.3			58.9	41.1		
55+	91.5	8.5			//.3	22.7			68.0	32.0		
Level of education Completed vocational or below	83.1	16.9	24.27	< 0.001	71.8	28.2	20.63	<0.001	53.2	46.8	61.04	<0.001
Some tertiary or above	89.6	10.4			79.4	20.6			68.1	31.9		
Level of disadvantage (quintiles) 01-2 (most disadvantaged)	82.3	17.7	32.58	< 0.001	71.6	28.4	20.24	< 0.001	53.9	46.1	45.40	< 0.001
Q3 (mid)	87.0	13.0	52.50	<0.001	78.2	21.8	20.21	(0.001	63.2	36.8	13.10	
Q4-5 (least disadvantaged)	90.4	9.6			79.5	20.5			67.7	32.3		
BMI												
≤ 25	88.7	11.3	2.97	0.085	79.4	20.6	6.30	0.012	65.8	34.2	7.21	0.007
> 25	86.4	13.6			75.2	24.8			60.7	39.3		
SSB consumption Regular (weekly +)	80.7	19.3	58.68	< 0.001	69.0	31.0	52.87	< 0.001	50.9	49.1	90.97	< 0.001
Low	90.8	9.2	50100		81.0	19.0	52107		68.9	31.1		
NSSB consumption	84.8	15 2	4 56	0.033	73.9	26.1	3 97	0.046	56.7	43.3	13 04	< 0.001
Low	88.0	12.0		01055	77.6	22.4			64.4	35.6		
Juice consumption Regular (weekly +)	85.4	14.6	1.66	0.198	73.4	26.6	4.06	0.044	56.7	43.3	9.71	0.002
Low	87.6	12.4			77.5	22.5			63.9	36.1		
Non-sugar sweetened beverage												
Total	81.5	18.5			59.5	40.5			38.9	61.1		
Gender Male	83.8	16.2	12 11	0.001	56.6	43.4	45 18	< 0.001	41 5	58 5	6 69	0 010
Female	88.4	11.6	12.11	0.001	68.9	31.1	15.10	10.001	46.4	53.6	0.07	0.010
Age range (years)												
18-34	74.1	25.9	91.68	< 0.001	55.7	44.3	20.55	< 0.001	34.9	65.1	32.39	< 0.001
35-54	85.0	15.0			68.0	32.0			41.9	58.1		
55+	91.1	8.9			63.6	36.4			48.9	51.1		
Level of education Completed vocational or below	81.7	18.3	26.94	<0.001	59.0	41.0	15.37	<0.001	38.9	61.1	19.16	<0.001
Some tertiary or above	88.8	11.2			66.5	33.5			47.5	52.5		
Level of disadvantage (quintiles) Q1-2 (most disadvantaged)	82.6	17.4	17.19	<0.001	60.6	39.4	6.32	0.042	40.7	59.3	9.00	0.011
Q3 (mid)	86.3	13.7			63.0	37.0			43.5	56.5		
Q4-5 (least disadvantaged)	88.7	11.3			65.7	34.3			46.9	53.1		
BMI	97 5	17.5	0.00	0 2 4 0	66 5	22.5	5 72	0.017	10 7	51.2	10.09	0.001
> 25	86.2	13.8	0.00	0.540	62.0	38.0	5.75	0.017	42.2	57.8	10.90	0.001
SSB consumption						2000						
Regular (weekly +)	79.4	20.6	64.29	< 0.001	52.7	47.3	82.68	< 0.001	31.3	68.7	110.36	<0.001
Low	90.2	9.8			69.7	30.3			51.6	48.4		
NSSB consumption Regular (weekly +)	80.4	19.6	27.05	<0.001	46.3	53.7	121.29	<0.001	23.0	77.0	172.25	<0.001
Low	88.2	11.8			69.3	30.7			51.3	48.7		
Juice consumption												

