Attitudes towards cannabis and cannabis law change in a New Zealand birth cohort

Joseph M Boden, Lana Cleland, Bhubaneswor Dhakal, L John Horwood

ABSTRACT

AIMS: Personal cannabis use is common across New Zealand, and an upcoming referendum will enable the public to vote on whether this should be legalised. The present research aimed to examine the attitudes of midlife New Zealand adults on cannabis use and legalisation, and to identify potential predictors of those attitudes.

METHODS: At age 40, 899 participants drawn from the Christchurch Health and Development Study were interviewed about the perceived harmfulness of cannabis use, opinions on legalisation for recreational use and supply, and the use of cannabis for medicinal purposes. In addition, a range of potential predictors of legislative attitudes were examined.

RESULTS: We identified a wide range of attitudes across the cohort, however the majority tended to hold a neutral view. More than 80% of the cohort expressed support for medicinal cannabis, while 47.8% supported decriminalisation, and 26.8% expressed support for legalisation for recreational use. The strongest predictors of support for legalisation were prior use of cannabis and other drugs, while additional positive predictors included a history of depression, Māori ancestry, parental drug use, novelty seeking and higher educational attainment. Predictors of more negative attitudes were also identified, and included female gender and having dependent children.

CONCLUSIONS: These findings provide insight into cannabis-related views within the New Zealand context, and may help to predict voting behaviour during the 2020 Cannabis Referendum.

Cannabis use is widespread within New Zealand, with an estimated 70–80% of the population having tried cannabis by age 25.[1–3] International approaches to the regulation of cannabis have changed in recent years, which has led the New Zealand Government to release a draft Cannabis Legalisation and Control Bill, which proposes legalisation and regulation of cannabis for recreational use and supply. A referendum in September 2020 will provide the New Zealand public with an opportunity to vote on whether cannabis should be legalised. Although the referendum itself will be a useful indication of views on cannabis use, the ongoing public debate highlights uncertainty as to the outcome of the referendum.

In order to predict voting behavior in the referendum, a first step is to explore attitudes towards cannabis and changes to the legal status of cannabis. Although attitudes towards cannabis tend to vary considerably between individuals, they appear to be less negative than for other illicit drugs.[4] Views on cannabis legalisation are influenced by a variety of environmental and personal characteristics. In particular, international research suggests that characteristics such as gender and age are important, with women and older individuals having more conservative views.[5,6] Perceptions of cannabis as being dangerous have been found to be associated with more negative attitudes, while individuals with a history

of cannabis use generally express greater support for legalisation.[6] The media is also understood to have a widespread influence on attitudes towards cannabis use and legalisation, with reports of a relationship between positive media coverage and support for legalisation.[7] Such a relationship may not be limited to recreational cannabis use, as testimonials about the benefits of medicinal cannabis have been observed to increase positivity towards medicinal cannabis use.[8]

Given the key role of public perceptions and attitudes in the 2020 cannabis referendum, it is important to develop a more in-depth understanding of attitudes towards cannabis use and potential cannabis law change in New Zealand. One way to do this is to use data from an established New Zealand cohort that has well-defined data on cannabis use and problems with cannabis over the life course, as well as a range of measures of individual, family and demographic factors that may influence these attitudes. The present study aimed to explore these issues within a cohort of midlife New Zealanders studied since birth, and examined attitudes towards cannabis use, perceived harmfulness, decriminalisation and legalisation of cannabis, and predictors of these attitudes.

Method

Participants

Participants were drawn from the Christchurch Health and Development Study (CHDS), a birth cohort of 1,265 individuals recruited in Christchurch, New Zealand in 1977. The cohort was assessed at birth, four months, annually to age 16, and then at ages 18, 21, 25, 30, 35 and 40. A total of 904 participants (74% of the surviving cohort) were assessed at age 40, of whom 899 responded to questioning on cannabis. The age 40 data collection took place between June 2017 and June 2019, meaning that most cohort member's interviews were conducted before the announcement of the referendum on the Cannabis Legalisation and Control Bill in New Zealand in 2020, and also prior to changes to the Misuse of Drugs Act (1975)[9] in August 2019 that served to decriminalise most forms of drug possession

in New Zealand. All aspects of study design and conduct have been approved by the New Zealand Health and Disabilities Ethics Committee.

