

# Knowledge and perspectives about the use of cannabis as a medicine: a mixed methods observational study in a cohort of New Zealand general practice patients

Karen Oldfield, Allie Eathorne, Ingrid Maijers, Richard Beasley, Alex Semprini, Irene Braithwaite

## ABSTRACT

**AIM:** To determine what patients presenting to general practice (GP) understand about the use of cannabis as a medicine, beliefs of how this may impact their medical conditions and interactions with doctors.

**METHOD:** An in-person survey of 134 GP patients from four GP practices throughout the North Island of New Zealand undertaken from November 2018 to October 2019.

**RESULTS:** Fifty-five percent of the sample were female, with 40% of all participants aged 60 years plus. Ninety-one percent of participants indicated they would use a prescribed medicinal cannabis product while 45% reported they believed it may be of some benefit to their medical condition. Of those who believed it beneficial, 71% indicated they thought it useful for pain relief. Participants indicated comfort discussing medicinal cannabis use with GPs and specialists (92% respectively); however, less than 10% had done this.

**CONCLUSIONS:** Just under half of patients surveyed believe that medicinal cannabis products may be helpful to their condition, and while the majority report willingness, few have discussed this with their GP or specialist. There is need for accessible, accurate information regarding the use of cannabis-based medicine for patients and doctors alike to guide the patient-doctor consultation and decrease barriers to open discussion.

In December 2018 the New Zealand government introduced the Misuse of Drugs (Medicinal Cannabis) Amendment Act,<sup>1</sup> allowing patients with a palliative diagnosis a statutory defence against the use of illicit cannabis in the management of their symptoms. It also legislated the development of a medical cannabis scheme that would enhance access to quality medicinal cannabis products. This regulatory scheme came into effect in April 2020 and allows general practitioners (GP) to prescribe approved medicinal cannabis products without the need for specialist approval.

This recent legislative change reflects a growing worldwide trend towards the use of cannabis as a medicine, a trend which tends to outstrip the available supporting evidence. This results in a misalignment between public expectations and the medical/scientific regulatory bodies that are charged with developing guidelines and/or following regulations. For example in November 2018 a change in government legislation allowed the prescription of medicinal cannabis products in the UK;<sup>2</sup> however, the recommendations to prescribers from the National Institute for

Health Care and Excellence (NICE) guideline [NG144] for Cannabis-based medicinal products<sup>3</sup> recommended the use of only three pharmaceutical-grade products for specific medical conditions and ran counter to the public expectations of the legislation, which they expected would allow the wider use of cannabinoid -based products for medicinal purposes.<sup>2,4</sup>

In a study of GPs in New Zealand, 77% had reservations about prescribing medicinal cannabis products, citing insufficient evidence of safety and efficacy and lack of understanding of the prescribing process.<sup>5</sup> However, the majority stated they would be likely to prescribe such products that had been manufactured in accordance with good manufacturing practice (GMP) and shown efficacy through a similar process to all other approved medicines.<sup>5</sup> This outlook is consistent with studies from Ireland,<sup>6</sup> Australia<sup>7</sup> and the US<sup>8</sup> demonstrating that healthcare professionals are somewhat cautious in their approach to the use of medicinal cannabis products while they sit outside the usual evidence-based approach to the development of medicines.<sup>9</sup>

The general population appears more supportive of the medical applications of cannabis. In the UK, a 1998–2002 survey indicated that a third of patients with chronic illness had used cannabis for medicinal purposes, with 68% reporting efficacy.<sup>10</sup> In New Zealand, the majority of medicinal cannabis users surveyed in 2019 reported an overwhelming belief in symptom improvement.<sup>11</sup> Despite 63.5% discussing their use with their doctor, only 14% had requested a prescription, primarily due to lack of faith in doctors prescribing, bureaucracy and cost.<sup>11</sup> A recent study of current cannabis users in the US showed disparity between beliefs in the effectiveness of cannabis as a medicine and the available evidence; and that those who sought and received information from their primary care provider about medicinal cannabis had better knowledge of effectiveness.<sup>12</sup> The drivers for patient expectations and willingness to use cannabis as a medicine may relate to the high mainstream and social media profile of cannabis,<sup>12</sup> distrust in the pharmaceutical industry<sup>13</sup> and the growing wellness culture associated with products that are perceived as natural.

In this study we asked patients visiting their GP about their current understanding regarding the use of cannabis as a medicine. The primary outcome was patient beliefs about the potential impact that medicinal cannabis may have on their medical conditions. Secondary outcomes included; proportions of participants that had undertaken discussions with a GP or specialist about medicinal cannabis products; if they had used medicinal or illicit cannabis for a medical condition in the past; what information patients wanted from their GP about medicinal cannabis and how they wished this to be communicated. We hypothesised that patients would have expectations of medicinal cannabis that exceed current scientific evidence, with limited knowledge about the specific pharmaceutical medicinal cannabis products available. We anticipated that a small proportion of patients would have discussed medicinal cannabis with their GP or specialists.