Table 2. Continued												
	Labelling		χ²	р	Marketing ban		χ²	p	Taxing		χ²	р
	In Favour	Not in favour			In Favour	Not in favour			In Favour	Not in favour		
Regular (weekly +)	82.4	17.6	8.71	0.003	57.2	42.8	11.98	0.001	39.9	60.1	5.19	0.023
Low	87.3	12.7			65.2	34.8			45.4	54.6		
100% fruit juice												
Total	71.1	28.8			25.2	74.8			13.8	86.2		
Gender	70.0	20.2	10.22	<0.001	ר בר	77 7	22.50	<0.001	15.2	04.0	0.22	0.570
Male	70.8	29.2	19.33	< 0.001	22.3	11.1	22.59	< 0.001	15.2	84.8	0.32	0.570
remaie	/8.1	21.9			30.4	09.0			10.0	84.0		
Age range (years) 18-34	65.3	34.7	49.23	<0.001	24.9	75.1	2.94	0.230	13.1	86.9	3.51	0.173
35-54	71.5	28.5			28.9	71.1			15.5	84.5		
55+	79.9	20.1			26.5	73.5			16.6	83.4		
Level of education	70 1	27.0	<i>с 1</i> 5	0.011	26.2	75 7	0.25	0.552	12.1	06.0	0.00	0.005
	72.1	27.9	0.45	0.011	20.5	73.7	0.55	0.552	13.1	00.9	0.02	0.005
	70.5	23.3			27.4	72.0			17.2	02.0		
Q1-2 (most disadvantage (quintiles)	71.1	28.9	9.99	0.007	24.2	75.8	5.31	0.070	12.5	87.5	11.24	0.004
Q3 (mid)	76.9	23.1			28.7	71.3			15.8	84.2		
Q4-5 (least disadvantaged)	76.5	23.5			28.0	72.0			17.6	82.4		
BMI	77 1	22.0	272	0.057	28.0	71.1	2 (2	0.057	10.7	01.2	11.00	0.001
<u><u><u> </u></u></u>	72.0	22.9	3.03	0.057	28.9	71.1	3.03	0.057	13.0	81.3	11.09	0.001
> 25	/3.8	20.2			25.5	74.5			13.9	80.1		
SSB consumption Regular (weekly +)	68.7	31.3	31.49	<0.001	22.4	77.6	16.68	<0.001	11.3	88.7	22.02	<0.001
Low	78.3	21.7			29.5	70.5			18.0	82.0		
NSSB consumption												
Regular (weekly +)	72.2	27.8	3.27	0.070	22.1	77.9	10.60	0.001	13.1	86.9	4.22	0.040
Low	75.7	24.3			28.5	71.5			16.4	83.6		
Juice consumption Regular (weekly +)	70.0	30.0	8 50	0 004	16.2	83.8	39 77	< 0.001	9.0	91.0	77 37	< 0.001
	76.0	24.0	5.50	0.00-f	70.5	70.5	57.11	~0.001	17.0	\$1.0 \$7.9	22.31	~0.001
LUW	/0.0	24.0			29.3	/0.5			17.2	02.0		

Note: In favour = strongly/somewhat in favour. Not in favour = strongly/somewhat disagree or neither agree nor disagree.

BMI = body mass index; SSBs = sugar-sweetened beverages; NSSBs = non-sugar sweetened beverages.

conflict with supporting banning the marketing of juice to children. Efforts to increase knowledge and awareness around the health effects of NSSB consumption and the sugar content of 100% juice drinks will be important to complement policy initiatives and to increase support for policies targeting these drinks. Educative approaches such as mass media campaigns have demonstrated effectiveness for increasing knowledge and awareness around sugar content and health effects of SSB consumption,⁴³ as well as for increasing support for policies targeting these drinks.^{44,45} Similar approaches could also be beneficial for increasing knowledge and awareness around NSSB and juice consumption.

The consistently high level of support observed across beverage types for consumer warning labels speaks to consumers' receptiveness to strategies that enable informed decisions. Labelling interventions can help to increase knowledge around beverage content (e.g. through sugar/sweetener warnings) and implications of consumption (e.g. through health effects labels).²⁴ Given that results of prior research also demonstrate high consumer support for labelling policies targeting SSBs,^{31–35,38} governments should feel confident to advance such warning labels into policy. Currently, only 10 countries have, or are in the process of, implementing mandatory FOP warning labels on foods and/or beverages,⁵ yet over 100 countries have implemented some form of sugary drink tax.⁶ Mandatory FOP warning label systems have been successful in tobacco control⁴⁶; and several countries that have already implemented mandatory labelling schemes have demonstrated effectiveness in the food and beverage domain, 23,47,48 as have experimental studies. 14,49 Informing consumers of health risks of sugary drink consumption will reduce the knowledge gaps in consumer awareness of sugar content and health risks associated with excess consumption.^{14,49} Prior qualitative Australian research indicates there is confusion around sugar, nonsugar substitutes and natural sugars present in juice.⁴⁹ Labels can raise awareness of the presence of non-sugar substitutes within products and of the high free sugar content of juice, to help consumers make informed decisions. Thus, implementing warning label policies, including in countries where taxes have already been implemented, may be effective for encouraging healthier beverage consumption behaviours through increasing consumer awareness and knowledge.

