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Alcohol policy in Chile: a systematic review of policy developments and evaluations

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ABSTRACT

Aims To comprehensively review enacted and proposed alcohol laws and existing impact evaluations of national alcohol policies in Chile. **Methods** We searched enacted laws in the Chilean National Library of Congress, proposed laws in the websites of the House of Deputies and Senate and impact evaluations in PubMed, Web of Science, Scopus, Scielo, JSTOR, Epistemonikos and OpenGrey from inception to February 2019. Eligibility criteria included enacted laws and proposed laws on national alcohol policies and research studies evaluating the impact of national alcohol policies. One author screened enacted laws and proposed laws; two authors independently screened research records. We included any national alcohol policy intervention and classified policies according to 10 World Health Organization (WHO) alcohol policy domains. We used the Cochrane EPOC Review Group criteria to assess risk of bias of research records. We registered the review protocol in PROSPERO, registration record CRD42016050156. **Results** We identified and screened 229 enacted laws, 138 proposed laws and 1538 research records. Of these, 72 enacted laws, 118 proposed laws and three research articles were eligible for synthesis. We found enacted policies in all WHO alcohol policy domains. Regarding the most cost-effective policies, Chile has made limited use of taxation, has not regulated alcohol marketing and has weakened alcohol availability regulation. We found a large number of proposed laws, 79% of which would strengthen alcohol control. The few impact evaluation studies examined drink-driving policies and found a short-term reduction of alcohol-related injuries and deaths. **Conclusions** Chile has enacted alcohol policies in all World Health Organization policy domains, but has not adopted policies with highest likely cost-effectiveness. Only the impact of drink-driving policies has been evaluated.

Keywords Alcohol drinking, alcohol policy, Chile, impact evaluation, laws, proposed laws.

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INTRODUCTION

Harmful alcohol use is a component cause of more than 60 diseases and is associated with negative health, social and economic effects [1,2]. Effective policies are available to reduce alcohol-related harm. The World Health Organization (WHO) Global Strategy to reduce harmful alcohol use includes 10 policy domains to reduce harmful alcohol use [3], the most cost-effective policies ('best buys', i.e. average cost-effectiveness ratio of ≤ $100/DALY averted in low- and lower middle-income countries [4]) being those addressing alcohol affordability with pricing policies, reducing availability and restricting alcohol marketing [4–6].

Global progress to implement cost-effective alcohol policies has been mixed. In 2016, 95% of WHO Member States had alcohol excise taxes and 70% had established the recommended levels of blood alcohol concentration levels for drink-driving (< 0.05 g/dl) [7]. However, little progress has been reported for alcohol availability and marketing, the other two 'best buys' [7].

Alcohol policies often face significant resistance from the alcohol industry, policymakers and the public [8,9]. Strengthening national alcohol control requires a comprehensive picture of current alcohol policies, understanding the history of such policy developments as well as ongoing proposed laws. Impact evaluation of existing policies can also contribute to open windows of opportunity and enhance policy change and implementation.

Reviews of national alcohol policies have been performed at global, regional and national levels [7,10–12].

Policy developments have been described both in high-[13,14] and low- and middle-income countries [15–19]. Methods have also been developed for quantitative policy assessments for international comparisons [12,20–22]. Previous studies, however, have only provided a partial account by focusing on few policies, examining a single policy process, or describing existing policies superficially. They also have not accounted for proposed laws, which can be informative of future policy developments and reflect the importance of alcohol policies in the political agenda. Very few studies have included countries in the Americas [12,23], a region with the second-highest per capita alcohol consumption world-wide [7].

The current study presents the first comprehensive overview, to our knowledge, of national alcohol policies in Chile. Alcohol production in Chile began in 1551 with the plantation of the first vineyards, and continues to be an important agricultural and economic issue [24]. In 2017, Chile was the fifth largest wine exporter [25], exporting 70% of its wine production [26]. Chile has one of the highest rates of alcohol use per capita in the Americas (9.3 litres of pure alcohol per capita) [7]. Alcohol is the largest risk factor of death and disability [27], and more than 8500 deaths annually are attributable to alcohol use [28]. Economic costs related to alcohol are large, totalling US$ 2.200 million (equivalent to 0.81% of the gross domestic product) [29].

Our study aims to provide a comprehensive review of enacted and proposed laws and existing impact evaluations of national alcohol policies in Chile. We used a systematic review methodology to provide more accurate and replicable findings and WHO alcohol policy framework to classify the alcohol policies.

METHODS

We report the study in accordance with the Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) statement [30]. The study protocol was registered at the International Prospective Register of Systematic Reviews (PROSPERO) register (record CRD42019120879).

Search strategy and selection criteria

We obtained information on enacted policies from the Chilean National Library of Congress, which contains more than 245000 enacted laws, decrees and resolutions, among others, since 1818. This database allows tracing the origin of each law and subsequent modifications. We searched the database from inception to 11 March 2019, restricting our search to enacted laws to simplify the process. Enacted laws are bills approved by the National Congress, excluding other forms of administrative documents such as norms and decrees, which can emanate from the government without congressional approval. Search terms in Spanish included: 'alcohol', 'alcoholes' and 'ebriedad' (Supporting information, Table S1). The search identified any mention of the keyword in the title and full text.

We obtained information on proposed laws from the Chamber of Deputies and Senate websites. All proposed laws entered formally in either chamber of the Chilean National Congress receive a unique identifier, which facilitates tracing the proposal throughout the legislative process. We searched the database from inception on 11 March 1990 to 7 March 2019. Search terms in Spanish included: 'alcohol', 'conducción' and 'ebriedad' (Supporting information, Table S1). The search identified any mention of the keyword in the title and full text.

For impact evaluations, we searched the literature indexed in PubMed, Web of Science, Scopus, Scielo, JSTOR, Epistemonikos and OpenGrey. All databases were searched from inception to 25 February 2019. We developed a search strategy using medical subject headings and text words and combined using Boolean operators. Search terms in English included: 'alcohol', 'policy', 'program evaluation', 'legislation', 'law' and 'Chile' (Supporting information, Table S1). No language or any other restrictions were used.