Measures

Attitudes towards cannabis law reform and self-report use of cannabis for medicinal purposes

At the age 40 assessment, cohort members were asked a series of nine custom-written questions intended to explore various aspects of cannabis law reform, including questions about medicinal cannabis, decriminalisation of cannabis use, legalisation of cannabis use and views as to the extent to which cannabis is harmful. Questions were answered on a five-point Likert scale ranging from 1 ('strongly disagree') to 5 ('strongly agree'), with 3 representing a neutral option. Five of the items were scored such that higher scores represented more positive attitudes towards cannabis, while four were scored in the reverse manner.

The items were analysed for reliability and suitability for use as a single-factor scale using confirmatory factor analysis (CFA) and an internal consistency analysis (Chronbach's alpha), using all nine items of the scale. The results of these analyses are described below in the Results section. Then, items were summed (after reversing the four negatively-worded items) to create a total scale score reflecting positive attitudes towards cannabis liberalisation. It should be noted that items pertaining to the legal age for using cannabis were set at age 18.

In addition, cohort members were also asked whether they had ever used cannabis to "relieve chronic pain or nausea, or for some other medicinal purpose". This question was answered "yes" or "no", and if answered "yes", cohort members were then asked to report the context (reasons for using, how often, effectiveness) under which they had used cannabis medicinally.

Predictors

A range of measures drawn from the CHDS database were selected for inclusion in the analysis on the basis that they were of interest from a policy perspective and/or were identified in preliminary analysis as predictive of cannabis attitudes.

Lifetime cannabis exposure (ages 14–15 to 39–40)

At the assessments from age 15 to age 40, cohort members were asked about the frequency with which they used cannabis for each 12-month period since the previous assessment, resulting in 26 years of cannabis frequency data being collected for each year from age 14–15 to age 39–40. Cohort members who reported using cannabis at least weekly (or more frequently) during any year were classified as having had used cannabis "regularly" during that year. These classifications were summed over the period 14–15 years to 39–40 years in order to create a measure of the number of years in which the cohort member used cannabis regularly.

Other illicit drug use (ages 14–15 to 39–40)

Parallel to the assessment of cannabis use, participants were also questioned about their use of other illicit drugs in each 12-month period. This questioning spanned use of solvents; stimulants; barbiturates; other prescription medications that were illicitly obtained; opiates, including both heroin and morphine; cocaine; hallucinogens including ecstasy, LSD and PCP; and any other substances (primarily plant extracts) including mushrooms and datura. The data thereby provided an account of the individual's reported frequency of use of a range of other illicit drugs for each year from ages 14–15 to age 39–40. A measure of the extent of use of other illicit drugs was constructed based on a count of the number of years the participant reported using other illicit substances at least monthly.

Major depression (ages 16–40)

At each assessment from age 18 to age 40, cohort members were asked about their experience of symptoms of major depression since the previous interview, based on the Composite International Diagnostic Interview (CIDI)[10] pertaining to DSM-IV[11] symptoms of major depression. Those cohort members who met criteria for major depression during any interview period (ages 16–18; 18–21; 21–25; 25–30; 30–35; 35–40) were classified as having major depression during that assessment period. A measure of the chronicity/severity of depression was constructed based on a count of the number of occasions across the six interview periods that the individual met criteria for major depression.

History of violent/property offending (ages 16–40)

At each assessment from age 18–40, participants were questioned about their engagement in offending since the previous assessment. Items from the Self Report Delinquency Inventory (SRDI)[12] were used to assess the extent to which the participant reported engaging in violent or property offending. A measure of severity/chronicity of offending was constructed based on the number of interview periods from age 16–18 to age 35–40 during which the cohort member reported engaging in violent or property offending.

Gender

Gender was measured at birth.

Māori ancestry

At birth, and ages 14, 21 and 25, cohort members/parents were asked a series of questions pertaining to Māori ethnicity, and whether the cohort member had any Māori ancestry. Those cohort members who reported having Māori ancestry at any assessment were classified as Māori (16.7 % of the sample).

Dependent children (age 40)

Cohort members were asked about their current family situation at age 40. Those who reported that they had a dependent child under the age of 18 living in the family home were classified as having dependent children (73.6% of the sample).

Educational attainment (to age 40)

At each assessment from age 21 to age 40, cohort members were asked about attainment of educational/vocational qualifications. Educational attainment was coded on a five-point scale reflecting the highest level qualification attained by age 40. This scale was: no qualifications; high school-level qualifications; tertiary qualifications below degree level; bachelor's level degree; higher-level degree qualification.

Novelty seeking (age 16)

When sample members were aged 16 years they were administered the novelty seeking items of the Tridimensional Personality Questionnaire.[13] These items were summed to produce an overall novelty

seeking measure. The reliability of this scale was α=.76.