Levels of support for policies focused on SSBs (labelling: 83%, marketing ban: 73% and taxing: 56%) were similar to findings from a previous nationally representative study of Australian adults conducted in 2017 (88%, 76-79% and 60%, respectively)³² demonstrating continued high levels of support for interventions to curb SSB consumption in the Australian community. Levels of support were also comparable to other international studies. ^{33,34} In the

Table 3: Multivariable logistic r	regression res	ults: policy support,	sociodemogra	phic charact	eristics and consumpt	ion variable	es (adjusted).		
		Labelling			Marketing ban			Taxing	
	aOR	95% Cl	р	aOR	95% Cl	р	aOR	95% CI	р
Sugar-sweetened beverages		$\chi^2 = 133.76, p < 0.00$	1		χ ² =88.96, <i>p</i> <0.001			$\chi^2 = 195.92, p < 0.001$	
Gender Male	0.77	0.61–0.98	0.032	0.77	0.64-0.93	0.006	1.11	0.94–1.31	0.230
Female (ref)									
Age range (years) 18-34	0.42	0.31–0.58	<0.001	0.91	0.70–1.18	0.463	0.56	0.45-0.71	<0.001
35-54	0.46	0.35-0.60	<0.001	1.04	0.84–1.29	0.715	0.67	0.56-0.81	< 0.001
55+ (ref)									
Level of education Completed vocational or below	0.65	0.51–0.83	<0.001	0.73	0.61–0.89	0.001	0.58	0.49–0.69	<0.001
Some tertiary or above (ref)									
Level of disadvantage (quintiles) Q1-2 (most disadvantaged)	0.55	0.42–0.71	<0.001	0.75	0.61–0.92	0.007	0.63	0.52-0.76	<0.001
Q3 (mid)	0.77	0.55–1.06	0.111	1.01	0.79–1.31	0.912	0.88	0.70–1.09	0.232
Q4-5 (least disadvantaged) (ref)									
BMI ≤ 25	1.06	0.82–1.37	0.662	1.13	0.93–1.38	0.225	1.16	0.97–1.38	0.101
> 25 (ref)									
SSB consumption	0.52	0.39–0.68	<0.001	0.53	0.42–0.66	<0.001	0.55	0.45-0.67	<0.001
Regular (ref)									
NSSB consumption Low	1.18	0.88–1.57	0.269	1.23	0.97–1.55	0.090	1.10	0.89–1.36	0.362
Regular (ref)									
Juice consumption Low	1.00	0.75–1.35	0.991	0.92	0.73–1.16	0.490	0.82	0.67–1.01	0.067
Regular (ref)									
Non-sugar sweetened beverages		$\chi^2 = 162.42, p < 0.00$	1		$\chi^2 = 183.33, p < 0.001$			χ ² =225.58, <i>p</i> <0.001	
Gender Male	0.65	0.51–0.82	<0.001	0.64	0.54–0.76	<0.001	0.88	0.75–1.04	0.132
Female (ref)									
Age range (years) 18-34	0.30	0.220.41	<0.001	0.82	0.65–1.04	0.095	0.64	0.51–0.81	<0.001
35-54	0.55	0.42-0.73	<0.001	1.27	1.05–1.54	0.015	0.79	0.66-0.95	0.012
55+ (ref)									
Level of education Completed vocational or below	0.61	0.48–0.77	<0.001	0.78	0.65–0.92	0.004	0.74	0.62–0.87	<0.001
Some tertiary or above (ref)									
Level of disadvantage (quintiles) Q1-2 (most disadvantaged)	0.64	0.49–0.84	0.001	0.87	0.72–1.05	0.144	0.86	0.72–1.04	0.117
Q3 (mid)	0.78	0.57-1.08	0.132	0.91	0.73–1.13	0.381	0.88	0.72–1.09	0.256
Q4-5 (least disadvantaged) (ref)									
BMI ≤ 25	1.05	0.82–1.35	0.706	0.98	0.82–1.17	0.820	1.11	0.94–1.31	0.229
> 25 (ref)									
SSB consumption Regular (weekly +)	0.63	0.48–0.83	0.001	0.75	0.61–0.91	0.004	0.74	0.61–0.90	0.002
Low (ref)									
NSSB consumption Regular (weekly +)	0.80	0.60-1.05	0.105	0.47	0.38–0.58	<0.001	0.36	0.29–0.45	<0.001
Low (ref)									
Juice consumption Regular (weekly +)	0.85	0.64–1.13	0.264	0.82	0.66–1.00	0.054	0.91	0.74–1.13	0.394
Low (ret)									
Juice		$\chi^2 = 103.59, p < 0.00$	1		χ ² =79,38, <i>p</i> <0.001			χ^2 =62.74, <i>p</i> <0.001	