To obtain additional policy and research records, we contacted experts and hand-searched the reference lists of included research records and websites of WHO's alcohol policy time-line database and the Global Information System on Alcohol and Health (GISAH), Chilean Ministry of Health, National Service for Prevention and Rehabilitation on Drugs and Alcohol Consumption (SENDA) and the Chilean Tax Administration.

Policies and research records were eligible for inclusion if (i) population was any population living in Chile, of any age, gender, place of residence and migratory status; (ii) intervention was any policy intervention enacted by the national government to reduce alcohol consumption or alcohol-related harm from 1960 to date. The intervention was eligible if it was enacted or implemented at the national level by any national government agency, ministry or department; and (iii) outcome was the magnitude and coverage of the alcohol policy intervention or the change in alcohol use or alcohol-related harm. We defined alcohol-related harm as any negative consequence of alcohol drinking for the drinker or society. We included indirect measures of alcohol use and harm, such as alcohol sales, tax revenue, illegal trade of alcohol, alcohol licensing or exposure and content of alcohol marketing. For proposed laws, we excluded those that have been enacted to prevent duplication. For impact evaluations, we included all types of observational, quasi-experimental and experimental studies. We excluded interventions from subnational levels such as regional, municipal, health services or hospitals.

For enacted and proposed laws, we uploaded all titles into a spreadsheet. We screened full-text laws and proposals whenever the title was not clearly related to alcohol. One author screened the titles of enacted policies (S.P.) and proposed laws (F.R.) and reviewed the full texts of enacted policies (S.P.) and proposed laws (F.R.).

For impact evaluations, we uploaded all titles and abstracts into a spreadsheet. Two authors (S.P. and P.S.) screened titles and abstracts independently using a structured form. We screened full-text articles when the abstract was not available. Titles and abstracts meeting the inclusion criteria were selected for full-text review. Two authors (S.P. and P.S.) independently reviewed the full-texts to examine whether the study met the inclusion criteria. A third author (F.R.) resolved any disagreement regarding study inclusion and in consensus with the other co-authors. We conducted a pilot with 50 abstracts to ensure inclusion and exclusion criteria were clear.

Data extraction

One author extracted the data for enacted policies (S.P.) and proposed laws (F.R.). We categorized enacted policies and proposed laws by each WHO alcohol policy domain (Supporting information, Table S2). For proposed laws, we extracted the date proposed and status (enacted, under discussion, archived, withdrawn or rejected). A proposal is defined as archived by the National Congress if it has not been voted, modified or discussed in 2 years. We additionally examined whether the potential effect of the policy would strengthen or weaken alcohol control. For impact evaluations, two authors independently extracted the data (S.P. and P.S.) from each article using a standardized extraction sheet. We extracted data on: setting; study design; sample size; population; intervention, comparator; outcome; effect of national policy. and funding source. Disagreements were resolved by consensus among the co-authors.

Risk of bias

We assessed the risk of bias of impact evaluations. We deviated from the protocol and used the Cochrane Effective Practice and Organization of Care (EPOC) Review Group criteria for interrupted time–series, given that all included studies had the same study design [31]. More details can be found in the Supporting information Appendix. Disagreements were resolved by a third author and discussed among the other co-authors.

Data synthesis

We developed a narrative synthesis structured along the 10 WHO alcohol policy domains. Meta-analysis of impact evaluations was not possible due to the scarcity of impact evaluations.

RESULTS

We identified 550 potentially relevant enacted and proposed laws, 1797 research records and five additional records from other sources. After removing duplicates, we screened 229 enacted laws, 138 proposed laws and 1538 research records. We selected for synthesis a total of 72 enacted laws, 118 proposed laws and three research articles on impact evaluations (Fig. 1). Excluded enacted laws, proposed laws and research records can be found in Supporting information, Table S3. The list of enacted and proposed laws synthesized can be found in Supporting information, Tables S4 and S5. We identified enacted laws on all WHO alcohol policy domains, proposed laws on nine domains and impact evaluations for only one policy domain (drink-driving).

ENACTED POLICIES

Below we provide a summary of enacted alcohol policies, as well as the gaps identified. More details on each domain can be found in Table 1.

Pricing policies

We found laws on alcohol taxation dating back to 1902 [32]. Alcohol taxes were specific (per litre of pure alcohol sold) from 1902 until 1960, when *ad valorem* taxes were introduced. In 1974, Decree Law 825 established the *ad valorem* tax at 15% for beer and wine, 25% for pisco (a local spirit derived from grapes), 30% for other spirits and 70% for whisky [34]. The European Union considered this tax structure discriminatory against foreign spirits, which ended in a dispute at the World Trade Organization (WTO) in 1997. The WTO ruled favourably to the European Union in 2001 [35] and, as a result, Law 19 716 established a 27% flat tax for all spirits [36]. In 2014, a tax reform increased taxes to 20.5% for beer and wine and 31.5% for spirits [37].

Alcohol producers receive regular funding for technological innovation from the Chilean Economic Development Agency (CORFO) and promotion of Chilean alcoholic beverages in international markets from Chile's export promotion bureau ProChile.

The current alcohol tax does not adjust to inflation. We did not find policies on minimum pricing of alcoholic beverages. We did not find policies banning or restricting price promotions, discount sales or other types of volume sales, nor price incentives to non-alcoholic beverages. We did not find policies to reduce or stop subsidies to alcohol producers

