

ADDRESSING ALCOHOL HARM IN ADOLESCENTS

Technical Report 2: Māori analysis.
Methods and data tables

November 2022

ACKNOWLEDGEMENTS

The authors would like to acknowledge the advisory group members who helped to guide this project. We would also like to thank the project's funders: nib foundation and the Health Promotion Agency/Te Hiringa Hauora. Finally, we would like to thank the students and schools that participated in the Youth 2000 surveys.

Suggested citation: Ball, J., Zhang, J., Roberts, A., Jackson, N., Kim, A., Sydney, M., Sullivan, G. Crengle, S., (2022) Addressing Alcohol Harm in Adolescents. Technical Report 2: Māori analysis. Methods and data tables. Wellington: University of Otago & Adolescent Health Research Group

Addressing Alcohol Harm in Adolescents

Technical report 2: Māori analysis. Methods and data tables.

Contents

Introduction	4
About the project.....	4
About this report.....	4
Why does adolescent drinking matter?.....	4
The context for alcohol use among rangatahi Māori	5
Methods.....	6
Data Tables.....	11
Trends in alcohol use	11
Drinking patterns among Māori, 2019.....	12
Alcohol harm.....	14
Risk and protective factors	17
Appendix A: Derivation of variables, including survey question wording and response options	21
Appendix B: Flow diagram for ‘Risk of alcohol harm’ categorisation.....	29
References	32

Introduction

About the project

‘Addressing alcohol harm in adolescents’ is a research and advocacy project, undertaken as a partnership between Alcohol Healthwatch and the Adolescent Health Research Group (the team behind the Youth2000 survey series). The project began in January 2022, funded by a nib foundation Health Smart Grant. Additional funding from the Health Promotion Agency/Te Hiringa Hauora (which has since become part of Te Whatu Ora – Health New Zealand) was received in June 2022, enabling us to expand the scope of the project. The project’s goals are:

1. Add to the evidence base about adolescent drinking and alcohol-related harm in Aotearoa New Zealand
2. Inform evidence-based policy and community-level action to reduce hazardous drinking and eliminate disparities in alcohol harm among young people
3. Build community health literacy around alcohol harm and how to reduce it effectively.

Phase 1. The first phase of the project investigated patterns of alcohol use and self-reported alcohol harm in secondary students overall. The findings were released in September 2022.

Phase 2. The second phase of the project focuses on three priority populations at greater risk of alcohol harm during adolescence: Māori, Pacific and Rainbow youth. This report and the associated factsheet are the first outputs from phase two.

Webinars and factsheets. The project outputs include a series of seven factsheets and four webinars (Sept 2022 – Feb 2023) to disseminate the key findings and promote evidence-based policy and community action to address adolescent alcohol harm.

All of the project outputs, including webinar recordings, will be published on the Youth19 website (www.youth19.ac.nz) and the Alcohol Healthwatch website (www.ahw.org.nz).

About this report

This report presents findings about adolescent alcohol use and experience of alcohol harm among Māori secondary school students, and the methods used to reach those findings. There is an associated factsheet and webinar, which present key findings for a general audience.

This report updates previous findings about alcohol use in rangatahi Māori.¹⁻³ The analysis builds on previous research by using measures of whanaungatanga and cultural connectedness developed by Māori researchers.⁴

Why does adolescent drinking matter?

Alcohol is a significant contributor to health loss and health inequity in Aotearoa New Zealand, and hazardous drinking often begins in adolescence. Although many young people do not drink alcohol at all, those who do drink are particularly vulnerable to alcohol harms.⁵ For a number of reasons, young people experience more harm per drink than older age groups.⁶ Drinking alcohol at a young age can cause serious short and long term harms, such as injuries, depression, suicidality, unwanted sex, and having performance at school affected.^{5,7} Some alcohol-related harms, such as negative

impacts on brain development, are irreversible.⁸ There is evidence that alcohol intoxication at a young age puts people at greater risk of substance use disorders and mental health problems in adulthood.⁹ Therefore preventing alcohol harm among rangatahi is important.

The context for alcohol use among rangatahi Māori

To prevent alcohol harm among rangatahi Māori, it is essential to understand the historical and current factors that influence alcohol use. Intergenerational experiences of colonisation, discrimination, and inequity provide the context for alcohol use among rangatahi Māori.^{1 2 10 11} Before contact with Pākehā, Māori did not drink alcoholic beverages.¹² Adolescent alcohol use is often a symptom of broader social issues, which can affect young people directly or via impacts on whānau wellbeing.² Heavy alcohol use in adolescence can be a result of childhood trauma.¹³

The neighbourhood environment is a strong determinant of adolescent alcohol use and harm. In Aotearoa New Zealand, socioeconomically deprived neighbourhoods have more places that sell alcohol than less deprived neighbourhoods.¹⁴ The higher proportion of Māori experiencing deprivation,¹⁵ coupled with ineffective laws to limit the number of alcohol outlets, results in Māori often living in areas that are over-saturated with places that sell alcohol. Also, research using wearable cameras found tamariki Māori were exposed to alcohol marketing five times more often than NZ European children, e.g. via sports sponsorship, shop-front signage and merchandise.¹⁶ The wide accessibility and marketing of alcohol normalises alcohol use and plays a major role in alcohol harm inequities.

Methods

The findings in this report are based on data from the 2007, 2012 and 2019 waves of the Youth 2000 survey series (also known as Youth07, Youth12 and Youth19). More detailed information about the methods for these surveys is available elsewhere¹⁷⁻²⁰ and is summarised briefly below.

Ethics

Each survey wave was approved by the University of Auckland Human Participants Ethics Committee, Reference Numbers 2005/414 (2007), 2011/206 (2012) and 2018/023450 (2019).

Sampling methods

The sampling frame was secondary school students. All waves used a two-stage clustered sampling design with randomly selected schools and, within these, randomly selected students. In 2001, 2007 and 2012, one-third of NZ's secondary schools were selected and in each participating school of >150 students, 20% of the roll was invited to participate. In schools with fewer students, 30 students were randomly selected. The last wave (2019) sampled schools from three regions (Auckland, Tai Tokerau and Waikato), an area that includes 47% of NZ's secondary school population. In each region 50% of schools were randomly sampled and 30% of students on their roll were invited to participate. In 2019, all Kura Kaupapa Māori (Māori immersion schools) from the three regions were also invited, with all Kura students asked to participate. In all waves, in participating schools, parents and caregivers were given information about the survey and could opt for their child to be excluded. Non-excluded students were randomly selected from school rolls and gave their own written consent at the start of the survey. Participation was anonymous.

Response rates

School response rates were 84% (2007), 73% (2012) and 57% (2019). Student response rates were 74%, 68% and 60% respectively. The number of participating schools and students in each wave is provided in Table 1, along with participant characteristics.

Survey design and administration

The self-report questionnaires were delivered via digital devices using M-CASI technology (text on screen and read aloud with headphones for privacy in English or Māori) during school time. The branching questionnaire design minimised exposure to irrelevant questions. The questionnaires covered demographics, identity, and key health and wellbeing indicators. (The full Youth19 questionnaire is available here: <https://bit.ly/3MGdD39>). The survey items used in the current research project are detailed in Appendix 1. Unless otherwise stated, the wording of survey questions and response options has been consistent over the three survey waves (2007, 2012, 2019) enabling comparison over time.

Geocoding

While the survey was being administered, a research assistant asked each student to enter the address of the place they usually live into a custom web app that resolved and saved their census meshblock number without storing their specific address. Each student's meshblock was stored in a database against their unique survey 'login' and later coupled with their survey responses. Meshblock data was used to determine NZ Deprivation Index (NZDep2018) decile, and urban/small town/rural designation.

Table 1: Survey respondent numbers and characteristics, unweighted

	2007		2012		2019	
	N	%	N	%	N	%
Total schools	96	-	91	-	49	-
Total students	9,098	100.0	8,487	100.0	7,721	100.0
Gender[#]						
Female	4,187	46.0	4,618	54.4	4,179	54.6
Male	4,911	54.0	3,869	45.6	3,472	45.4
Age						
13 years or under	1,859	20.4	1,838	21.7	1,402	18.2
14	2,100	23.1	1,895	22.3	1,745	22.6
15	1,973	21.7	1,755	20.7	1,698	22.0
16	1,743	19.2	1,578	18.6	1,474	19.1
17 years or over	1,423	15.6	1,421	16.7	1,401	18.2
Ethnicity*						
Māori	1,702	18.7	1,697	20.0	1,528	19.8
Pacific	924	10.2	1,200	14.1	945	12.3
Asian	1,126	12.4	1,049	12.4	1,776	23.0
Other**	549	6.0	523	6.2	389	5.1
Pākehā & other European	4,797	52.7	4,018	47.3	3,070	39.8

2019 was the first survey in which students were able to report a gender other than male or female. A total of 63 students did not report a male or female gender in 2019.