## Methods

A mixed methods prospective observational study design was used.

Recruitment was through four GP practices located within the North Island of New Zealand (Wellington, Hutt Valley, Wairarapa and Bay of Plenty) occurring between November 2018 and October 2019. GP practices were included if they were part of the Medical Research Institute of New Zealand GP Research Network, and the GPs themselves had participated in a related study of healthcare practitioners' knowledge of the use of cannabis as a medicine.<sup>5</sup>

Approval for the research was obtained from the Victoria University of Wellington Human Ethics Committee (Reference: #25835).

## Participants

Participants were eligible for inclusion if they attended the GP practice for an appointment on a day when the study investigator was present in the practice and were 18 years or older. If the primary appointment holder was a child less than 18 then their parents or guardian were not eligible. Patients were not required to have a specific diagnosis to participate in the study.

## Recruitment

Eligible patients were asked by the practice reception staff or attending GP if they were interested in completing a questionnaire and those expressing interest were given a participant information (PIS) sheet to read. Patients were then referred to the on-site study investigator who fully discussed the study and answered any questions. Participants were given the option to complete the questionnaire via iPad or paper. The study-investigator was available to clarify any questions during survey completion. Implied consent was obtained by the submission of the questionnaire to the study investigator.

## Questionnaire

The questionnaire was developed with the assistance of a patient advocate and contained the following domains (Appendix):

- Patient demographics
- Beliefs around the use of medicinal cannabis in relation to their medical conditions
- Patient knowledge of pharmaceutical grade medicinal cannabis products, particularly Sativex® (the only approved pharmaceutical grade medicinal cannabis product in New Zealand), including cost per year and availability in New Zealand
- Willingness to take a prescribed medicinal cannabis product
- Interactions with their GP and/or specialists about the use of medicinal cannabis
- Previous use of recreational/illicit cannabis to treat medical symptoms; perceived effectiveness of this treatment
- Information they would seek from a healthcare professional about the use of medicinal cannabis and preferred method of delivery of this information

For the purposes of the study, medicinal cannabis was defined as “any use of cannabis plants and/or medications derived from cannabis that have been used by a patient to treat a medical condition”.

Questions allowed a mixture of Yes/No, Multiple choice and Free-text answers.

## Data entry and analysis

All data was entered into REDCap (Research Electronic Data Capture).<sup>17</sup> Partially completed questionnaires were included for analysis. Single missing data points such as a blank space in a table where all other information had been input were treated as a ‘Don’t know’ answer and contributed to the denominator. All other blank fields were treated as ‘No answer given’ and were removed from the analysis for that question. Free-text answers were grouped into related categories in NVivo<sup>14</sup> to be reported numerically, with supporting quotes used in the results as required. Ethnicity data was prioritised to level two according to the Health Information Standards Organisation.<sup>15</sup>

## Statistics

Descriptive statistics were used to calculate percentages with exact 95% confidence intervals (CI) reported where appropriate. Percentages and CIs were calculated using Microsoft Excel and SAS® software, Version 9.4 Copyright © 2013. The proportion denominator was determined by the number of participants answering that specific question within the questionnaire. The sample size represents a convenience sample, accounting for the central limit theorem that proposes that in sample sizes greater than 30 the distribution of the sample population mean will reflect that of the normal population.<sup>16</sup>