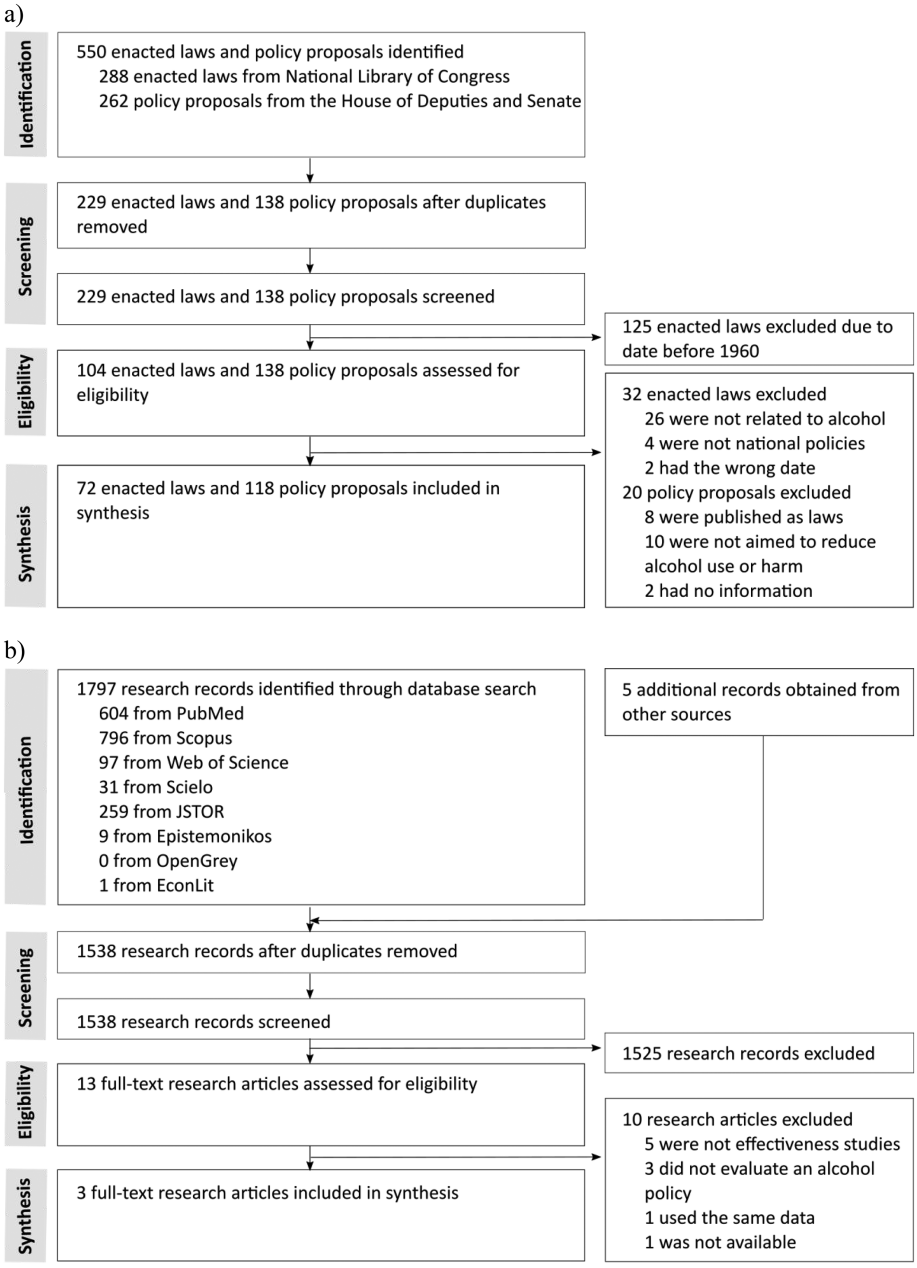

Figure 1 Flow diagram of the literature search for (a) enacted and proposed laws and (b) impact evaluations

Alcohol marketing

We found few regulations of alcohol marketing in place, restricting alcohol advertising on television under certain conditions and forbidding food marketing to minors in association with alcohol and tobacco (Table 1). There is no active surveillance mechanism to enforce these regulations. We did not find policies regulating alcohol advertising in other types of media or regulating sponsorship of activities. Conversely, two laws provide tax incentives for the sponsorship of cultural and sports events [42,43].

Alcohol availability

A national licensing system was introduced in 1892 (Table 1). Municipalities have been historically responsible for alcohol licensing, including granting new licences and supervising existing ones [44].

The 2004 Alcohol Act weakened the existing regulation from 1969 by extending the opening hours and increasing the types of alcohol outlets, making implementation more difficult. There was, however, a reduction in the number of outlets permitted by inhabitant for certain types of outlets (rate = one outlet/400 inhabitants reduced

Table 1 Enacted alcohol control policies in Chile by World Health Organization (WHO) policy domain, 1960–2019.

WHO policy domain	*When started*	*What is the policy about*	*Who implements it*
1. Pricing policies	1902	From 1902 to 1960, Chile had specific alcohol taxes (fixed amount per litre of pure alcohol) [32]. In 1960, Law 14 171 changed alcohol taxes to *ad valorem* [33]. In 1974, alcohol taxes were set to 15% for beer and wine, 25% for pisco, 30% for spirits and 70% for whisky [34]. The European Union considered this a protection of domestic production of pisco and initiated consultations with Chile between 1989 to 1997. In 1997, a law modified taxes to spirits, introducing a higher tax for spirits with higher alcohol content (from 27% for less or equal to 35 degrees to 47% over 39 degrees). The WTO ruled that this change was insufficient and ruled in favour of the European Union [35]. Chile had to approve a new modification, leaving all taxes on spirits at 27% [36]. The 2014 tax reform increased alcohol taxes to 20.5% for beer and wine and 31.5% for spirits. [37] The primary objective of the reform was increasing tax revenue to finance a large educational reform. The original proposal included a combination of *ad valorem* (18% base plus 0.5% per degree of pure alcohol) and specific tax (0.03 monthly tax unit, which adjusts to inflation). Members of the parliament feared a negative impact on the pisco industry, forcing the government to soften the increase and maintain the original tax structure [38,39]	Ministry of Finance Tax Administration
2. Marketing of alcoholic beverages		Few regulations of alcohol marketing are in place. The norms of the National Television Council allow alcohol advertising on television from 22:00 p.m. to 6:00 a.m., but TV channels are allowed to mention alcohol brands if these are in the context of the sponsorship of a cultural, sports or similar event [40]. Law 20 606 forbids food marketing to minors in association with alcohol and tobacco [41]. There is no active surveillance mechanism to enforce these regulations. We did not find policies regulating alcohol advertising in other types of media or regulating sponsorship of activities. On the contrary, two laws provide tax incentives for the sponsorship of cultural and sports events [42,43].	
3. Availability of alcohol	1892	Alcohol licensing started in some municipalities in 1873 and was regulated nationally in 1892 [44]. In 1954, Law 11 256 established a complex typology of 14 types of alcohol outlets [45], which was slightly modified in 1969 [46]. The 2004 Alcohol Act (Law 19 925/2004) [47] increased the complexity of the typology by adding four types of alcohol outlets (18 in total, 11 on-premise and seven off-premise). The establishment of new alcohol outlets must be approved by the municipality and is restricted to one per 600 inhabitants for four types of outlets (types A, E, F and H, called limited licences). The 2004 Alcohol Act regulates opening hours nationally, defining an average of 111.4 weekly hours for off-premise outlets and 122.3 weekly hours for on-premise outlets, with the exception of Chile's national days (September 18 and 19) and New Year, where no restrictions apply. Municipalities can further restrict opening hours with a Local Ordinance [47]. Alcohol licences are renewed every 6 months and can normally be sold or transferred. Municipalities can revoke the licence when the following situations are recurrent (usually more than two to three times): not paying the licence fee, selling to minors or violation of opening hours. The Mayor or the Municipal council	Municipalities and Carabineros de Chile (national police) (article 2/Law 19 925) [47]