* Ethnicity is categorised using the NZ census ethnicity prioritisation method.

** 'Other' ethnicity includes Middle Eastern, Latin American, African, and other ethnicities and unknown ethnicity.

Measures

Indicators of alcohol use were i) lifetime use of alcohol (i.e. ever/never had more than a few sips), ii) current use of alcohol (i.e. students who continued to drink at the time of the survey), iii) frequency of alcohol use, iv) prevalence and frequency of binge drinking (5+ drinks/session) in the past month, v) quantity consumed on a typical drinking occasion, vi) sources of alcohol, and vii) experiences of alcohol harm. The survey questions and details about derivation of measures are provided in Appendix 1.

The study explored potential risk and protective factors in the home, school and neighbourhood environment, and tested their association with high-risk drinking. Potential protective factors included composite measures of cultural connectedness (10 items) and whanaungatanga (whanaungatanga with whānau scale – 9 items; whanaungatanga with adults outside whanau – 9 items), developed by Māori researchers for the Youth19 survey.⁴ Details about these measures, and other risk and protective factors and demographic variables are provided in Appendix 1.

Weighting and national estimates

Analysis was conducted using the ‘survey’ package in R (R Statistical Foundation). Data were initially weighted using inverse probability of selection (IPS) weights [calculated for each student as: (total number of schools ÷ schools that participated) × (total number of eligible students in the student's school ÷ students from that school that participated)]. Generalised raking was used to correct for non-response and to calibrate the results of each survey wave to the national secondary school population in terms of school decile, student age, gender, and ethnicity. Further details about weighting and calibration are available elsewhere.¹⁸ All of the findings presented in this report are national estimates.

Analysis

For trend analyses (comparing outcomes for 2007, 2012 and 2019) to ensure comparability with previous years, the 2019 data excluded Kura Kaupapa Māori, and findings were calibrated to the national secondary school population for each survey year (see detail on weighting above). We calculated percentages and 95% confidence intervals for the estimated national prevalence of each outcome in each survey year, for Māori and non-Māori (see Table 1 and Table 2).

To explore drinking patterns in rangatahi Māori in 2019, we used the full data set including Kura Kaupapa Māori.

Data on alcohol harm was not collected in the 2019 survey. To investigate self-reported alcohol harm, we used the 2012 survey's 9-items about alcohol harm (e.g. got injured, had unprotected sex, had unwanted sex, performance at school affected etc) – see Appendix 1 for details. We calculated the proportion of current drinkers who reported experiencing each type of harm, by ethnicity (Māori/non-Māori) and, among Māori, by gender.

We then derived a total harm score (range 0-27) for current drinkers. For each harm indicator, a score of 1 was given if the harm was experienced more than a year ago, 2 if the harm had been experienced once or twice in the past year, and 3 if it had been experienced 3 or more times the past year. This aggregate measure enabled us to investigate differences in average alcohol harm score by ethnicity. We used multiple regression technique to explore mediators of the ethnic difference in alcohol harm. We modelled the ethnic difference in alcohol harm, then added age and sex to the model to estimate baseline differences adjusting for these potential confounders. We then included neighbourhood deprivation (NZ Dep), and alcohol use variables (frequency of alcohol use, amount of alcohol typically consumed, frequency of past month binge drinking), separately, then together to test the extent to which these variables mediated the ethnic differences in self-reported alcohol harm.

In the absence of self-reported alcohol harm data for 2019, we categorised participants into four ‘risk of alcohol harm’ categories, based on self-reported patterns of alcohol use in 2019. The categories were: non-drinker, small risk, high risk, very high risk. The term ‘small risk’ was used to differentiate from official ‘lower risk drinking guidelines’ and reflects the fact that no level of alcohol

use is completely free from risk. Appendix B provides a flow chart of the categorisation process. Non-drinkers were defined as those who had never drunk alcohol (more than a few sips) or who reported that they did not drink any more. The criteria for the remaining groups are detailed in Table 2 and Appendix B.

Criteria were based on expert input from advisory group members and 2012 findings about the relationship between drinking patterns and harm in secondary school students (see Technical Report 1).²¹ For example, we found no difference in average harm score between those who reported no alcohol use in the last month and those who reported alcohol use on one occasion. Therefore, once a month or less was considered a low-risk frequency. For typical quantity consumed and frequency of binge drinking, criteria differed for those aged under 16 and those aged 16 and over, reflecting the fact that younger people experienced greater harm at the same level of consumption in 2012.²¹

Table 2: Criteria for categorisation into risk of alcohol harm groups.

	Small risk of harm		High risk of harm		Very high risk of harm	
	<16 yrs	16+ yrs	<16 yrs	16+ yrs	<16 yrs	16+ yrs
Frequency	Once in last 4 weeks or less	Once in last 4 weeks or less	2-3 times a month	2-3 times a month to once a week	Once a week or more often	Several times a week/most days
Typical quantity	1 drink	1-2 drinks	2-4 drinks	3-9 drinks	5+ drinks	10+ drinks
Binge drinking in past 4 weeks	None	None	Once	1-3 times	More than once	Weekly or more often

As detailed in the flow chart in Appendix B, current drinkers were categorised as ‘very high risk’ if they met at least one criterion for that category. The remaining drinkers were then assessed for the ‘high risk’ category. Those who did not meet any of the ‘high risk’ criteria were classified as ‘small risk’.

We used logistic regression to investigate the relationship between high-risk/very-high-risk drinking (grouped) and selected risk and protective factors in 2019. Non-drinkers/small risk (grouped) were the reference group. All models were adjusted for age, gender and NZ Deprivation Index band (low, med, high), and results were expressed as Odds Ratios and 95% Confidence Intervals.

Limitations

Limitations must be borne in mind when interpreting these findings. Among students, those absent from school or choosing not to participate may have higher levels of alcohol use than those who took part in the survey, leading to underestimates of alcohol use. Furthermore, rangatahi attending secondary school are at lower risk of alcohol harm than rangatahi outside the school setting, e.g. attending alternative schools, or NEET (not in employment, education, or training).²² Māori are more likely to leave school early,²³ therefore our school-based findings almost certainly underestimate alcohol use and related harm in 13-18 year old Māori overall. Findings about alcohol use and alcohol harm in secondary school students is not generalisable to adolescents who have left or been excluded from school. Further research is needed to better understand drinking patterns and alcohol harm in adolescents outside the school setting.

School and student response rates have decreased over time, increasing the possibility of selection bias.

The 2019 survey was regional, rather than national. National estimates were calculated for all survey waves to allow comparison over time, but comparisons between 2019 and earlier waves could be biased by regional differences over and above demographic differences (e.g. differences in drinking culture).

It is important to note that associations between risk and protective factors and alcohol outcomes may or may not be causal – causality cannot be determined in cross-sectional surveys of this nature.

The 2019 findings are the most recent available from the Youth2000 series on alcohol use, yet because of major social changes since 2019 (including changes associated with the Covid19 pandemic), drinking patterns may have changed since 2019. Indeed, recently published findings from the 'What about me' survey²⁴ and the New Zealand Health Survey²⁵ indicate that hazardous drinking among adolescents may have risen sharply since 2019.

Data on experience of alcohol harm was not collected in the 2019 survey, so the alcohol harm findings presented here are the most recent available (2012), but somewhat dated. A further limitation of the alcohol harm findings is that they are based on self-report and focus on immediate and tangible consequences of drinking. There are other important harms associated with alcohol use that may be imperceptible to young people and not picked up in the study, e.g. there is evidence that adolescent alcohol use can contribute to depression and suicidality and put people at greater risk of developing alcohol dependence in adulthood.^{9,26} Such 'invisible' impacts of alcohol use are not identified in this study.

Data Tables

Trends in alcohol use

As shown in Tables 3 and 4, prevalence of every alcohol indicator declined substantially between 2007 and 2019, with most of the decline concentrated in the 2007-2012 period. For most indicators, declines have been similar (in absolute terms) between Māori and non-Māori. For every indicator except 'drinking weekly or more often', prevalence was higher among Māori than non-Māori in 2019. Ethnic differences were greatest for 'Drinking 10+ drinks on a typical occasion' with Māori substantially more likely to report very heavy drinking than non-Māori.