Parental history of illicit substance use

When sample members were aged 11 their parents were questioned about parental use of illicit drugs including cannabis. On the basis of this questioning, 27.5% of the sample were classified as having parents who used illicit drugs.

Results

Response distribution for cannabis attitude items.

Table 1 shows the response distribution for the items on the cannabis attitude survey. The table shows a diversity of opinions regarding cannabis among the CHDS cohort. For example, over 80% of the cohort either 'agree' or 'strongly agree' that doctors should be able to prescribe medicinal cannabis products, and a similar percentage believed that cannabis products are an effective form of relief from chronic pain or physical health problems. On the other hand, there was only a somewhat positive view of cannabis decriminalisation (47.8% agreed v 27.2% against), and a slightly greater proportion of the cohort opposed legalisation (49.8% against v 26.8% in favour). Most cohort members agreed that cannabis use is harmful (54.4%), and most (70.3%) agreed that it should remain illegal for private individuals to sell cannabis, and a large majority (90.3%) felt that it should remain illegal for those under 18 to use cannabis. However, more people disagreed than agreed (41.9% v 32.3%) that cannabis decriminalisation would increase drug problems in the community.

Table 1: Response distribution on cannabis attitude items (N=899).

Item	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly agree %
Doctors should be able to prescribe cannabis based products for medicinal purposes (eg, to relieve chronic pain) without restriction	2.0	4.2	10.1	42.8	40.8
Personal use of cannabis should be decriminalised	7.0	20.2	25.1	28.4	19.4
Cannabis should be legalised and available for sale to people aged 18 or over, like alcohol and tobacco	14.1	35.7	23.4	18.1	8.7
Cannabis use is harmful	3.8	13.0	28.8	44.3	10.1
Decriminalising cannabis will increase the number of people in the community with drug problems	7.3	34.6	25.8	24.7	7.6
People should be allowed to grow cannabis for their own personal use	7.5	26.6	21.0	34.0	11.0
It should remain illegal for private individuals to sell cannabis	2.7	11.7	15.4	52.6	17.7
It should remain illegal for people under the age of 18 to use cannabis	0.7	2.6	6.5	51.7	38.6
Cannabis or cannabis-based products can be an effective form of relief for people experiencing chronic pain or physical health problems	0.8	1.0	10.3	53.2	34.7

Table 2: Item response profile across levels of attitudes to cannabis liberalisation scale (percentage of sample who agree or strongly agree with each item).

Item	Attitudes to cannabis liberalisation						
	Group	1 (very negative)	2	3	4	5 (very positive)	r[1]
	Percentile	1–10	11–30	31–70	71–90	91–100	
Doctors should be able to prescribe cannabis based products for medicinal purposes (eg, to relieve chronic pain) without restriction		48.2	73.6	87.1	97.5	100	0.57
Personal use of cannabis should be decriminalised		3.6	5.2	49.0	91.4	99.0	0.84
Cannabis should be legalised and available for sale to people aged 18 or over, like alcohol and tobacco		0.0	0.5	17.9	57.4	85.2	0.78
Cannabis use is harmful		95.2	79.7	52.8	27.8	15.8	0.62
Decriminalising cannabis will increase the number of people in the community with drug problems		94.0	55.7	23.2	8.0	2.0	0.70
People should be allowed to grow cannabis for their own personal use		2.4	7.1	44.0	85.8	98.0	0.80
It should remain illegal for private individuals to sell cannabis		100.0	93.9	69.8	52.5	26.7	0.56
It should remain illegal for people under the age of 18 to use cannabis		100.0	96.7	88.9	90.1	74.3	0.31
Cannabis or cannabis-based products can be an effective form of relief for people experiencing chronic pain or physical health problems		60.2	82.6	90.0	96.9	100.0	0.53

[1]Pearson correlation between scale item and total scale score.

Properties of the cannabis attitude scale

Confirmatory factor analysis of the item level data in Table 1 showed that the attitude items were consistent with a unidimensional scale reflecting the degree of positive attitudes towards cannabis liberalisation. Goodness of fit indices for a single factor model were: model X^2 (df)=35.6 (23), p=0.05; RMSEA=0.025; CFI=0.98. A scale score was constructed by summing the item level data for each participant, with all items scored such that higher scores reflected more positive attitudes to cannabis and cannabis

law reform. The scale was of good reliability (α=0.83), and closely approximated a normal distribution (M=27.3, SD=5.9).