Table 3. Continued									
		Labelling			Marketing ban			Taxing	
	aOR	95% CI	р	aOR	95% CI	р	aOR	95% CI	p
Gender Male	0.67	0.56–0.80	<0.001	0.72	0.60–0.86	<0.001	0.98	0.79–1.21	0.820
Female (ref)									
Age range (years) 18-34	0.47	0.36–0.60	<0.001	0.95	0.73–1.22	0.666	0.79	0.58–1.09	0.150
35-54	0.62	0.50-0.76	<0.001	1.15	0.94-1.40	0.174	0.94	0.74-1.19	0.596
55+ (ref)									
Level of education Completed vocational or below	0.81	0.67–0.98	0.033	0.97	0.80–1.16	0.717	0.81	0.64–1.02	0.068
Some tertiary or above (ref)									
Level of disadvantage (quintiles) Q1-2 (most disadvantaged)	0.81	0.66–0.99	0.043	0.84	0.68–1.03	0.095	0.73	0.56–0.93	0.013
Q3 (mid)	1.07	0.83–1.37	0.602	1.06	0.84-1.33	0.619	0.93	0.71–1.22	0.591
Q4-5 (least disadvantaged) (ref)									
$\frac{BMI}{\leq 25}$	1.18	0.97–1.43	0.101	1.09	0.91–1.30	0.376	1.35	1.09–1.68	0.007
SSB consumption Regular (weekly +)	0.74	0.60–0.92	0.006	0.84	0.68–1.05	0.133	0.73	0.55–0.96	0.025
Low (ref)									
NSSB consumption Regular (weekly +)	1.10	0.87–1.38	0.440	0.84	0.66–1.07	0.166	1.01	0.75–1.35	0.957
Low (ref)									
Juice consumption Regular (weekly +)	0.81	0.65–1.01	0.060	0.48	0.37–0.62	<0.001	0.49	0.35–0.69	<0.001
Low (ref)									

BMI = body mass index; SSBs = sugar-sweetened beverages; NSSBs = non-sugar sweetened beverages.

present study, there were some consumption- and demographicrelated differences in levels of support, in line with prior research. Not surprisingly, those who would be most affected by the potential policies (i.e. regular consumers) tended to have lower levels of support for policy interventions. Support was also generally lower among males, younger participants, less educated and more socioeconomically disadvantaged participants; these groups are also typically more regular consumers of these drinks.^{36,37} Differences according to sociodemographic characteristics were generally similar across beverage types. Given sociodemographic differences in policy support, policy implementation efforts should be complemented with efforts to target key population groups who typically have lower levels of policy support. Educative approaches, such as mass media campaigns, can be used to increase policy support through increasing awareness and knowledge around the sugar/sweetener content of drinks and the health implications of consuming these drinks.^{44,45}

While levels of support for banning marketing to children were lower relative to that of labelling, over 60% of participants supported banning the marketing of SSBs and NSSBs to children. In Australia, in 2016-18 over 129 million AU dollars were spent on advertising sugary drinks, and over \$23 million on NSSBs, largely through television advertising.⁵⁰ A content analysis of Australian television advertising revealed that advertisements of high sugar products are concentrated around children's viewing times.⁵¹ Other countries indicate similarly high rates of advertising, including child-targeted marketing.^{52,53} This highlights the importance of addressing exposure to beverage advertising, particularly among children, as there is also clear evidence that advertisements can influence food preferences, habits, and consumption of children.⁵⁴ Emerging evidence also shows the

potential benefit of marketing restrictions for children. A systematic review, for example, found that regulations could reduce children's exposure to, and consumption of, unhealthy foods.⁵⁵ Few countries have implemented comprehensive marketing bans. Chile restricts advertising of products high in salt, fat and sugar during and around child-centred television programs and websites, and Quebec, Canada, prohibits advertising to children in print and electronic media.^{5,29} A few other, mainly South American, countries have also implemented some kind of restriction of marketing towards children. Much scope remains in this space for more comprehensive policy interventions.