Table 3: Māori, Prevalence of alcohol use indicators, 2007 - 2019

	2007		2012		2019	
	n(N)	Weighted % (95% CI)	n(N)	Weighted % (95% CI)	n(N)	Weighted % (95% CI)
Ever drinking	1290 (1522)	84.9 (82.4 – 87.4)	1138 (1605)	73.1 (70.6 – 75.6)	673 (1060)	66.5 (62.9-70.0)
Current drinking	1107 (1509)	73.7 (70.7-76.8)	905 (1597)	59.2 (56.6-61.9)	565 (1057)	56.7 (53.0-60.5)
Past month drinking	888 (1509)	59.4 (55.7-63.1)	611 (1597)	41.0 (38.4- 43.6)	387 (1057)	39.4 (35.6-43.1)
Drinking weekly or more often	398 (1509)	26.3 (24.5-28.1)	185 (1597)	12.7 (10.7-14.7)	103 (1057)	10.1 (7.8-12.3)
Drinking 10+ drinks on a typical occasion over population	334 (1500)	22.3 (20.0-24.7)	228 (1580)	15.9 (13.8-18.0)	138 (1046)	14.0 (10.7-17.3)
Drinking 10+ drinks on a typical occasion in current drinkers	334 (1098)	30.3 (27.8-32.8)	228 (888)	27.0 (23.7-20.2)	138 (554)	24.9 (20.0-29.8)
Past month binge drinking in population	756 (1488)	51.9 (48.5-55.2)	515 (1587)	34.8 (32.1-37.5)	291 (1032)	28.4 (25.3-31.6)
Past month binge drinking in current drinkers	756 (1107)	70.6 (68.1-73.2)	515 (905)	59.0 (55.6-62.5)	291 (1046)	51.0 (46.9-55.1)

Table 4: Non-Māori, prevalence of alcohol indicators, 2007 - 2019

	2007		2012		2019	
	n(N)	Weighted % (95% CI)	n(N)	Weighted % (95% CI)	n(N)	Weighted % (95% CI)
Ever drinking	4648 (6773)	71.2 (69.4-73.1)	3524 (6577)	58.3 (56.5-60.2)	2605 (5781)	52.0 (50.2-53.9)

Current drinking	3897 (6761)	61.0 (59.3- 62.8)	2791 (6566)	47.4 (45.7- 49.1)	2158 (5769)	44.8 (42.9-46.7)
Past month drinking	2934 (6761)	46.3 (44.7- 47.9)	1944 (6566)	34.2 (32.4-36.0)	1548 (5769)	32.6 (30.7-34.5)
Drinking weekly or more often	1074 (6761)	17.1 (16.0- 18.1)	494 (6566)	8.8 (7.8-9.7)	364 (5769)	8.9 (7.2-10.6)
Drinking 10+ drinks on a typical occasion in population	537 (6730)	8.2 (7.4-9.0)	300 (6544)	5.2 (4.4-6.0)	200 (5734)	4.2 (3.6-4.9)
Drinking 10+ drinks on a typical occasion in current drinkers	537 (3866)	13.5 (12.3- 14.7)	300 (2769)	10.9 (9.4-12.4)	200 (2123)	9.5 (8.3-10.8)
Past month binge drinking in population	2063 (6727)	32.9 (31.4- 34.4)	1323 (6553)	23.1 (21.5-24.6)	928 (5737)	20.1 (18.3-21.9)
Past month binge drinking in current drinkers	2063 (3863)	54.1 (52.3- 55.8)	1323 (2778)	48.7 (46.5-51.0)	928 (2126)	45.3 (42.5-48.1)

Drinking patterns among Māori, 2019

For many rangatahi Māori, alcohol use starts young, with 40% of those aged 13 or younger reporting ever drinking alcohol in 2019 (Table 5). Past month binge drinking was equally common in boys and girls (28-29%), but boys were more likely to report very heavy drinking (10+ drinks) (Tables 6 and 7). Parents and friends were the most common sources of alcohol (Table 8).

Table 5: Ever drunk alcohol by age, Māori secondary school students, 2019

	n(N)	Weighted % (95% CI)
13 or under	107 (266)	39.7 (34.4-45.1)
14	177 (330)	55.0 (49.0-61.0)
15	215 (305)	69.7 (65.4-73.9)
16+	358 (433)	83.3 (79.1-87.6)
Total	857 (1334)	66.5 (63.0-69.9)

Table 6: Past month binge drinking by demographic variables, Māori secondary school students, 2019

	n(N)	Weighted % (95% CI)
Age group		
<16yrs	171 (865)	17.9 (15.1-20.6)
16+yrs	206 (426)	45.3 (40.1-50.6)
Gender		
Male	176 (686)	28.9 (23.6-34.3)
Female	201 (705)	28.1 (24.5-31.6)
NZdep_band3		
1 (least deprived)	55 (189)	32.0 (26.1-37.9)
2	86 (366)	23.8 (20.3-27.3)
3 (most deprived)	154 (511)	27.8 (23.9-31.8)

Table 7: Quantity of alcohol usually consumed by gender, Māori current drinkers, 2019

	Male		Female		Total Māori	
	n(N)	Weighted % (95% CI)	n(N)	Weighted % (95% CI)	n(N)	Weighted % (95% CI)
1-2 drinks	65 (309)	21.1 (16.5-25.7)	99 (392)	30.7 (25.5-35.8)	162 (698)	26.0 (22.5-29.4)
3-4 drinks	45 (309)	15.3 (8.9-21.6)	86 (392)	22.1 (17.9-26.3)	130 (698)	18.7 (15.0-22.5)
5-9 drinks	90 (309)	29.8 (23.4-36.3)	120 (392)	30.0 (27.0-32.9)	210 (698)	29.9 (26.1-33.7)
10+ drinks	109 (309)	33.8 (26.1-41.5)	87 (392)	17.3 (12.8-21.7)	196 (698)	25.4 (20.5-30.2)

Table 8: Usual sources of alcohol, Māori current drinkers aged under 18 years, 2019

	n(N)	Weighted %* (95% CI)
I buy it myself	84 (671)	11.8 (8.8-14.8)
Friends give it to me	238 (671)	36.5 (32-41.1)
My brother or sister gives it to me	136 (671)	18.4 (15.7-21.2)

My parents give it to me	370 (671)	57.7 (54.5-60.9)
I get it from home without my parents' permission	83 (671)	14.7 (11.9-17.6)
Another adult I know gives it to me	103 (671)	15.8 (12.7-18.9)
I get someone else to buy it for me	147 (671)	21.6 (18.1-25.2)
I take or steal it from somewhere else (not home)	19 (671)	3.2 (1.9-4.5)
None of these	59 (671)	8.3 (6.8-9.8)

*Note students could choose as many categories as relevant, so percentages do not add up to 100%.

Alcohol harm

In 2012 a substantial proportion of current drinkers reported experiencing alcohol harm in the past 12 months. Injuries, having sex without a condom, and doing things that could have got the person in serious trouble were the most prevalent harm indicators for Māori (Table 9). For most indicators, prevalence of harm was higher in Māori than non-Māori (Table 9). Prevalence of harm was higher among Māori girls than Māori boys on many indicators (Table 10). Mean alcohol harm score was higher among Māori than non-Māori, and higher among Māori living in high-deprivation neighbourhoods than Māori living in low-deprivation (wealthier) neighbourhoods (Table 11). Ethnic differences in mean alcohol harm score were largely explained by ethnic differences in drinking patterns. Deprivation independently contributed to ethnic differences, over and above differences in drinking patterns (Table 12). In 2019, based on the categorisation outlined in Table 2, a similar proportion of Māori and non-Māori secondary students were in the 'high risk of alcohol harm' category (25-27%), however a much higher proportion of Māori (22%) than non-Māori (10%) were in the 'very high risk' category (Table 13).