The item response profile is shown in Table 2, with scores on the overall scale grouped into five groups ranging from those in the lowest decile (most negative) to those in the highest decile (most positive). The table shows that for all but one item (whether it should remain illegal for people under 18 to use cannabis), there were moderate to strong item-scale correlations, ranging from .53 to .84. The low correlation for the item concerning cannabis use by those under 18

Table 3: Multiple regression model predicting attitudes to cannabis liberalisation scale.

Measure	B (SE)	P	Standardised beta
Cannabis use (no. yrs ≥ weekly use)	0.31 (0.04)	<0.001	0.29
Other illicit drug use (no. yrs ≥ monthly use)	0.18 (0.05)	0.001	0.12
Depression severity (no. of episodes)	0.40 (0.15)	0.006	0.09
Educational attainment	0.34 (0.17)	0.047	0.06
Female gender	-0.66 (0.38)	0.08	-0.06
Māori ethnicity	1.46 (0.4)	0.003	0.09
Dependent children	-1.02 (0.40)	0.011	-0.08
Novelty seeking	0.09 (0.04)	0.015	0.08
Parental history of Illicit drug use	0.72 (0.42)	0.09	0.05
History of violent/property offending	0.21 (0.22)	0.34	0.03

Adjusted R squared 0.23.

reflected the fact that the great majority of the cohort agreed with the statement.

Examination of the individual item profiles suggests a very wide spectrum of opinions across the cohort. While those with the most negative scores (Group 1) showed moderate levels of agreement with statements about medicinal use, nearly all held strongly negative opinions concerning cannabis decriminalisation or legalisation. At the other extreme among those with the most positive scores (Group 5) the great majority agreed with statements supporting medicinal use, decriminalisation and legalisation for recreational use and supply, but few agreed with statements concerning cannabis-related harms. In the middle of the distribution (Group 3) the response profile was intermediate between the extremes with strong support for medicinal use, moderate support for decriminalisation and recreational use and supply, but only minority support for full legalisation.

Predictors of cannabis attitudes at age 40

As noted above, a series of predictors were drawn from the CHDS database in order to examine what factors were associated with positive attitudes towards cannabis. These predictors are shown in Table 3, which displays the results of a multiple regression model (adjusted R^2=.23) in which cannabis attitude scale scores were regressed on a set of predictors. The table shows that:

1. The two strongest predictors of positive attitudes towards cannabis were experience in using cannabis (number of years of weekly use of cannabis; β=.29), and use of other illicit drugs (number of years of at least monthly use; β=.12).

2. Participants who scored higher on a measure of novelty-seeking, and those with a history of depression (number of depressive episodes, age 16–40) were also more likely to have positive attitudes towards cannabis, although the strength of association was lower for both (β=.08 and .09, respectively).

3. Māori cohort members were also more likely to endorse positive attitudes towards cannabis (β=.09).

4. Women (β=-.06) had marginally more negative attitudes towards cannabis, and those with dependent children (β=-.08) had significantly more negative attitudes towards cannabis. However, cohort members whose parents had reported using illicit drugs (when the cohort member was aged 11) had marginally more positive views of cannabis (β=.05).

5. Higher educational attainment was associated with more positive attitudes to cannabis (β=.06), while having a history of violent or property offending appeared to be unrelated to cannabis attitudes when other factors were taken into account.

Table 4: Self-reported medicinal uses of cannabis.

Reason	n	%
Headache, migraine	13	9.7
Period pain	6	4.5
Medical condition (eg, endometriosis, fibromyalgia, gout, cancer)	12	9.0
Injury/joint pain	43	32.0
Other pain	14	10.4
Any pain (any of the above)	84	62.7
Nausea	30	22.4
Sleep, relaxant	31	23.1
Mental health	13	9.7
Other	4	3.0

134 (14.9%) reported medicinal use in the past.

The use of cannabis for medicinal purposes

Cohort members were also asked about the use of cannabis for medicinal purposes. Of the cohort, 134 respondents (14.9% of the sample observed at age 40) reported medicinal use of cannabis at some prior point. The reasons for use are shown in Table 4, along with the number and percentage of respondents reporting that reason (multiple reasons could be chosen). The table shows that the primary reason for medicinal use of cannabis was pain control (62.7%), with "injury/joint pain" (32%) being the most common form of pain treated with cannabis. Other common reasons included "sleep, relaxant" (23.1%) and "nausea" (22.4%). In addition, of those reporting medicinal use, 110 (82%) reported that cannabis was effective for at least one condition, as opposed to eight (5.9%) who reported that it had not been effective. Eighteen participants (13.4%) did not report on efficacy.