## Results

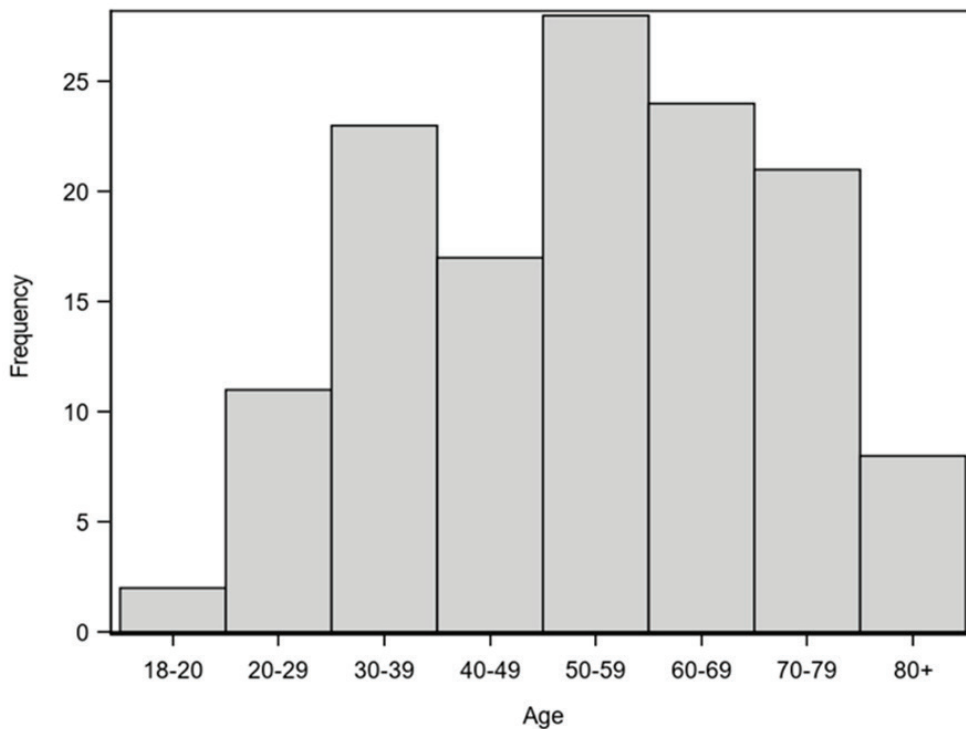
Across the four practices, 360 potential participants were approached by receptionists to read the participant information sheet relating to the survey, of which 160 accepted (44.4%). Of these, 134 participants undertook the questionnaire (83.8%) with an overall response rate for the survey of 37.2%. Participant demographics are shown in Table 1. The median age-band was 50–59 years and the age-band distribution may be seen in Figure 1.

The most common reasons for GP attendance were hypertension (n=27), health check-ups (n=17), depression (n=15), anxiety (n=15) and musculoskeletal problems (n=11). The most commonly reported classes of patient medications were anti-hypertensives (n=45), anti-depressants and anti-anxiety

**Table 1:** Patient demographics.

	n	%
<b>Gender</b>		
Male	60	44.8
Female	74	55.2
<b>Age</b>		
<20	2	1.5
20–29	11	8.2
30–39	23	17.2
40–49	17	12.7
50–59	28	20.9
60–69	24	17.9
70–79	21	15.7
80+	8	6.0
<b>Ethnicity (prioritised to level 2)<sup>15</sup></b>		
NZ European	106	79.1
Māori	5	3.7
Pacific	3	2.2
Chinese	1	0.8
Indian	2	1.5
Other	17	12.7

**Figure 1:** Age-band distribution of participants.



**Table 2:** Beliefs about medicinal cannabis products.

	n	%	95% CI
<b>Would you take a prescribed medicinal cannabis product?</b>			
Yes	121/133	91.0	84.8–95.3
<b>Do you believe a medicinal cannabis product would be helpful for your condition?</b>			
Yes	59/131	45.0	36.3–54.0
No	72/131	55.0	46.0–63.7
<b>If Yes, why? (more than one answer can be supplied)</b>			
Symptom control <sup>a</sup>	14/59	23.7	13.6–36.6
Pain relief	42/59	71.2	57.9–82.2
Decrease anxiety	28/59	47.5	34.3–60.9
Cure my condition	5/59	8.5	2.8–18.7
Other reasons <sup>b</sup>	5/59	8.5	2.8–18.7

a: Nausea n=4, Fatigue n=2, Appetite n=1, Blood pressure n=1, Calmed state of mind n=1, Chemotherapy associated side effects n=1, Confusion n=1, Joint inflammation n=1, Muscle relaxant n=1, Sleep related disorders n=1, Spasticity n=1, Vomiting n=1.

b: Sleep related problems: n=3, Don't know n=2, General support of management n=1, Nausea n=1, Nutritional support n=1.

medications (n=22), non-steroidal anti-inflammatory (NSAIDs) (n=19), cholesterol lowering agents (n=14) and proton pump inhibitors (n=10). Seven participants were taking opioid medications.

### Patient beliefs about medicinal cannabis prescriptions

Patient beliefs about medicinal cannabis products are shown in Table 2. When asked if they would take a prescribed medicinal cannabis product, 91.0% (95% CI: 84.8 to 95.3) reported 'Yes'. Most participants (71.2%) who thought their condition may be helped believed it may be useful for pain relief. Those participants who believed they would NOT benefit from medicinal cannabis products could be grouped into five categories: not relevant to current condition (n=26), belief that cannabis is useful for pain only (n=18), not knowing if it would help (n=15), satisfaction with current medication regime or not currently taking any medications (n=6), and belief that the mode of consumption, eg, smoking, would exacerbate other problems (n=2).