Table 9: Prevalence of alcohol harm indicators in past 12 months, current drinkers, 2012

	Māori		Non-Māori	
	n(N)	Weighted % (95% CI)	n(N)	Weighted % (95% CI)
Had friends or family tell you to cut down your alcohol drinking	113 (867)	13.1 (11.1 – 15.1)	273 (2746)	10.1 (8.6-11.6)
Had your performance at school or work affected	69 (867)	7.9 (6.2-9.6)	143 (2746)	5.1 (4.1-6.2)
Had unsafe sex (no condom) when you had been drinking alcohol?	149 (867)	17.8 (15.1-20.6)	273 (2746)	9.8 (8.6-10.9)
Had unwanted sex when you had been drinking alcohol?	54 (867)	5.9 (4.5-7.4)	114 (2746)	4.1 (3.3-4.9)

Done things that could have got you into serious trouble (e.g. stealing, etc.) when you had been drinking alcohol?	150 (867)	16.6 (14.3-18.9)	311 (2746)	11.2 (10.1-12.4)
Been injured when you had been drinking alcohol?	156 (867)	18.2 (15.4-21.0)	400 (2746)	15.4 (13.7-17.1)
Been injured and required treatment by a doctor or nurse when you had been drinking alcohol?	46 (867)	5.1 (3.9-6.3)	63 (2746)	2.3 (1.8-2.9)
Injured someone else when you had been drinking alcohol?	67 (867)	7.5 (6.0-9.1)	98 (2746)	3.4 (2.8-4.1)
Had a car crash when you had been drinking alcohol?	19 (867)	2.0 (0.9-3.1)	33 (2746)	1.0 (0.7-1.4)

Table 10: Prevalence of alcohol harm indicators in past 12 months, Māori current drinkers by gender

	Male		Female	
	n(N)	Weighted % (95% CI)	n(N)	Weighted % (95% CI)
Had friends or family tell you to cut down your alcohol drinking	38 (381)	10.7 (8.3-13.1)	75 (486)	15.4 (12.5-18.2)
Had your performance at school or work affected	27 (381)	6.7 (4.6-8.8)	42 (486)	9.0 (6.6-11.4)
Had unsafe sex (no condom) when you had been drinking alcohol?	60 (381)	16.2 (12.6-19.7)	89 (486)	19.4 (15.2-23.6)
Had unwanted sex when you had been drinking alcohol?	20 (381)	4.6 (2.8-6.5)	34 (486)	7.2 (4.6-9.8)
Done things that could have got you into serious trouble (e.g. stealing, etc.) when you had been drinking alcohol?	65 (381)	16.0 (12.4-19.6)	85 (486)	17.2 (13.9-20.5)
Been injured when you had been drinking alcohol?	55 (381)	14.6 (10.5-18.7)	101 (486)	21.7 (17.9-25.5)
Been injured and required treatment by a doctor or nurse when you had been drinking alcohol?	23 (381)	5.4 (3.6-7.2)	23 (486)	4.8 (2.9-6.7)
Injured someone else when you had been drinking alcohol?	32 (381)	8.0 (5.6-10.5)	35 (486)	7.0 (5.0-9.0)
Had a car crash when you had been drinking alcohol?	11 (381)	2.3 (0.6-4.0)	8 (486)	1.7 (0.5-2.9)

Table 11: Demographic differences in mean alcohol harm score

	Mean harm score (weighted)	95% CI
Non-Māori, overall	1.65	1.51 – 1.79
Māori, overall	2.61	2.34 – 2.88
Māori - male	2.36	1.97 – 2.75
Māori - female	2.86	2.50 – 3.22
Māori – 13 years and under	2.44	1.56 – 3.32
Māori – 14 years	2.80	2.11 – 3.48
Māori – 15 years	2.56	1.84 – 3.28
Māori – 16 years	2.57	1.98 – 3.16
Māori – 17 years and over	2.61	2.04 – 3.19
Maori – NZDep band 1 (least deprived)	2.02	1.65 – 2.39
Māori – NZ Dep band 2	2.57	2.17 – 2.98
Māori – NZ Dep band 3 (most deprived)	2.95	2.41 – 3.49

Table 12: Mediation analysis for ethnic differences in alcohol harm score

	Linear regression estimate	P-value for ethnic difference
Model 1: Difference in harm score between Māori and non-Māori, unadjusted	0.960	<.001
Model 2: Adjusted for sex and age	1.025	<.001
Model 3: Adjusted for sex, age, and NZDep2018	0.838	<.001
Model 4: Adjusted for sex, age, and drinking patterns (frequency of alcohol use, typical quantity consumed, frequency of past month binge drinking)	0.195	0.172 (NS)
Model 5: Adjusted for sex, age, NZDep2018, and drinking patterns	0.098	0.490 (NS)

Table 13: Risk of alcohol harm categories, weighted estimates, 2019

	Non-drinker	Small risk	High risk	Very high risk
Māori	43% (39.6 – 46.9)	8% (6.7 – 9.4)	27% (23.9 – 29.3)	22% (18.6 – 25.5)
Non-Māori	55% (53.2 – 57.1)	10% (9.4 – 11.2)	25% (23.4 – 25.9)	10% (8.6 – 11.2)

Risk and protective factors

The majority of rangatahi Māori had a wide range of potential protective factors in their lives in 2019 (Table 14). For most potential protective factors, exposure was slightly higher among non-Māori than Māori. Conversely, for most potential risk factors, exposure was higher among Māori than non-Māori (Table 15). Associations between potential risk and protective factors and high-risk/very-high-risk drinking are shown in Tables 16 and 17.

Table 14: Exposure to potential protective factors, Māori and non-Māori secondary school students, 2019

	Māori		Non-Māori	
	n(N)	Weighted % (95% CI)	n(N)	Weighted % (95% CI)
High parental monitoring	1197 (1325)	89.0 (87.1 – 90.8)	5317 (5767)	92.0 (90.5 – 93.5)
Good family relationships	945 (1311)	74.0 (71.9-76.2)	4390 (5751)	77.8 (76.6-79.0)
Get enough quality time with family	1146 (1301)	88.0 (86.1-89.9)	5188 (5713)	91.2 (90.5-91.9)
Feel safe at home	1191 (1327)	88.9 (86.4-91.3)	5440 (5780)	94.1 (93.2-95.0)
People at school care	960 (1315)	73.7 (70.8-76.6)	4597 (5729)	81.1 (80.2-82.1)
Feel safe at school	1098 (1321)	83.8 (80.5-87.2)	5117 (5756)	88.6 (86.8-90.3)
Sense of belonging at school	1103 (1305)	82.9 (80.5-85.4)	4935 (5692)	85.7 (84.7-86.6)
Feel safe in the neighbourhood	705 (1262)	56.3 (52.8-59.7)	3313 (5675)	59.3 (57.8-60.7)
Volunteered in the community in the last 12 months	537 (1127)	47.1 (43.0-51.1)	2399 (5482)	47.2 (45.7-48.7)
Can speak te reo Māori*	479 (1317)	23.1 (20.9-25.3)	-	-
Hope for the future	865 (1103)	79.9 (77.9-82.0)	4646 (5462)	86.3 (85.4-87.2)
Opportunities to show talents	708 (1075)	67.6 (65.1-70.1)	3625 (5407)	69.4 (67.9-70.9)

*The question about te reo Māori ability was only asked of Māori students

Table 15: Exposure to risk factors, Māori and non-Māori secondary school students, 2019

	Māori		Non-Māori	
	n(N)	Weighted % (95% CI)	n(N)	Weighted % (95% CI)
Treated unfairly because of ethnicity in past 12 months	499 (1273)	36.8 (33.8-39.8)	1397 (5632)	22.4 (21.2-23.6)
Sexual abuse or coercion	270 (1252)	21.0 (18.3-23.7)	936 (5627)	17.2 (16.0-18.3)

Parents often/always worry about money for food	263 (1303)	16.8 (13.9-19.6)	626 (5721)	10.0 (9.1-10.9)
Experience of housing deprivation, past 12 months	539 (1330)	39.2 (35.6-42.7)	1476 (5782)	24.7 (23.5-25.8)
Witnessed adult hit or hurt another child at home	151 (1261)	11.9 (10.4-13.4)	405 (5624)	6.7 (6.3-7.2)
Been hit or hurt by an adult at home	176 (1246)	14.0 (11.8-16.1)	561 (5611)	8.9 (8.2-9.7)
Witnessed adults at home hit or hurt each other	136 (1105)	11.4 (9.6-13.2)	276 (5603)	4.5 (4.0-5.0)
Past or present Oranga Tamariki/CYFS involvement	207 (1305)	16.7 (13.9-19.4)	379 (5726)	6.4 (5.9-7.0)
Lack of support to achieve future plans	255 (1108)	20.9 (18.3-23.6)	1108 (5441)	20.7 (19.8-21.6)

Table 16: Association between lack of protective factors and high-risk/very-high-risk drinking, Māori secondary school students, 2019

		Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio* (95% CI)	Adjusted Model P-value
Parental monitoring	High	1.00	1.00	
	Low	2.30 (1.69 – 3.14)	3.30 (2.12 – 5.13)	<0.01
There is someone in my family I trust to share my feelings with	Yes	1.00	1.00	
	No	1.61 (1.22-2.12)	1.63 (1.17-2.27)	<0.01
Enough quality time with family	Yes	1.00	1.00	
	No	2.11 (1.58-2.81)	2.16 (1.43-3.25)	<0.01
Whanaungatanga scale (whānau)	High	1.00	1.00	
	Med	0.94 (0.70-1.25)	0.86 (0.61-1.20)	NS
	Low	0.68 (0.52-0.89)	0.59 (0.41-0.84)	<0.01
Feel safe at home	Yes	1.00	1.00	
	No	1.74 (1.31-2.32)	2.66 (1.91-3.70)	<0.01
Whanaungatanga scale (adults outside the whānau)	High	1.00	1.00	
	Med	1.29 (0.91-1.84)	1.23 (0.81-1.86)	NS
	Low	1.76 (1.22-2.53)	1.85 (1.22-2.81)	0.01
Teachers at school care	Yes	1.00	1.00	
	No	1.49 (1.20-1.85)	2.07 (1.52-2.81)	<0.01
Feel safe at school	Yes	1.00	1.00	
	No	0.90	1.20	NS

		(0.65-1.26)	(0.83, 1.74)	
Sense of belonging at school	Yes	1.00	1.00	
	No	1.62 (1.16-2.26)	1.87 (1.31-2.67)	<0.01
Feel safe in the neighbourhood	Yes	1.00	1.00	
	No	1.20 (0.97-1.49)	1.28 (0.99-1.64)	NS
Volunteered in the community in the last 12 months	Yes	1.00	1.00	
	No	0.79 (0.62-0.99)	1.00 (0.79-1.27)	NS
Cultural connectedness scale	High	1.00	1.00	
	Med	0.88 (0.69-1.11)	0.98 (0.79-1.22)	NS
	Low	0.66 (0.51-0.86)	0.72 (0.52-1.01)	NS
Can speak te reo Māori	Yes	1.00	1.00	
	No	0.97 (0.79-1.20)	0.74 (0.57-0.95)	0.02
I think about or make plans for the future	Yes	1.00	1.00	
	No	0.76 (0.51-1.13)	0.95 (0.62-1.47)	NS
See a positive future for self in NZ	Yes	1.00	1.00	
	No	0.97 (0.71-1.33)	0.94 (0.66-1.35)	NS
Opportunities to show talents	Yes	1.00	1.00	
	No	0.98 (0.70-1.37)	0.89 (0.56-1.40)	NS

*Adjusted for age, sex and neighbourhood deprivation (NZDep: high, mid, low). NS = no statistically significant association.

Table 17: Association between risk factors and high-risk/very-high-risk drinking, Māori secondary students, 2019

		Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio* (95% CI)	Adjusted Model P-value
Treated unfairly because of ethnicity in past 12 months	No	1.00	1.00	
	Yes	1.66 (1.27-2.17)	2.17 (1.52-3.09)	<0.01
Sexual abuse or coercion	No	1.00	1.00	
	Yes	2.49 (1.63-3.80)	2.44 (1.56-3.81)	<0.01
Parents often/always worry about money for food	No	1.00	1.00	
	Yes	1.60 (1.21-2.11)	1.66 (1.22-2.27)	<0.01

Experience of housing deprivation, past 12 months	No	1.00	1.00	
	Yes	1.23 (0.94-1.62)	1.37 (0.99-1.90)	NS
Witnessed adult hit or hurt another child at home	No	1.00	1.00	
	Yes	1.31 (0.92-1.88)	1.82 (1.14-2.90)	0.01
Been hit or hurt by an adult at home	No	1.00	1.00	
	Yes	1.16 (0.81-1.66)	1.68 (1.18-2.40)	0.01
Witnessed adults at home hit or hurt each other	No	1.00	1.00	
	Yes	1.39 (0.92-2.10)	1.66 (1.11-2.47)	0.01
Past or present Oranga Tamariki/CYFS involvement	No	1.00	1.00	
	Yes	1.27 (0.93-2.10) P=0.13	1.39 (1.01-1.91)	0.05
Lack of support to achieve future plans	Disagree	1.00	1.00	
	Agree	1.26 (0.98-1.62)	1.67 (1.26-2.23)	<0.01

*Adjusted for age, sex and neighbourhood deprivation (NZDep: high, mid, low). NS = no statistically significant association

Appendix A: Derivation of variables, including survey question wording and response options

Outcome Variable	Survey question & response options	Variable definition
Ever/never drunk alcohol	We would like to now ask some questions about alcohol. By this we mean beer, wine, spirits, pre-mixed drinks. Have you ever drunk alcohol (not counting a few sips)? Response options: Yes/No	Ever = 'Yes' Never = 'No'
Current drinker	During the past 4 weeks, about how often did you drink alcohol? Response options: Not at all - I don't drink alcohol now Not in the last 4 weeks Once in the last 4 weeks Two or three times in the last 4 weeks About once a week Several times a week Most days	Current drinker = ever drunk alcohol (based on the question above) AND gave a response to this question other than 'Not at all – I don't drink now'
Drank in past month	As above	Based on the response 'Once in the last 4 weeks' or more often
Drinks weekly or more often	As above	Based on the response 'About once a week' or more often
Past month binge drinking	In the past 4 weeks, how many times did you have 5 or more alcoholic drinks in one session? Response options: None at all Once in the past 4 weeks Two or three times in the past 4 weeks Every week Several times a week	Based on the response 'Once in the past 4 weeks' or more often
Quantity consumed	How many alcoholic drinks do you usually have in one session? Response options: 1 drink 2 drinks 3 to 4 drinks 5 to 9 drinks 10 to 20 drinks More than 20 drinks	
Source of alcohol	When you drink alcohol how do you usually get it? (You may choose as many as you need) Response options:	

	<p>I buy it myself</p> <p>Friends give it to me</p> <p>My brother or sister gives it to me</p> <p>My parents give it to me</p> <p>I get it from home without my parents' permission</p> <p>Another adult I know gives it to me</p> <p>I get someone else to buy it for me</p> <p>I take or steal it from somewhere else (not home)</p> <p>None of these</p>	
Past year alcohol harm (2007, 2012)	<p>How many times in the last 12 months have you...</p> <ul style="list-style-type: none"> • had friends or family tell you to cut down your alcoholic drinking? • had your performance at school or work affected by your alcohol use? • had unsafe sex (no condom) when you had been drinking alcohol? • had unwanted sex when you had been drinking alcohol? • done things that could have got you into serious trouble (e.g. stealing, etc.) when you had been drinking alcohol? • been injured when you had been drinking alcohol? • been injured and required treatment by a doctor or nurse when you had been drinking alcohol? • injured someone else when you had been drinking alcohol? • had a car crash when you had been drinking alcohol? <p>Response options: Never Not in the last 12 months Once or twice in the last 12 months Three or more times in the last 12 months</p>	<p>For each specific type of harm, past year harm was based on the response 'Once or twice in the last 12 months' OR 'Three or more times in the last 12 months.'</p> <p>Note that 'been injured' and 'been injured and required treatment by a doctor or nurse' were not mutually exclusive categories.</p>
Alcohol harm score (2012)	Based on the 9 items above	<p>Items were scored 0 for 'never', 1 for 'Not in the last 12 months', 2 for 'Once or twice in the last 12 months' and 3 for 'Three or more times in the last 12 months'</p> <p>Scores were added to derive an alcohol harm score (range 0-27)</p>
Risk of alcohol harm (2019)	Alcohol harm data was not available in 2019. Instead, we used data on 1) frequency of alcohol use, 2) quantity consumed, and 3)	<p>Four categories:</p> <ol style="list-style-type: none"> 1) Non-drinker 2) Small risk of harm

	frequency of binge drinking (see survey questions above) to derive risk of alcohol harm.	<p>3) High risk of harm 4) Very high risk of harm</p> <p>The criteria for these categories are set out in Table 2 (p10).</p>
--	--	--

Demographic Variable	Survey question & response options	
Age	How old are you? Response options: Under 12, 12, 13, 14, 15, 16, 17, 18, 19, Over 19 years	Age was grouped in two ways: 13 and under, 14, 15, 16, 17, 18 and over, or binarised (under 16, 16 and over). Note that in 2019 only 25 students were aged under 13 years, and 24 were aged over 18. Over 99% of the sample were aged 13-18 years. About 96% were aged under 18 years.
Gender	(2019) How do you describe yourself? Answer options: I am a boy or a man I am a girl or a woman I identify in another way (2007, 2012) What sex are you? Response options: Male Female	'I identify another way' was treated as 'missing'. (Note that further analyses are underway investigating alcohol use and harm in Rainbow youth, including those who do not identify as male or female).
School decile	N/A	School decile is a school-level measure of the socio-economic position of the student community, relative to other schools in New Zealand. decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities. Deciles are based on Census data on household income, occupational skill level of employed parents, household crowding, percentage of parents with no qualifications, percentage of parents receiving income support benefits. For details of how school deciles are calculated see: https://www.education.govt.nz/school/funding-and-financials/resourcing/operational-funding/school-decile-ratings/
Deprivation (NZ Dep 2018)	N/A	Deprivation is based on the student's home address and corresponding NZ Deprivation Index categorisation for that mesh block. The NZ Deprivation Index is based on 9 Census measures. Further details are available elsewhere. ²⁷