(***Continues***)

Table 1. (Continued)

WHO policy domain	*When started*	*What is the policy about*	*Who implements it*
		can request the local judge to revoke a licence when the outlet is a 'danger for peace and tranquility or public morals' [47]. Revoked licences can be purchased by a new owner. If a municipality exceeds the proportion of one per 600 inhabitants for limited licences, the municipality can eliminate the licence if it has been revoked Consuming alcohol or being publicly inebriated in streets, parks and other public spaces has been forbidden since 1954. Selling alcohol in public spaces, as well as theatres, cinemas or similar without a licence is forbidden [47]. In high-risk football matches, the Regional Intendant can ban alcohol sales in five blocks surrounding a football stadium 3 hours before and after the match [47]. The 2004 Alcohol Act included a prohibition to drink alcohol in sports facilities [47]. Alcohol sales and consumption are forbidden inside schools. Municipalities can authorize exceptions during Independence festivities or charity events up to three times a year [47] The minimum legal age for purchasing alcohol was reduced from 21 to 18 years in 1993 [48]. Selling alcohol to minors is forbidden, with a penalty of 21–40 days of jail time and a fine of three to 10 monthly tax units [47].	
4. Drink-driving policies and countermeasures	1984	The measurement of blood alcohol concentration was established in 1964. The Transit Law (1984) forbade driving under the influence of alcohol and established a procedure for the measurement, but BAC limits were not established until 1997 [49]. In 2005, Law 20.068 defined 0.05–0.1 g/dl as driving under the influence of alcohol (DUI) and 0.1 g/dl as drink driving. In 2012, BAC limits were reduced to 0.03–0.08 g/dl for DUI and 0.08 g/dl for drink driving, as well as increasing the sanctions for offenders [50]. Law 20 770 (2014) increased sanctions for drunk drivers responsible for serious injury and fatal crashes, including effective jail time for severe or fatal accidents [51] The 2012 and 2014 were accompanied by mass media campaigns and increased random breath-testing checks financed and organized by the Ministry of Transport, Carabineros de Chile and SENDA. These were organized by SENDA directly or together with municipalities. The number of checks has remained stable (~220 000), despite the introduction of 2.4 million new cars since 2012 [52]	Ministry of Interior. Enforcement by Carabineros de Chile and SENDA (together with municipalities)
5. Health services' response	1952	Preventive policies in the health system. The traditional focus on alcohol use disorder was shifted in 1992 by putting attention to problem drinkers (equivalent to DSM-IV alcohol abuse category) [53]. These were identified using the Brief Instrument for Abnormal Drinking (EBBA), an instrument developed and validated in Chile [54]. The Preventive Medical Exam (EMPA) in 2005 included the Alcohol Use Disorders Identification Test (AUDIT) as a screening instrument and provided brief counselling guidelines [55]. This preventive examination is guaranteed for all beneficiaries of the public and private health insurances, although only the public insurance has financial incentives to increase coverage. In 2011, two parallel national policies on brief interventions continued to shift the	Ministry of Health and National Service for Drugs and Alcohol (SENDA) Ministry of Health and National Service for Drugs and Alcohol (SENDA) Ministry of Health SENDA in agreement with the National Service for Minors

(***Continues***)

Table 1. (Continued)

WHO policy domain	*When started*	*What is the policy about*	*Who implements it*
		focus to risky drinkers. The Ministry of Health introduced a national brief intervention programme in primary health care, including a management model, financial incentives to Municipalities, as well as clinical guidelines [56]. In parallel, SENDA validated the ASSIST [57] and started a pilot in five municipalities to carry out SBIRT on alcohol and drugs in primary care centres, police stations and emergency rooms [58]. In 2015, MINSAL and SENDA strengthened an institutional collaboration to converge these programmes. Prevention of alcohol-related harm among pregnant women is under development [59]. A first step was to include fetal alcohol syndrome in the most recent guidelines for newborns [60] Treatment policies. The Chilean National Health Service, created in 1952, introduced the Adult Health Programme which included the National Subprogram on Alcoholism to provide treatment for people with alcohol use disorder (AUD). This programme was in place until 1994. Nowadays, mild to moderate AUD are treated in primary health care. More severe cases are treated in secondary and tertiary health care using deintoxication, intensive and residential treatment forms and financed by a payment-per value (PPV) mechanism both by MINSAL and SENDA. SENDA also contracts private providers using public tenders. Treatment for AUD in people aged under 20 years are covered by the Regime of Explicit Guarantees, which sets specific maximum waiting times and has an enforcement mechanism to guarantee access [61]. Law 20 084 establishes the requirement to offer treatment for adolescent criminal offenders, which is delivered jointly by the National Service for Children (SENAME), SENDA and the Ministry of Health Law 19 925 establishes compulsory court-mandated treatment services for people with recurrent episodes of public inebriety or due to repeatedly driving under the influence of alcohol [47]	
6. Reducing the negative consequences of drinking and alcohol intoxication	1954	The Alcohol Act (2004) forbids public intoxication and establishes the procedure by the police [47]. Intoxicated people should be taken to a police station for safety reasons and for paying the fine established by the law (1 monthly tax unit) [47]. Severely intoxicated people can be kept in the police station for up to 6 hours or taken to an emergency care unit if needed. Since 1994, Law 19 327 forbids the entrance of people under the influence of alcohol or inebriated to football games [62]	Ministry of Interior Enforcement by national police (Carabineros de Chile) and municipal security units
7. Reducing the public health impact of illicit alcohol and informally produced alcohol	1902	Since 1902, national laws have been enacted to regulate the quality, production and distribution of alcoholic beverages, with a strong focus on wine production [32]. The Tax Administration was responsible for the monitoring of the quality of alcoholic beverages. In 1954, Law 11 256 strengthen the regulation [45]. In 1969, the monitoring function was delegated to the Agricultural and Livestock Service, a newly created entity under the large agricultural reform of 1967 [46]. Law 18 455 (1985) introduced a new system for classification of alcoholic beverages, definitions for falsified and adulterated products and authorized manufacturing components, as well as labelling, distribution,	Ministry of Agriculture Agricultural and Livestock Service