Limitations to be considered in interpretation of the results include the use of self-report measures, which may pose a risk of response bias; the cross-sectional survey design that limits assumptions regarding causal associations, and the likelihood that some population subgroups are underrepresented (e.g. those without telephone access, those who do not speak English). Furthermore, reasons for (lack of) support of policy initiatives were not assessed; however, differences in characteristics of those in favour and not in favour of each policy option provides insight into potential reasons for lack of policy support. The order of policy options (labelling, marketing ban, tax) was randomised for each drink type; however, to minimise confusion, all participants were asked first about all policies targeting SSBs, then NSSBs, then 100% juice drinks, which may have influenced responses.

Conclusions

There is high public receptiveness towards policy interventions targeting the overconsumption of SSBs and to policies requiring labelling to advise consumers about contents on SSBs (added sugar),

NSSBs (sweetener), and 100 % fruit juice (high in sugar). Lower levels of support were found for banning marketing to children and taxes for NSSBs and juice drinks, highlighting potential knowledge gaps in consumer understanding of the health risks associated with overconsumption of such beverages. Increasing knowledge and awareness may increase support for a comprehensive policy approach. Given the high levels of support for labelling policies across beverage types; however, labelling policies are well placed to be advanced into policy for a more comprehensive approach for targeting beverage consumption. Furthermore, a more comprehensive approach to targeting SSB consumption, incorporating multiple policy components would also be well received by the public. Incorporating other beverages in policies designed to reduce SSBs will likely discourage substitution to other beverages and encourage greater water consumption.

Conflicts of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Ethics

Ethical approval was obtained from the Human Research Ethics Committee at the University of Adelaide (approval number: H-2022-050) and informed consent was obtained from participants.

Author contributions

CM, JD and KE conceived and designed the study. Data analysis was primarily conducted by EK and KE with input from CM and JD. All authors were involved in drafting and reviewing the manuscript, and all authors approved the final manuscript for publication.

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References

- WHO. Guideline. Sugars intake for adults and children. Geneva, Switzerland: World Health Organization; 2015. https://iris.who.int/bitstream/handle/10665/ 149782/9789241549028_eng.pdf?sequence=1.
- Haque M, McKimm J, Sartelli M, Samad N, Haque SZ, Bakar MA. A narrative review of the effects of sugar-sweetened beverages on human health: a key global health issue. J Opol Ther Clin Pharmacol 2020;27(1):e76–103. https:// doi.org/10.15586/jptcp.v27i1.666.