Ethnicity	<p>Which ethnic group do you belong to? (You may choose as many as you need)</p> <p>167 response options</p>	<p>Respondents were categorised into one of five ethnic groups using the Ministry of Health prioritisation method: Māori> Pacific> Asian> Other> European.</p> <p>Those with multiple ethnicities were assigned to the group with the highest priority, e.g. those identifying as Māori and Pacific were classified Māori, those identifying as Pacific and Asian were classified as Pacific. The European group included NZ European and other European (e.g. French, Croatian).</p>
-----------	--	---

Risk/protective factor	Survey question & response options	
Parental monitoring	<p>Does your family want to know who you are with and where you are?</p> <p>Response options: Always Usually Sometimes Almost never</p>	<p>High = 'Always' or 'Usually' Low= 'Sometimes' or 'Almost never'</p>
Someone in whānau I trust to share feelings	<p>There is someone in family/whānau who I trust to share my feelings with.</p> <p>Response options: Strongly agree Agree Neutral Disagree Strongly disagree</p>	<p>Yes = 'Strongly agree' or 'Agree' No = 'Neutral' 'Disagree' or 'Strongly disagree'</p>
Enough quality time with family	<p>I feel like I get enough quality time with my family/whānau.</p> <p>Response options: Strongly agree Agree Neutral Disagree Strongly disagree</p>	<p>Yes = 'Strongly agree' or 'Agree' No = 'Neutral' 'Disagree' or 'Strongly disagree'</p>
Feel safe at home	<p>Do you feel safe at home, or the place you live?</p> <p>Response options: Yes, all the time Yes, most of the time Sometimes No, mostly not Not at all</p>	<p>Yes = All/most of the time No = Sometimes, No mostly not, or Not at all</p>
Whanaungatanga scale (whānau subscale) – 9 items	<p>There is someone in my family/whānau who I can trust to share my feelings with There is someone in my family/whānau who I can talk with about things that are worrying me</p>	<p>Strongly agree = 4 Agree = 3, Neutral = 2 Disagree = 1 Strongly disagree = 0</p>

	<p>There is someone in my family/whānau who respects what is important to me</p> <p>There is someone in my family/whānau who accepts me for who I am</p> <p>There is someone in my family/whānau who I have a close bond with</p> <p>There is someone in my family/whānau who will stick up for me and who has 'got my back'</p> <p>There is someone in my family/whānau who I can have fun with, who makes me laugh</p> <p>My family/whānau are proud and supportive of me participating in cultural, sporting and academic activities (e.g. my whānau attend my competitions, help fundraise, coach)</p> <p>I feel like I get enough quality time with my family/whānau</p> <p>Response options: Strongly agree Agree Neutral Disagree Strongly disagree</p>	<p>I don't understand = NA</p> <p>Item scores were added to give a total score (range 0-36, mean 29.3).</p> <p>Scores were divided into tertiles: High, Medium, and Low.</p>
Teachers at school care	<p>Do you feel that teachers/tutors care about you?</p> <p>Response options: Yes No Doesn't apply</p>	<p>Yes = Yes No = No/Doesn't apply</p>
Feel safe at school	<p>Do you feel safe in your school/course?</p> <p>Response options: Yes, all the time Yes, most of the time Sometimes No, mostly not Not at all</p>	<p>Yes = All/Most of the time No = Sometimes, No mostly not, Not at all</p>
Sense of belonging at school	<p>Do you feel like you are part of your school, alternative education or course?</p> <p>Response options: Yes No</p>	<p>Yes/No</p>
Feel safe in neighbourhood	<p>Do you feel safe in your neighbourhood?</p> <p>Response options: All the time Sometimes Not often Never</p>	<p>Yes = 1 (All the time) No = 2,3,4 (Sometimes, not often, never)</p>
Whanaungatanga scale (adults outside the whānau subscale) – 9 items	<p>There is an adult outside of my family/whānau who I can trust to share my feelings with</p> <p>There is an adult outside of my family/whānau who I can talk with about things that are worrying me</p>	<p>Strongly agree = 4 Agree = 3, Neutral = 2 Disagree = 1 Strongly disagree = 0</p>

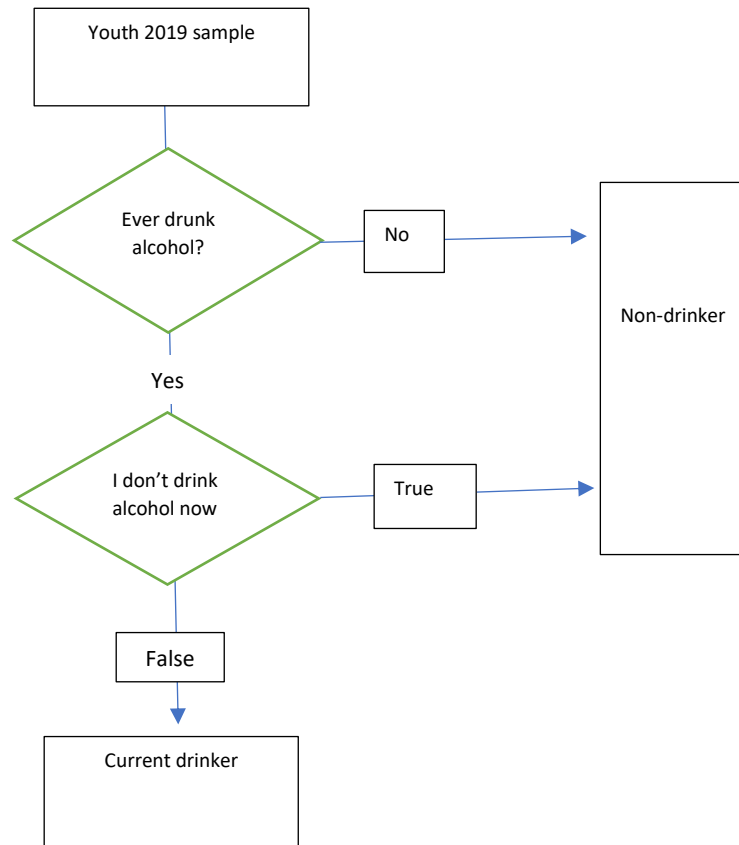
	<p>There is an adult outside of my family/whānau who understands what is important to me</p> <p>There is an adult outside of my family/whānau who accepts me for who I am</p> <p>There is an adult outside of my family/whānau who I have a close bond with</p> <p>There is an adult outside of my family/whānau who will stick up for me and who has 'got my back'</p> <p>There is an adult outside of my family/whānau who I have fun with, who makes me laugh</p> <p>There is somewhere safe I can go and stay, other than with my family/whānau (e.g. a friend's home, church members home, coaches home etc.)</p> <p>There is a place where I can go where I feel I belong with people who support me (e.g. community groups, kapa haka, clubs, church, rainbow diversity groups, activism groups)</p> <p>Response options: Strongly agree Agree Neutral Disagree Strongly disagree</p>	<p>I don't understand = NA</p> <p>Item scores were added to give a total score (range 0-36, mean 24.9).</p> <p>Scores were divided into tertiles: High, Medium, and Low.</p>
Volunteered in past 12 months	<p>Do you give your time to help others in your school or community (e.g. as a peer supporter at school, help out on the Marae or church, help coach a team or belong to a volunteer organisation)?</p> <p>Response options: Yes, within the last 12 months Yes, but not within the last 12 months No I don't know</p>	<p>Yes = Yes, within the last 12 months</p> <p>No = Yes, but not within the last 12 months/No/ I don't know</p>
Speak te reo Māori	<p>(Only asked of students who identified as Māori)</p> <p>How well are you able to speak the Maori language in day-to-day conversation? By this we mean more than a few words or phrases.</p> <p>Response options: Very well Well Fairly well Not very well No more than a few words or phrases</p>	<p>Yes = well/very well/fairly well</p> <p>No = not very well/ not more than a few words or phrases</p>
Cultural connectedness scale (10 items)	<p>I feel comfortable in Māori social surroundings, events or gatherings (e.g. hui, sports etc.)</p>	<p>Strongly agree = 4</p> <p>Agree = 3,</p> <p>Neutral = 2</p> <p>Disagree = 1</p>