(*Continues*)

Table 1. (Continued)

WHO policy domain	*When started*	*What is the policy about*	*Who implements it*
		import and export procedures [63]. A minor modification was introduced in 2009 to accommodate to the Protected Designation of Origin (PDO) in the European Union.	
8. Community action	2004	Community programmes in schools, work-places and communities are delivered by SENDA. Through public contracts, SENDA establishes a SENDA Previene office in each municipality, from where it delivers three programmes: two community programmes (Prevención del Consumo Abusivo de Alcohol and SENDA Previene en la Comunidad), school programmes (Actuar a Tiempo and delivers educational materials) and a work-place programme (Trabajar con Calidad de Vida) [64]. The programme Prevención del Consumo Abusivo de Alcohol [Prevention of Alcohol Abuse] seeks to strengthen the capacity of municipalities to reduce harmful alcohol use In 2019, President Sebastián Piñera announced an intersectoral intervention, called 'Choose to live without drugs' to avoid, delay and reduce alcohol and drug use among teenagers based partly on the Planet Youth intervention in Iceland [65]	SENDA, municipalities
9. Leadership, awareness and commitment	1902	MINSAL has been the historical leader of alcohol policy since the creation of the National Health Service in the 1950s. In 1990, the Council for the Control of Narcotics was created under the Minister of Interior [66], an advisory presidential committee focused primarily on illicit drugs, but during the 2000s started to include alcohol policy. This resulted in the creation of SENDA in 2011, which replaced CONACE with a more integral focus on prevention, diagnosis, treatment and rehabilitation [67]. SENDA started the development of alcohol policies and programmes and increased its leadership in alcohol policy. This dual leadership resulted in the creation of two national strategies specifically devoted to alcohol: (a) the National Alcohol Strategy (2010), developed by MINSAL with input from experts and an intersectoral committee includes recommendations of policies for the 10 WHO policy domains [68]; and (b) the National Drugs and Alcohol Strategy (2009–18) developed by SENDA [69]. Collaboration between SENDA and MINSAL strengthen in 2015 and a technical working group with representatives from SENDA, MINSAL and other ministries met regularly to draft an Action Plan to operationalize both strategies in a coordinated manner [70]. This plan, announced in 2017, received great media attention, as it included the possible prohibition of 'happy hours'. The same day the Director of SENDA was removed from his position and the plan was never formalized Alcohol is also included in the broader National Health Strategy, comprising interventions to provide treatment and rehabilitation of alcohol use disorder (strategic objective 2) and to tackle alcohol as a risk factor (strategic objective 3) [71]. SENDA has led several national and local public awareness campaigns	Ministry of Health SENDA

(*Continues*)

Table 1. (Continued)

WHO policy domain	*When started*	*What is the policy about*	*Who implements it*
10. Monitoring and surveillance	1984	MINSAL is responsible for monitoring alcohol use and alcohol-related harm and reporting to international organizations. Alcohol was not included in the National Health Survey in 2003, but has been included in the subsequent ones (2009–17). The National Health Survey in 2010 included an extensive alcohol module and, in 2017, also included the CIDI 3.0 to diagnose Alcohol use disorder in a subsample. SENDA has also been conducting the National Surveys on Drugs in school and general population every two years since 1994 MINSAL collects data on alcohol brief interventions and alcohol-related hospitalizations and deaths. CONASET collects data on traffic accidents, the Ministry of Agriculture collects data on alcohol production and Carabineros de Chile collects data on public drinking and intoxication	Ministry of Health SENDA CONASET Ministry of Interior Carabineros de Chile

MINSAL = Ministerio de Salud (Ministry of Health; SENDA = Servicio Nacional de Prevención y Rehabilitación de Drogas y Alcohol (National Service for Prevention and Rehabilitation on Drugs and Alcohol Consumption); CONASET = National Commission for Transit Safety; WTO = World Trade Organization; BAC = blood alcohol concentration.

to one outlet/600 inhabitants) [47]. The impact of this change is probably small, as the law did not apply to already granted licences. The number of existing licences at the national level exceeds three times the number of licences allowed by law (88725 licences versus 29290 allowed) [71], suggesting weak enforcing mechanisms or low policy enforcement.

Drinking in public spaces and schools has been forbidden since 1954, as well as selling alcohol in public and recreational areas without municipal permission [47]. The minimum legal age for purchasing alcohol was reduced from 21 to 18 years in 1993 [48]. Selling alcohol to minors is forbidden and sanctioned with jail time and a fine [47].

Drink-driving policies and countermeasures

Driving under the influence of alcohol has been forbidden since 1984, but blood alcohol concentration (BAC) limits were only established in 1997 (Table 1) [49]. In 2012, a new law reduced BAC limits from 0.05–0.1 g/dl to 0.03–0.08 g/dl for driving under the influence of alcohol and from 0.1 to 0.08 g/dl for drink-driving, as well as increasing sanctions for offenders [50]. In 2014, a law increased penalties against drunk drivers responsible for serious injury or fatal crashes [51]. Both laws were followed by widely publicized mass-media campaigns and random alcohol breath-testing checks.