- Lara-Castor L, Micha R, Cudhea F, Miller V, Shi P, Zhang J, et al. Sugar-sweetened beverage intakes among adults between 1990 and 2018 in 185 countries. *Nat Commun* 2023;14(1). https://doi.org/10.1038/s41467-023-41269-8.
- ABS. Apparent consumption of selected foodstuffs, Australia. Canberra: Australian Bureau of Statistics; 2020-21. https://www.abs.gov.au/statistics/health/healthconditions-and-risks/apparent-consumption-selected-foodstuffs-australia/latestrelease#non-alcoholic-beverages.
- World Cancer Researcher Fund International. NOURISHING policy database. https://policydatabase.wcrf.org/level_one?page=nourishing-level-one; 2020.
- WHO. Global report on the use of sugar-sweetened beverage taxes. Geneva: World Health Oragnization; 2023. https://iris.who.int/bitstream/handle/10665/374530/ 9789240084995-eng.pdf?sequence=1.
- Dickson A, Gehrsitz M, Kemp J. Does a spoonful of sugar levy help the calories go down? An analysis of the UK soft drinks industry levy. *Rev Econ Stat* 2023: 1–29. https://doi.org/10.1162/rest_a_01345.
- Essman M, Taillie LS, Frank T, Ng SW, Popkin BM, Swart EC. Taxed and untaxed beverage intake by South African young adults after a national sugar-sweetened beverage tax: a before-and-after study. *PLoS Med* 2021;18(5):e1003574. https:// doi.org/10.1371/journal.pmed.1003574.
- Rebolledo N, Bercholz M, Adair L, Corvalán C, Ng SW, Taillie LS. Sweetener purchases in Chile before and after implementing a policy for food labeling, marketing, and sales in schools. *Curr Dev Nutr* 2023;7(2):100016. https://doi.org/ 10.1016/j.cdnut.2022.100016.
- Royo-Bordonada MÁ, Fernández-Escobar C, Gil-Bellosta CJ, Ordaz E. Effect of excise tax on sugar-sweetened beverages in Catalonia, Spain, three and a half years after its introduction. *Int J Behav Nutr Phys Activ* 2022;**19**(1). https://doi.org/ 10.1186/s12966-022-01262-8.
- Saavedra-Garcia L, Meza-Hernández M, Diez-Canseco F, Taillie LS. Reformulation of top-selling processed and ultra-processed foods and beverages in the Peruvian food supply after front-of-package warning label policy. *Int J Environ Res Publ Health* 2022;20(1):424. https://doi.org/10.3390/ijerph20010424.
- Miller C, Ettridge K, Pettigrew S, Wittert G, Wakefield M, Coveney J, et al. Warning labels and interpretive nutrition labels: impact on substitution between sugar and artificially sweetened beverages, juice and water in a real-world selection task. *Appetite* 2022;169:105818. https://doi.org/10.1016/j.appet.2021.105818.
- WHO. Use of non-sugar sweeteners: WHO guideline. Geneva: World Health Organization; 2023. https://iris.who.int/bitstream/handle/10665/367660/ 9789240073616-eng.pdf?sequence=1.
- Miller C, Ettridge K, Wakefield M, Pettigrew S, Coveney J, Roder D, et al. An indepth exploration of knowledge and beliefs associated with soda and diet soda consumption. *Nutrients* 2020;12(9):2841. https://doi.org/10.3390/nu12092841.
- Brownbill AL, Braunack-Mayer AJ, Miller CL. What makes a beverage healthy? A qualitative study of young adults' conceptualisation of sugar-containing beverage healthfulness. *Appetite* 2020;150:104675. https://doi.org/10.1016/ j.appet.2020.104675.
- Brownbill AL, Miller CL, Braunack-Mayer AJ. Industry use of 'better-for-you' features on labels of sugar-containing beverages. *Public Health Nutr* 2018;21(18): 3335–43. https://doi.org/10.1017/s1368980018002392.
- Zhang Z, Zeng X, Li M, Zhang T, Li H, Yang H, et al. A prospective study of fruit juice consumption and the risk of overall and cardiovascular disease mortality. *Nutrients* 2022;14(10):2127. https://doi.org/10.3390/nu14102127.
- WHO. Tackling NCDs: 'best buys' and other recommended interventions for the prevention and control of noncommunicable diseases. Geneva: World Health Organization; 2017. https://iris.who.int/handle/10665/259232.
- WHO. Sugars factsheet. Geneva: World Health Organization; 2022. https://cdn. who.int/media/docs/librariesprovider2/euro-health-topics/obesity/sugarsfactsheet.pdf?sfvrsn=d5b89d5f_3&download=true.
- Batis C, Castellanos-Gutiérrez A, Sánchez-Pimienta TG, Reyes-García A, Colchero MA, Basto-Abreu A, et al. Comparison of dietary intake before vs after taxes on sugar-sweetened beverages and nonessential energy-dense foods in Mexico, 2012 to 2018. JAMA Netw Open 2023;6(7):e2325191. https://doi.org/ 10.1001/jamanetworkopen.2023.25191.
- Caro JC, Corvalán C, Reyes M, Silva A, Popkin B, Taillie LS. Chile's 2014 sugarsweetened beverage tax and changes in prices and purchases of sugar-sweetened beverages: an observational study in an urban environment. *PLoS Med* 2018;**15**(7):e1002597. https://doi.org/10.1371/journal.pmed.1002597.
- Obesity Evidence Hub. Nutritional warning labels. 2024. https://www. obesityevidencehub.org.au/collections/prevention/nutrient-warning-labels.
- Grummon AH, Hall MG. Sugary drink warnings: a meta-analysis of experimental studies. PLoS Med 2020;17(5):e1003120. https://doi.org/10.1371/ journal.pmed.1003120.
- Gupta A, Billich N, George NA, Blake MR, Huse O, Backholer K, et al. The effect of front-of-package labels or point-of-sale signage on consumer knowledge, attitudes and behavior regarding sugar-sweetened beverages: a systematic review. *Nutr Rev* 2021;**79**(10):1165–81. https://doi.org/10.1093/nutrit/nuaa107.
- Song J, Brown MK, Tan M, MacGregor GA, Webster J, Campbell NR, et al. Impact of color-coded and warning nutrition labelling schemes: a systematic review and network meta-analysis. *PLoS Med* 2021;18(10):e1003765. https://doi.org/10.1371/ journal.pmed.1003765.
- Taillie LS, Bercholz M, Popkin B, Reyes M, Colchero MA, Corvalán C. Changes in food purchases after the Chilean policies on food labelling, marketing, and sales in schools: a before and after study. *Lancet Planet Health* 2021;5(8):e526–33. https://doi.org/10.1016/s2542-5196(21)00172-8.