	<p>I feel comfortable in formal Māori social surroundings, events or gatherings (e.g. tangi, speechmaking or whaikorero, etc.)</p> <p>When I hear, understand, learn or speak te reo Māori, it gives me a sense of belonging</p> <p>It is important to me that others respect and value our status as tangata whenua</p> <p>When I participate in activities like kapa haka, waka ama, sports, wananga and other activities with Māori friends and whānau, I feel a sense of pride</p> <p>I am proud to be Māori</p> <p>Māori values are important to me (things like generosity, kindness, being a good host, manaakitanga, tika, pono and aroha)</p> <p>I believe it is important to be kaitiaki to protect our environment for future generations (e.g. keep our sea clean so we can swim and safely collect seafood to eat in the future)</p> <p>I have a strong spiritual connection and sense of belonging to certain or places (e.g. mountain, river, sea etc.)</p> <p>I often feel the presence of my tīpuna or tūpuna (my ancestors and my whānau who have died)</p> <p>Response options: Strongly disagree Disagree Neutral Agree Strongly agree</p>	<p>Strongly disagree = 0 I don't understand = NA Item scores were added to give a total score (range 0-40, mean 9.6).</p> <p>Scores were divided into tertiles: High, Medium, and Low cultural connectedness.</p>
Plan for the future	<p>I think about or make plans for my future.</p> <p>Response options: Strongly agree Agree Neutral Disagree Strongly disagree</p>	<p>Yes = Agree/Strongly agree No = Neutral/Disagree/Strongly disagree</p>
Opportunities to show talents	<p>I get opportunities to show my talents and skills</p> <p>Response options: Strongly agree Agree Neutral Disagree Strongly disagree</p>	<p>Yes = Agree/Strongly agree No = Neutral/Disagree/Strongly disagree</p>
Adults hit or hurt you at home	<p>In the last 12 months have adults in your home hit or physically hurt you?</p>	<p>Yes/No</p>

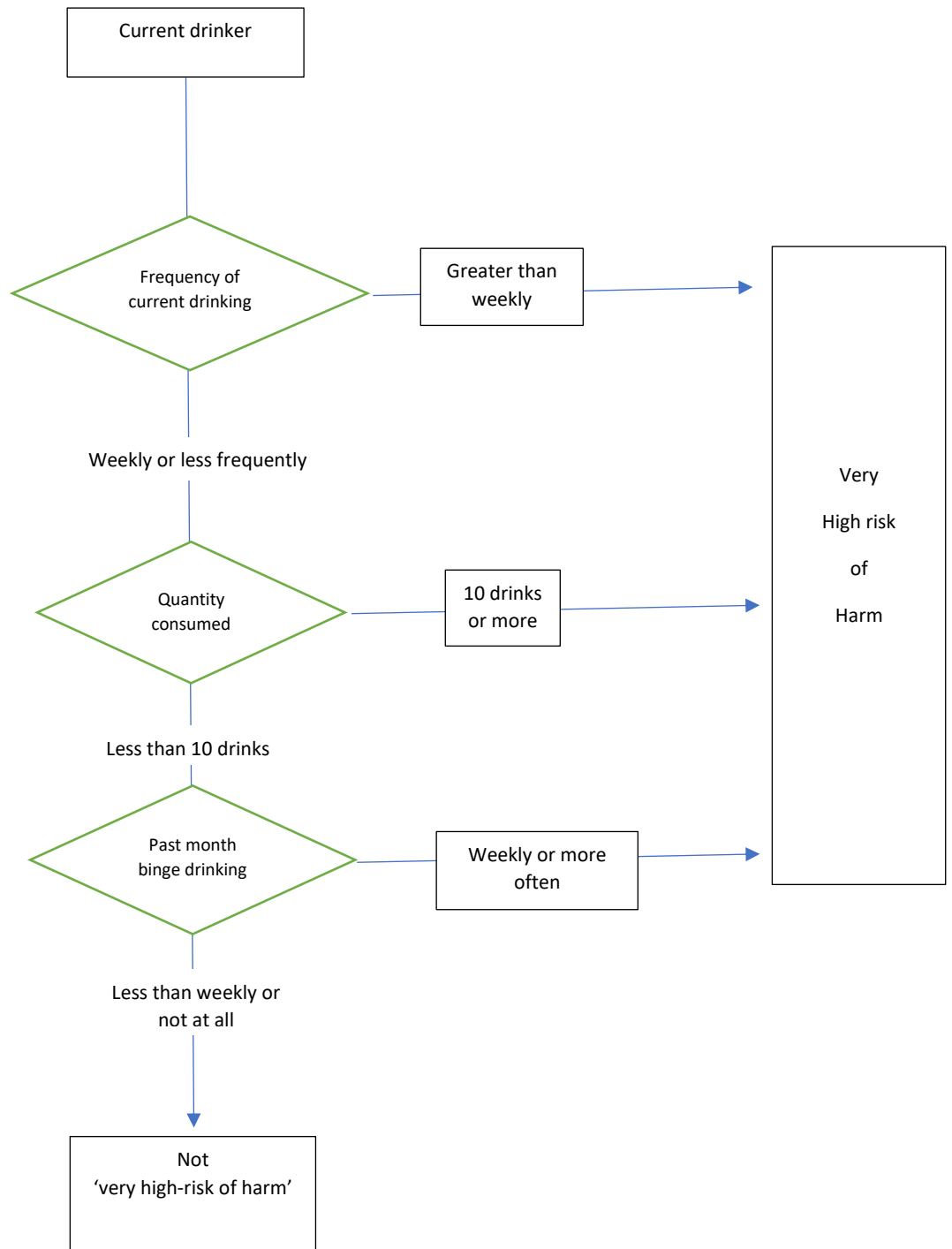
	Yes No	
Witnessed violence to another child at home	In the last 12 months have adults in your home hit or physically hurt a child (other than yourself)? Yes No	Yes/No
Witnessed violence between adults at home	In the last 12 months have adults in your home hit or physically hurt each other? Yes No	Yes/No
Past or present OT/CYFS involvement	Have you ever been involved with Oranga Tamariki (OT) or Child, Youth and Family Services (CYFS)? E.g. someone was worried about your safety or protection. Yes No	Yes/No
Experience of sexual abuse or coercion	Have you ever been touched in a sexual way or made to do sexual things that you didn't want to do? (including sexual abuse or rape) Yes No Not sure	Yes = Yes or Not sure No = No
Parents worry about money for food	Do your parents, or the people who act as your parents, ever worry about not having enough money to buy food? Never Occasionally Sometimes Often All the time I don't know	Yes = Often, All the time No = Never, Occasionally, Sometimes, I don't know
Lack of support to achieve plans for the future	I don't feel that I will get the support I need to achieve my plans for the future Response options: Strongly agree Agree Neutral Disagree Strongly disagree	Yes = Agree/Strongly agree No = Neutral/ Disagree /Strongly disagree
Youth voice (open text questions)	What do you think are the biggest problems for young people today?	
	What do you think should be changed to support young people in New Zealand better?	