Health systems response

Until the 1990s, the focus regarding alcohol was on the treatment of alcohol use disorder (Table 1). This was later expanded to include problem drinkers (from 1992 to 2005) [53] and risky drinkers in 2005 [55]. In 2011, both the Ministry of Health (MINSAL) and the National Service for Prevention and Rehabilitation on Drugs and Alcohol Consumption (SENDA) started brief intervention programmes [56], resulting in the implementation of parallel programmes on the same populations. Since 2015, these fragmented initiatives have started to converge. Treatment for people with alcohol use disorder is available in primary and specialized care. Both MINSAL and SENDA provide these treatments using payment-per-value mechanisms with public and private service providers. Treatment for alcohol use disorder for those under the age of 20 years is included in the Regime of Explicit Guarantees, which defines maximum waiting times and has enforcement mechanisms to guarantee access [60].

Reducing the negative consequences of drinking

The 2004 Alcohol Act forbids public intoxication and establishes the corresponding police procedure (Table 1) [47]. Severely intoxicated people can be kept at the police station for up to 6 hours or taken to an emergency care

unit if needed [47]. We did not find policies against serving to intoxication or related to responsible service or staff training. We did not find regulations on the strength of different beverage categories or labelling of alcoholic beverages.

Reducing the public health impact of illicit alcohol and informally produced alcohol

Regulation of production and distribution and quality control mechanisms have been in place since 1902 (Table 1) [32]. The Tax Administration was responsible for regulating the illicit alcohol trade and monitoring the quality of alcohol production until 1969, when a new law transferred it to the Agricultural and Livestock Service under the Ministry of Agriculture.

Law 18455 in 1985 introduced a new system for the classification of alcoholic beverages and stricter regulations on the manufacturing components, as well as improving the labelling by including the alcohol content, among other changes [62]. Unlicensed sales of alcohol are also forbidden [47]. We did not find regulations regarding public health warnings.

Community action

SENDA implements preventive programmes in communities, work-places and schools, including a programme to strengthen the capacity of municipalities to reduce harmful alcohol use (Table 1) [63]. The 2004 Alcohol Act does not provide legal entitlements for communities to authorize the renewal or approval of new alcohol outlets. There are no legal mechanisms to monitor alcohol-related harm at the community level or to empower communities to reduce the burden of alcohol.

Leadership, awareness and commitment

Alcohol policy was historically led by MINSAL (Table 1). In 1990, the National Council on Narcotics Control (CONACE) was created as a presidential advisory committee. The initial focus was on illicit drugs, but evolved to include alcohol in the 2000s and resulted in the creation of SENDA in 2011 with a clearer mandate on alcohol policy. This dual leadership by MINSAL and SENDA led to the development of two national alcohol strategies in 2010 and 2011 [67]. In 2015, SENDA and MINSAL developed an ACTION PLAN to implement both strategies coordinately, which was announced in 2017 but never formalized.

We did not find policies establishing the main agency responsible for alcohol control, and currently the responsibility is distributed among several institutions. The 2004 Alcohol Act includes the establishment of an intersectoral ministerial committee composed of the ministries of Health, Education and Work and Social Security and responsible for implementing preventive programmes [47]. However, to our knowledge, this committee has never been created.

Monitoring and surveillance

Alcohol consumption has been measured in the National Health Survey since 2010. SENDA measures alcohol consumption in the general population and adolescents since 1994.

MINSAL collects data on alcohol brief interventions, hospitalizations and deaths (Table 1). There is also a dedicated registry for cases under the Regime of Explicit Guarantees. SENDA has a unique electronic data system for people treated for alcohol use disorder.

Chile regularly reports data on per capita alcohol consumption to WHO using official statistics on agricultural production, exports and imports of alcoholic beverages. However, no system is in place for regular reporting on alcohol consumption, morbidity and harm or to monitor the impact of policy interventions. Sales data, including illicit and informal sales, are not available from public sources.

PROPOSED LAWS

Of the 118 proposed laws, a majority focused on alcohol availability and drink-driving policies (35 and 34%, respectively), followed by proposals aimed at tackling negative consequences of alcohol use (9%), improving health services' response (7%) and community action (7%). We did not find proposed laws on monitoring and surveillance. A total of 54 policies were archived, rejected or withdrawn, and 60 were under discussion at the time the study was conducted (Table 2). In the latter, the median time between the introduction of the proposed law until the date of search (20 April 2019) was 6.8 years (percentiles 25–75 = 2.6, 9.9).

Ninety-four proposed laws (79%) sought to strengthen alcohol control, 20 (16.8%) sought to weaken it and five had no information. Proposed laws seeking to strengthen alcohol control were more frequently under discussion than those seeking to weaken alcohol control (59 versus 25%) (Table 2).

Most proposed laws on alcohol availability (59.5%) sought to reduce alcohol availability by tackling underage drinking and drinking in public places and by restricting home delivery of alcohol. Proposed laws aiming to increase alcohol availability (40.5%) sought to relax restrictions on alcohol sales in certain towns, regions or days (e.g. elections). They also sought to extend opening hours and facilitate the process to obtain alcohol licences. In addition, most proposed laws on community action sought to require the approval from neighbourhood councils to grant alcohol licence applications.

Table 2 Potential effect of proposed laws on alcohol control in Chile by World Health Organization (WHO) policy domain, 1990–2019.

	Potential effect on alcohol control					
		Strengthening		*Weakening*		
	Total	*Under discussion*	*Archived/withdrawn rejected*	*Under discussion*	*Archived/withdrawn rejected*	*No information*
	n	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n*
1. Pricing policies	1	–	–	–	1 (100)	–
2. Marketing of alcoholic beverages	4	3 (75)	1 (25)	–	–	–
3. Availability of alcohol	42	12 (48)	13 (52)	5 (29)	12 (71)	–
4. Drink-driving policies and countermeasures	40	28 (76)	9 (24)	–	–	3
5. Health services' response	8	2 (29)	5 (71)	–	–	1
6. Reducing the negative consequences of drinking and alcohol intoxication	11	3 (33.3)	6 (66.7)	–	1 (100)	1
7. Reducing the public health impact of illicit alcohol and informally produced alcohol	3	2 (66.7)	1 (33.3)	–	–	–
8. Community action	8	3 (43)	4 (57)	–	1 (100)	–
9. Leadership, awareness and commitment	2	2 (100)	–	–	–	–
10. Monitoring and surveillance	0	–	–	–	–	–
Total[a]	119	55 (59)	39 (41)	5 (25)	15 (75)	5

[a]There were 118 proposed laws, but one belonged to two domains.