- Taillie LS, Reyes M, Colchero MA, Popkin B, Corvalán C. An evaluation of Chile's Law of Food Labeling and Advertising on sugar-sweetened beverage purchases from 2015 to 2017: a before-and-after study. *PLoS Med* 2020;**17**(2):e1003015. https://doi.org/10.1371/journal.pmed.1003015.
- Lavriša Ž, Hristov H, Kelly B, Pravst I. Regulating children's exposure to food marketing on television: are the restrictions during children's programmes enough? *Appetite* 2020;**154**:104752. https://doi.org/10.1016/j.appet.2020.104752.
- Obesity Evidence Hub. Policies to reduce children's exposure to unhealthy food marketing. 2023. https://www.obesityevidencehub.org.au/collections/ prevention/the-way-forward-policies-to-reduce-childrens-exposure-to-junkfood-advertising.
- Diepeveen S, Ling T, Suhrcke M, Roland M, Marteau TM. Public acceptability of government intervention to change health-related behaviours: a systematic review and narrative synthesis. *BMC Public Health* 2013;13(1):756. https:// doi.org/10.1186/1471-2458-13-756.
- Humphreys L, O'Flaherty C, Ambrosini GL. Public support for obesity prevention policies in Western Australia from 2012 to 2020: findings from cross-sectional surveys. *Health Promot J Aust* 2023. https://doi.org/10.1002/hpja.801.
- Miller CL, Dono J, Wakefield MA, Pettigrew S, Coveney J, Roder D, et al. Are Australians ready for warning labels, marketing bans and sugary drink taxes? Two cross-sectional surveys measuring support for policy responses to sugarsweetened beverages. *BMJ Open* 2019;9(6):e027962. https://doi.org/10.1136/ bmjopen-2018-027962.
- Bélanger-Gravel A, Desroches S, Janezic I, Paquette M-C, De Wals P. Pattern and correlates of public support for public health interventions to reduce the consumption of sugar-sweetened beverages. *Public Health Nutr* 2019;22(17): 3270–80. https://doi.org/10.1017/s1368980019002076.
- 34. Tan JY, Ong SG, Teng A, Ng B, Yao J, Luo N, et al. Perspectives of adult Singaporeans toward potential policies to reduce the consumption of sugar sweetened beverages—a cross-sectional study. *Nutrients* 2021;13(12):4231. https:// doi.org/10.3390/nu13124231.
- Gollust SE, Barry CL, Niederdeppe J. Americans' opinions about policies to reduce consumption of sugar-sweetened beverages. *Prev Med* 2014;63:52–7. https://doi.org/10.1016/j.ypmed.2014.03.002.
- ABS. Dietary behaviour. Australian Bureau of Statistics; 2017-18. https://www.abs. gov.au/statistics/health/health-conditions-and-risks/dietary-behaviour/2017-18#cite-window1.
- Miller C, Ettridge K, Wakefield M, Pettigrew S, Coveney J, Roder D, et al. Consumption of sugar-sweetened beverages, juice, artificially-sweetened soda and bottled water: an Australian population study. *Nutrients* 2020;12(3):817. https:// doi.org/10.3390/nu12030817.
- Miller CL, Dono J, Scully M, Morley B, Ettridge K. Adolescents report low opposition towards policy options to reduce consumption of sugary drinks. *Pediatr Obes* 2021;16(8). https://doi.org/10.1111/jjpo.12775.
- Dono J, Bowden J, Ettridge K, Roder D, Miller C. Monitoring approval of new legislation banning smoking in children's playgrounds and public transport stops in South Australia: table 1. *Tob Control* 2015;24(5):519–20. https://doi.org/ 10.1136/tobaccoontrol-2014-051825.
- Morley B, Martin J, Niven P, Wakefield M. Public opinion on food-related obesity prevention policy initiatives. *Health Promot J Aust* 2012;23(2):86–91. https:// doi.org/10.1071/he12086.
- Miller C, Kay E, Dono J, Ettridge K. Impacts of sugar and sweetener warning labels on substitution between sugar- and non-sugar-sweetened beverages in a non-hypothetical selection task. *BMC Med* 2024;22(1):541. https://doi.org/ 10.1186/s12916-024-03740-1.