Appendix B: Flow diagram for 'Risk of alcohol harm' categorisation

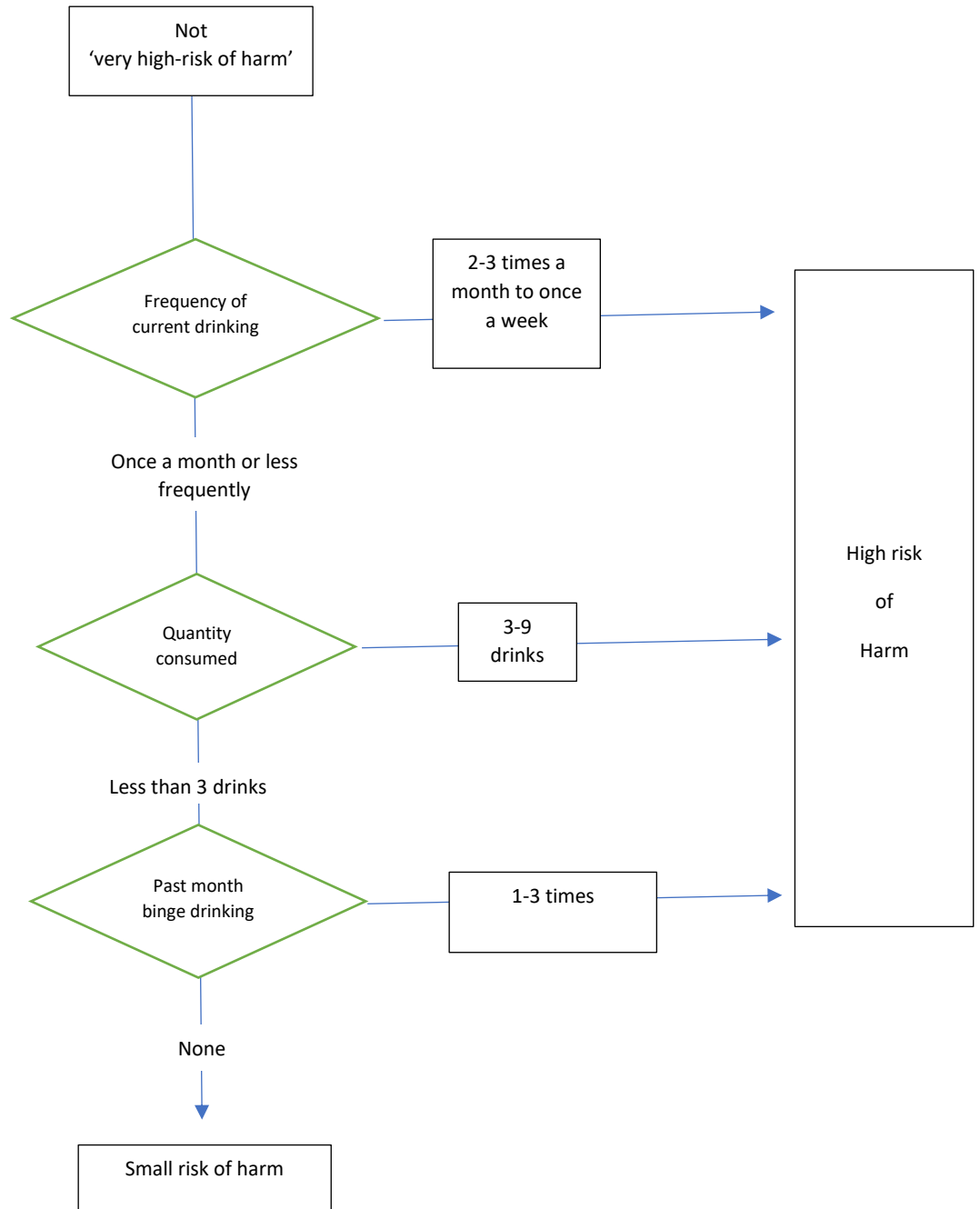
Step 1: Non-drinker categorisation



Step 2: Very high risk of harm categorisation, age 16 and over



Step 3: High risk of harm categorisation, age 16 and over



References

1. Clark T, Robinson E, Crengle S, et al. Binge drinking among Māori secondary school students in New Zealand: associations with source, exposure and perceptions of alcohol use *New Zealand Medical Journal* 2013;126(1370)
2. Muriwai E, Huckle T, Romeo JS. Māori attitudes and behaviours towards alcohol. Wellington: Health Promotion Agency, 2018.
3. Walker K. Issues of tobacco, alcohol and other substance abuse for Māori. Report commissioned by the Waitangi Tribunal for Stage 2 of the Health Services and Outcomes Kaupapa Inquiry (Wai 2575). 2019
4. Greaves LM, Grice JL, Schwencke A, et al. Measuring whanaungatanga and identity for well-being in rangatahi Māori. *Mai Journal* 2021;10(2):93-105. doi: 10.20507/MAIJournal.2021.10.2.3
5. Health Promotion Agency. Understanding alcohol use and subsequent harms in young people. An evidence summary. Wellington: Health Promotion Agency, 2020.
6. National Health and Medical Council. Australian Guidelines to Reduce Health Risks from Drinking Alcohol. Canberra: Commonwealth of Australia, 2020.
7. Gluckman P. Youth suicide in New Zealand: A discussion paper. Wellington: Office of the Prime Minister's Chief Science Advisor, 2017.
8. de Goede J, van der Mark-Reeuwijk KG, Braun KP, et al. Alcohol and Brain Development in Adolescents and Young Adults: A Systematic Review of the Literature and Advisory Report of the Health Council of the Netherlands. *Adv Nutr* 2021;12(4):1379-410. doi: 10.1093/advances/nmaa170 [published Online First: 2021/02/03]
9. Newton-Howes G, Cook S, Martin G, et al. Comparison of age of first drink and age of first intoxication as predictors of substance use and mental health problems in adulthood. *Drug Alcohol Depend* 2019;194:238-43. doi: 10.1016/j.drugalcdep.2018.10.012 [published Online First: 2018/11/23]
10. Reid P, Robson B. Understanding Health Inequities. In: Robson B, Harris R, eds. Hauora: Māori standards of health IV. Wellington: Te Rōpū Rangahau Hauora a Eru Pōmare 2007.
11. Simon-Kumar R, Lewycka S, Clark TC, et al. Flexible resources and experiences of racism among a multi-ethnic adolescent population in Aotearoa, New Zealand: an intersectional analysis of health and socioeconomic inequities using survey data. *The Lancet* 2022;400(10358):1130-43. doi: 10.1016/s0140-6736(22)01537-9
12. Hutt M, Andrews P. Māori and alcohol: A history. Wellington: Health Services Research Centre/ALAC, 1999.
13. Moustafa AA, Parkes D, Fitzgerald L, et al. The relationship between childhood trauma, early-life stress, and alcohol and drug use, abuse, and addiction: An integrative review. *Current Psychology* 2018;40(2):579-84. doi: 10.1007/s12144-018-9973-9
14. Cameron MPC, W., Livingston M. The relationship between alcohol outlets and harms: A spatial panel analysis for New Zealand, 2007-2014. Wellington: Health Promotion Agency, 2017.
15. Crampton P. Oh my. *New Zealand Medical Journal* 2020;133(1524):8-10.
16. Chambers T, Stanley J, Signal L, et al. Quantifying the Nature and Extent of Children's Real-time Exposure to Alcohol Marketing in Their Everyday Lives Using Wearable Cameras: Children's Exposure via a Range of Media in a Range of Key Places. *Alcohol Alcohol* 2018;53(5):626-33. doi: 10.1093/alcalc/agy053 [published Online First: 2018/07/28]
17. Fleming T, Peiris-John R, Crengle S, et al. Youth19 Rangatahi Smart Survey, Initial Findings: Introduction and Methods. New Zealand: The Youth19 Research Group, The University of Auckland and Victoria University of Wellington, 2020.

18. Rivera-Rodriguez C, Clark T, Fleming T, et al. National estimates from the Youth '19 Rangatahi smart survey: A survey calibration approach. *PLoS One* 2021;16(5):e0251177. doi: 10.1371/journal.pone.0251177 [published Online First: 2021/05/15]
19. Adolescent Health Research Group. The health and wellbeing of New Zealand secondary school students in 2012: Youth'12 prevalence tables: University of Auckland, 2013.
20. Adolescent Health Research Group. Youth'07: The Health and Wellbeing of Secondary School Students in New Zealand. Technical report. . Auckland, New Zealand: The University of Auckland, 2008.
21. Ball J, Zhang J, Kim A, et al. Addressing Alcohol Harm in Adolescents. Technical Report 1: Methods and overview of findings. Wellington: University of Otago, 2022.
22. Clark T, Smith J, Raphael D, et al. Kicked out of school and suffering: The health needs of alternative education youth in New Zealand. *Youth Studies Australia* 2010;29 doi: 10.3316/jelapa.568511567672961
23. Ministry of Education. Education Counts 2022 [Available from: <https://www.educationcounts.govt.nz/home> accessed 10 Nov 2022.
24. Ministry of Social Development. What about me? The national youth health and wellbeing survey 2021. Wellington: New Zealand Government, 2022.
25. Ministry of Health. *New Zealand Health Survey Annual Data Explorer* Ministry of Health; 2021 [Available from: https://minhealthnz.shinyapps.io/nz-health-survey-2020-21-annual-data-explorer/_w_686ed0d9#!/home accessed 26 July 2022.
26. McManama O'Brien KH, Becker SJ, Spirito A, et al. Differentiating adolescent suicide attempters from ideators: examining the interaction between depression severity and alcohol use. *Suicide Life Threat Behav* 2014;44(1):23-33. doi: 10.1111/sltb.12050 [published Online First: 2013/07/31]
27. Atkinson J, Salmond C, Crampton P. NZDep2018 Index of Deprivation, Interim Research Report. Wellington: University of Otago, 2019.