Finally, we examined the associations between reports of using cannabis for medicinal purposes and the cannabis attitudes scale, finding that those who had reported using cannabis to relieve pain or other medical issues had significantly (p<.0001) more positive attitudes towards cannabis use.

Discussion

The present study used data from a New Zealand longitudinal birth cohort studied for 40 years to examine attitudes towards cannabis and cannabis law reform at age 40, and the life course factors that predict positive or negative attitudes towards cannabis and changes in legislation concerning cannabis. Overall, attitudes towards cannabis use and associated legislation change varied widely across the cohort, ranging from strongly positive to strongly negative. The majority responded favourably to items regarding the efficacy and legalisation of cannabis for medicinal purposes, which reflects an increasing level of international support for medicinal cannabis.[14] In contrast, the cohort was considerably less positive towards decriminalisation of cannabis, and even less so for legalisation of cannabis for recreational use. The relatively low proportion of participants in support of cannabis legalisation contrasts with findings reported by Ellis and colleagues[6] who found almost half of their web-based adult sample to be in favour of legalisation. One reason for this discrepancy is that in the study by Ellis et al, data were drawn from the US state of Michigan, which had legalised medical cannabis 10 years prior to the conduct of

the web survey, which had not happened in New Zealand prior to the present study. A large majority of our cohort felt that use by those under 18 should remain illegal, which is consistent with findings that 93% of an adult sample expressed concern about adolescent cannabis use.[15]

Although our sample held a somewhat more cautious view concerning the effects of cannabis use, international data suggest that perceptions of risk are decreasing.[16] One reason for the more cautious attitudes among our cohort may involve the timing of the interviews, with most having occurred between 2017 and mid 2018. At this point, the Misuse of Drugs Act (1975)[9] remained unchanged, while the Misuse of Drugs (Medicinal Cannabis) Amendment Act (2018)[17] was not passed until December of that year. Furthermore, as noted in Methods, the questions concerning the legal age for cannabis use were set at 18, as the research was conducted prior to the announcement of the proposed age 20 limit in May 2019, which may have had some effect on attitude strength.

Within our cohort, the strongest predictors of cannabis-related attitudes were previous experience with cannabis and other drugs. Those with longer durations of drug use, and particularly cannabis use, tended to hold the most positive views towards cannabis use and decriminalisation/legalisation. These findings are generally consistent with the literature that suggests that research participants who have used cannabis tend to both support its legalisation,[6] and are less likely to stigmatise users.[4]

Other factors that predicted more positive attitudes towards cannabis included novelty seeking and educational level, in that higher levels of each were associated with more positive attitudes. Again, these findings are consistent with the literature, and the novelty-seeking findings are consistent with earlier research with this cohort that showed that higher scores on novelty seeking measures tend to be associated with the use of cannabis and other drugs.[2,18]

Demographic features of the cohort also served as predictors, with female gender being associated with more negative views on cannabis-related issues, as has been observed in previous research.[5] Being a parent of dependent children was also associated with more negative attitudes towards cannabis and cannabis law change. One reason for this may be that that the onset of parenthood is associated with lower rates of cannabis use, which may in turn lead to more negative attitudes towards cannabis.[19] Another important demographic variable was Māori ethnicity, where Māori cohort members had more positive views of cannabis/cannabis law reform than non-Maori. It could be argued that for Māori cohort members, both higher rates of cannabis use[20] and greater risk of being arrested or convicted for a cannabis-related offence[21] may have contributed to more positive attitudes towards cannabis law change in this group.

Approximately one in seven cohort members reported using cannabis for issues such as pain and nausea, with a large majority reporting that it helped to alleviate one or more of these complaints. Use of cannabis for pain relief and other medical purposes was also strongly associated with more positive attitudes regarding cannabis use. While it is unclear whether experience with the use of cannabis for medicinal purposes caused more positive attitudes towards use in general, there is evidence to suggest that developing more positive views on the medicinal benefits of cannabis also has a spillover effect on views of recreational use.[8]

The present study has a number of limitations. Firstly, all of the measures are self-reported and subject to the limitations of such assessments. Second, the age of the sample is particularly limited (all cohort members having been born over a four-month period in mid-1977), which limits the extent to which these data generalise to the wider population. In addition, the cohort is not representative of the Christchurch population as it is currently constituted, as well as New Zealand more generally. Fourth, the assessment of cannabis attitudes took place before the announcement of the 2020 Referendum. Further research should endeavour to compare the views of different generations, and to identify how younger generations may vote when permitted.

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