- NHMRC. Australian dietary guidelines. Canberra: National Health and Medical Research Council; 2013. https://www.health.gov.au/sites/default/files/australiandietary-guidelines.pdf.
- Kite J, Grunseit A, Bohn-Goldbaum E, Bellew B, Carroll T, Bauman A. A systematic search and review of adult-targeted overweight and obesity prevention mass media campaigns and their evaluation: 2000–2017. J Health Commun 2018;23(2): 207–32. https://doi.org/10.1080/10810730.2018.1423651.
- Christian D, Maharjan M, Kotov A, Cotter T, Mullin S, Nurse V, et al. How the "are we drinking ourselves sick?" Communication campaign built support for policy action on sugary drinks in Jamaica. *Nutrients* 2022;14(14):2866. https://doi.org/ 10.3390/nu14142866.
- Murukutla N, Cotter T, Wang S, Cullinan K, Gaston F, Kotov A, et al. Results of a mass media campaign in South Africa to promote a sugary drinks tax. *Nutrients* 2020;12(6):1878. https://doi.org/10.3390/nu12061878.
- Cunningham R. Tobacco package health warnings: a global success story. *Tob Control* 2022;31(2):272–83. https://doi.org/10.1136/tobaccocontrol-2021-056560.
- An R, Liu J, Liu R, Barker AR, Figueroa RB, McBride TD. Impact of sugar-sweetened beverage warning labels on consumer behaviors: a systematic review and metaanalysis. Am J Prev Med 2021;60(1):115–26. https://doi.org/10.1016/ j.amepre.2020.07.003.
- Hall MG, Grummon AH, Higgins ICA, Lazard AJ, Prestemon CE, Avendaño-Galdamez MI, et al. The impact of pictorial health warnings on purchases of sugary drinks for children: a randomized controlled trial. *PLoS Med* 2022;19(2): e1003885. https://doi.org/10.1371/journal.pmed.1003885.
- 49. Miller C, Braunack-Mayer A, Wakefield M, Roder D, O'Dea K, Dono J, et al. "When we were young, it really was a treat; now sugar is just the norm every day" — a qualitative study of parents' and young adults' perceptions and consumption of sugary drinks. *Health Promot J Aust* 2020;**31**(1):47–57. https://doi.org/10.1002/ hpja.257.
- Haynes A, Bayly M, Dixon H, McAleese A, Martin J, Chen YJM, et al. Sugary drink advertising expenditure across Australian media channels 2016–2018. Aust N Z J Publ Health 2021;45(3):270–6. https://doi.org/10.1111/1753-6405.13103.
- Arora A, Bowman CM, Chow SJP, Thepsourinthone J, Bhole S, Manohar N. A content analysis of Australian television advertising: focus on child and adolescent oral health. *BMC Pediatr* 2018;18(1). https://doi.org/10.1186/s12887-018-1356-8.
- Boachie MK, Goldstein S, Kruger P, Ng SW, Hofman KJ, Thsehla E. Beverage industry's advertising expenditures and airtimes in South Africa from 2013 to 2019 target children and families. J Public Health Res 2023;12(2): 227990362311682. https://doi.org/10.1177/22799036231168207.
- Potvin Kent M, Pauzé E, Bagnato M, Guimarães JS, Pinto A, Remedios L, et al. Advertising expenditures across media on food and beverage products heavily advertised on youth-appealing television stations in Canada. *Appl Physiol Nutr Metabol* 2023;48(1):27–37. https://doi.org/10.1139/apnm-2022-0219.
- WHO. Food marketing exposure and power and their associations with foodrelated attitudes, beliefs, and behaviours: a narrative review. Geneva: World Health Organization; 2022. https://iris.who.int/bitstream/handle/10665/351521/ 9789240041783-eng.pdf?sequence=1&isAllowed=y.
- 55. Chambers SA, Freeman R, Anderson AS, Macgillivray S. Reducing the volume, exposure and negative impacts of advertising for foods high in fat, sugar and salt to children: a systematic review of the evidence from statutory and self-regulatory actions and educational measures. *Prev Med* 2015;75:32–43. https://doi.org/10.1016/j.ypmed.2015.02.011.