All proposed laws on drink-driving policies aimed at reinforcing existing regulations by introducing stricter BAC limits or increase sanctions for drink-driving. All proposals on alcohol advertising sought to restrict marketing in sports, artistic and leisure events, especially those targeting minors. Proposals regarding the negative consequences of drinking focused on improving labelling of alcoholic beverages to inform consumers about alcohol-related harm. Proposals on health services' responses mainly aimed at giving appropriate treatment to young offenders with alcohol and/or substance abuse problems. Few proposed laws aimed at reinforcing sanctions on those producing and selling illicit alcohol.

IMPACT EVALUATION OF POLICIES

We examined three articles evaluating the impact of a national alcohol policy (Table 3). All articles examined the impact of drink-driving policies and used an interrupted time–series design. We found one article to be of low risk of bias [72]; the other two had a high risk of bias for at least one domain [73,74] (Supporting information, Table S6). Potential biases in the latter include the lack of adjustment for external time-varying effects, especially for changes in the rates of car ownership and car rides in the time-period [75].

One study explored the effect of several traffic policies between 2000 and 2015 (including modifications to BAC limits in 2005 and 2012). Alcohol-attributable deaths increased drastically in the period 2000-2006 (19.3% increase per year, 95% CI 7.3; 32.7), followed by a reduction of 9.5% per year during the period 2006–15 [95% confidence interval (CI) = −14.3; −4.5]. The author found similar patterns for alcohol-related injuries [74].

Two studies examined the impact of the 2012 Drink-driving Law [72,73]. Otero [72] found an immediate significant effect of 26 fewer alcohol-related accidents (95% CI = −36.9; −15.2) and 38 fewer alcohol-related injuries per week (95% CI = −58.5; −17.3), which translates into a 32 and 36% reduction, respectively. Nistal-Nuño also showed an immediate level change after the law for both alcohol-related deaths and injuries [73]. Regarding medium-term effects, one study found a reduction of alcohol-related accidents and injuries with a decreasing effect over time [72], but the other did not [73].

DISCUSSION

The study aimed to provide a comprehensive overview of national alcohol policies in Chile, including enacted and proposed laws and existing impact evaluations. Chile has enacted legislation in all WHO alcohol policy domains, some of them dating from the beginning of the 1900s. Of the three best buys, Chile has made modest progress in increasing taxation, failed to regulate alcohol marketing and weakened alcohol availability regulation since 1960. We observed a surprisingly large amount of proposed laws, with a majority seeking to strengthen alcohol policy. We

Table 3 Impact evaluation studies of alcohol policies in Chile.

Article	*Journal*	*Year*	*Setting*	*Study design*	*Sample size*	*Population*	*Interventions*	*Comparator*	*Outcome*	*Time-frame for follow-up*	*Effect of national alcohol policy on outcome*	*Funding*
Nistal-Nuño [75]	*International Journal of Injury Control and Safety Promotion*	2017	Chile	Time–series analysis: jointpoint regression	Not applicable	Chilean population from 2000 and 2015	Legislative changes to reduce traffic accidents (seat belts, child-restraining policies, BAC limits)	Annual per cent changes (APCs) and average annual per cent changes (AAPCs)	Yearly crude incidence rates of deaths and injuries due to traffic accidents and deaths and injuries related to alcohol due to traffic accidents per 100 000 population	2000 to 2015	Overall deaths declined 1.2% per year (95% CI = –1.8; −0.7) during the study period, while overall injuries increased by 0.91% per year (95% CI = 0.4; 1.4). Alcohol-related deaths due to traffic crashes increased by 19.3% between 2000 and 2006 (95% CI = 7.3; 32.7) and decreased by 9.5% per year between 2006 and 2015 (95% CI = –14.3; −4.5); alcohol-related injuries increased by 7.8% per year between 2002 and 2008 (95% CI = 2.2; 13.8) and declined by 4.3% per year between 2008 and 2015 (95% CI = –7.2; −1.3)	No external funding
Otero, S. & Rau [73]	*Accident Analysis and Prevention*	2017	Chile	Regression discontinuity and time–series analysis (Poisson regression and linear logit models)	Not applicable	Chilean population from 2009 to 2014	Zero tolerance law that decreases the legal BAC limit of alcohol while driving and increases licence suspension periods for offenders	Counterfactual designed based on underlying trend	Alcohol-related and not alcohol-related accidents, injuries and deaths	2009 to 2014	Immediate effects: There was a significant decrease of 26 alcohol-related accidents per week (95% CI = –36.9; −15.2) immediately after the law's approval (32% reduction) and 38 fewer alcohol-related injuries per week (95% CI = –58.5; −17.3) after the law (36%	FONDECYT Project N. 1 141 093

(*Continues*)

Table 3. (Continued)

Article	*Journal*	*Year*	*Setting*	*Study design*	*Sample size*	*Population*	*Interventions*	*Comparator*	*Outcome*	*Time-frame for follow-up*	*Effect of national alcohol policy on outcome*	*Funding*
											reduction). No effect was observed on alcohol-related deaths. There was also a 6% reduction in the number of non-alcohol-related accidents, but not on deaths Medium-term effects: There was a significant reduction in monthly rates of alcohol-related accidents and injuries (−0.39, 95% CI = –0.30; −0.48 and −0.36, 95% CI = –0.24; −0.49, respectively). The effect appears to decrease over time. There was a significant reduction in BAC levels after the announcement of the law in the overall population, driven by reductions in BAC among men	
Nistal-Nuño [74]	*Public Health*	2017	Chile	Interrupted time–series (ITS) analysis: segmented regression	Not applicable	Chilean population from 2003 and 2014	Zero tolerance law that decreases the legal BAC limit of alcohol while driving and increases licence suspension	Counterfactual designed based on underlying trend	Monthly incidence rates of overall death and injuries due to traffic accidents and overall deaths and injuries due to traffic accidents associated with alcohol per 100 000 inhabitants	2003 to 2014	Overall deaths showed a baseline decreasing trend in the rate of −0.002 per month ($P < 0.001$), which did not change after the law. Overall injuries showed a baseline increasing trend of 0.030 ($P < 0.001$), with no change after the law.	No external funding

(*Continues*)

Table 3. (Continued)

Article	*Journal*	*Year*	*Setting*	*Study design*	*Sample size*	*Population*	*Interventions*	*Comparator*	*Outcome*	*Time-frame for follow-up*	*Effect of national alcohol policy on outcome*	*Funding*
							periods for offenders				Alcohol-related deaths showed a statistically non-significant downward trend before the law After the law, there was an immediate level fall followed by a statistically non-significant downward trend. For alcohol-related injuries, there was a raising trend before the law by 0.006 per month ($P < 0.001$) and an immediate level fall in the rate of −0.869 ($P < 0.001$) after the law, with a raising trend after the intervention	

BAC = blood alcohol concentration; CI = confidence interval; FONDECYT = National Fund for Scientific and Technological Development.

found few impact evaluations, all focused on a single domain: drink-driving policies.

Comparison with previous studies

Comparison with previous studies is limited since comprehensive national accounts of alcohol policies are scarce. We observed only small progress in the policies considered 'best buys'. This is in line with the findings of a qualitative study evaluating the progress of the National Alcohol Strategy [76]. On the contrary, using a scoring system, the Pan American Health Organization (PAHO) evaluated alcohol availability and health systems' response in Chile as the two most developed areas of alcohol policy, exceeding the mean scores of both the Americas and Europe [12]. The reason for this discrepancy is that PAHO assigns points for having time and place restrictions as well as minimum selling age, regardless of the strength of such restrictions, their evolution over time and degree of enforcement. Alcohol marketing and pricing policies received the lowest scores, which is consistent with our findings [12].

We observed progress in enacting drink-driving and brief interventions policies. This is in line with recent reports describing positive developments for both domains among WHO member states [7,77]. These are domains where public opinion is more favourable [78] and there is probably less resistance from the alcohol industry, given that they do not primarily aim to reduce alcohol use or restrict economic activity.

We found that most proposed laws sought to strengthen alcohol control, but proposed laws on alcohol availability were more contradictory, which is consistent with the mixed progress observed globally among WHO member states [7,77].

We observed long discussion times and high rates of proposed laws being archived, which probably reflect low political will and pressure from different political forces and policy objectives. Previous studies in China [18], South Africa [16], Botswana [17] and Nigeria [19] have also described barriers for enacting alcohol policies.

We have described that alcohol policy is under the realm of several policy sectors, including finance, trade, interior, transport, education, work and agriculture, among others. In Chile, alcohol is not only a public health challenge but also an economic, trade, agricultural and transport issue subject to local, national and supranational pressure forces. Framing and aligning these different views requires strong intersectoral coordination with enough political will to propose and enact alcohol control policies, all of which have been weak in the Chilean case. This has been documented in the case of Finland and other Nordic countries [13], Brazil [23] and Russia [15], where other interests than public health or general liberalization forces have weakened alcohol control. In Chile, the lack of a robust monitoring and reporting system and few impact evaluations have probably contributed to give low visibility to the negative consequences of alcohol use.

Strengths and limitations

Strengths of the study include a comprehensive approach using WHO alcohol policy framework and examining enacted and proposed laws and impact evaluations, as well as the use of systematic review methodology including a pre-registered protocol and a comprehensive literature review. We have made substantial efforts to reduce selection bias of relevant policies and research records and improve replicability.

However, some limitations are noted. First, we restricted the search to enacted laws, excluding other forms of administrative documents that can emanate from the government without congressional approval. To account for this, we relied on the expertise of authors (P.N., A.P. and F.L. have been long-standing civil servants in the alcohol policy field) and consulted experts. Nonetheless, we cannot rule out some selection bias of relevant alcohol programmes, especially those before the 1990s. Secondly, we assessed the grey literature by searching websites and OpenGrey, but we still might have missed relevant unpublished documents. We contacted several experts to attenuate this possible bias. Thirdly, we excluded municipal regulations, which can legally restrict opening hours and the licensing of certain types of alcohol outlets [47]. Municipalities are also important in the enforcement of policies on availability and, given that they administer primary health care, play an essential role in the implementation of brief interventions and treatment of alcohol use disorder. We are not aware of any study exploring the degree to which municipalities exert their regulatory capacity on alcohol availability, which remains to be investigated.

CONCLUSIONS

Chile has enacted alcohol policies in all WHO policy domains but has failed to address those policies with higher cost-effectiveness. We found many proposed laws and few impact evaluations of existing policies. Future research could explore the political forces shaping health policy in Chile, evaluate the implementation and impact of national alcohol policies on alcohol use and alcohol-related harm and document efforts at subnational levels. The study methodology could be used to examine policy changes on cannabis and other drugs. A Health in All Policies approach could be useful to structure the needed political will, leadership and intersectoral coordination into a coherent framework.

Declaration of interests

None.

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Author contributions

Sebastian Peña: Conceptualization; data curation; formal analysis; investigation; methodology. **Paula Sierralta:** Conceptualization; data curation; formal analysis; investigation; methodology. **Pablo Norambuena:** Conceptualization; investigation. **Felipe Leyton:** Conceptualization; investigation. **Alfredo Pemjean:** Conceptualization; investigation. **Francisca Román:** Conceptualization; data curation; formal analysis; investigation; methodology.

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Supporting Information

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

Table S1. Search strategy for enacted policies, policy proposals and policy evaluations
Table S2. WHO alcohol policy domains and policy options and interventions
Table S3. Excluded enacted laws, policy proposals and policy evaluations
Table S4. List of enacted laws on alcohol control in Chile from 1960 to 2019
Table S5. List of policy proposals on alcohol control in Chile from 1990 to 2019
Table S6. Risk of bias assessment of evaluations of policies in Chile