### Patient knowledge of medicinal cannabis products

Overall, 43 participants (32.3%) stated awareness of at least one prescription medicinal cannabis product, though the majority of those were not aware of specific pharmaceutical-grade products (Table 3). Of 38 participants who answered about specific products, eight were aware of Sativex®; with one participant aware it was combination of tetrahydrocannabinol and cannabidiol, five believing it to be a cannabidiol only product and two not supplying answers. Five participants estimated the annual cost to patients of Sativex®, with responses ranging from \$1,600 to \$1,000,000.

### Interactions with healthcare professionals

Participants indicated they would be happy to discuss medicinal cannabis products with the healthcare professionals involved in their care; GP (91.7% (95% CI: 85.7–95.8)), specialist (92.1% (95% CI: 83.6–97.0)), however less than 10% reported doing this (Table 4).

**Table 3:** Knowledge of inmedicinal cannabis products.

	n	%	95% CI
Total participants indicating awareness of prescribed products	43/133	32.3	24.5–41.0
<b>Recognition of named products in those who indicated they were aware of prescribed products</b>			
Nabiximols (Sativex®)	8/38	21.1	9.6–37.3
Dronabinol (Marinol)	8/38	21.1	9.6–37.3
Nabilone (Cesamet)	3/38	7.9	1.7–21.4
Epidiolex®	4/38	10.5	2.9–24.8

**Table 4:** Interactions with healthcare professionals about medicinal cannabis.

	GP			Specialist		
	n	%	95% CI	n	%	95%CI
<b>Happy to discuss with healthcare provider?</b>						
Yes	122/133	91.7	85.7–95.8	70/76	92.1	83.6–97.0
Don't have a specialist	-	-	-	57/133	42.9	34.3–51.7
If Yes, have you discussed medicinal cannabis products?	6/122	4.9	1.8–10.4	6/70	8.6	3.2–17.7
Did you feel informed?	2/6	33.3	4.3–77.7	3/5	60.0	14.7–94.7
Were you prescribed a product?	1/6	16.7	0.4–64.1	-	-	-
<b>If not happy to discuss, why not?</b>						
Stigma	-	-	-	1/6	16.7	0.4–64.1
Legal implications	5/11	45.5	16.8–76.6	2/6	33.3	4.3–77.7
Cost	2/11	18.2	2.3–51.8	-	-	-
Other <sup>a</sup>	5/11	45.5	16.8–76.6	3/6	50.0	11.8–88.2

a: GP: Dislike any type of drug n=2, Not aware of how it would help me n=1, Not interested n=1, No answer n=1  
 Specialist: No need n=1, Satisfied with condition currently n=1, No answer n=1.

**Table 5:** Use of recreational/illicit cannabis for medical symptoms.

	N	%	95%CI
Use of recreational/illicit cannabis to treat medical symptoms	15/134	11.2	6.4–17.8
<b>Mode of consumption</b>			
Smoking (pure)	12/15	80.0	51.9–95.7
Smoking (with tobacco)	2/15	13.3	1.7–40.5
Vaped	2/15	13.3	1.7–40.5
Oil	5/15	33.3	11.8–61.6
Edibles	1/15	6.7	0.2–32.0
Other	1/15	6.7	0.2–32.0
<b>Did you find it effective?</b>			
Yes	13/15	86.7	59.5–98.3
<b>Did you reduce your prescribed medications?</b>			
Yes	8/12	66.7	34.9–90.1

## Use of recreational/illicit cannabis for medical symptoms

Recreational/illicit cannabis had been used for symptom relief of medical conditions by 15 (11.2%) participants, of whom the majority (80.0%) smoked cannabis (Table 5). Thirteen (86.7%) found it to be effective for their symptoms, with eight indicating they had reduced other regular medications. The primary symptoms that participants reported using recreational cannabis for were pain (n=8), insomnia (n=5) and anxiety (n=4).

## Information communication from healthcare professionals

Participants wanted a wide range of information about medicinal cannabis from their healthcare professionals, with 82.8% (95%CI: 75.4–88.8) indicating that they would like further information. Emergent themes were benefits and side effects, efficacy in specific conditions and how that compared with other medications, dosage and administration—including long-term use, addiction information and impact on functioning, work and driving. Supporting quotes from participants are shown in Figure 2.

The majority of participants wished to access information about medicinal cannabis from their provider through a website (68.7% (95 % CI: 60.1–76.4)) or a pamphlet (45.5% (95% CI: 36.9–54.4)).

## Discussion

In this study over 90% of patients would use medicinal cannabis products if prescribed by their GP or specialist and a similar proportion would be happy to discuss medicinal cannabis products with their practitioners. Most (70%) thought it would be best used for pain, and just under half thought it might be helpful for their specific condition. Despite this, awareness of approved medicinal cannabis products was low and less than 10% of patients had actually approached their doctor about medicinal cannabis. Those who did not want to discuss with their practitioners were concerned about legal implications and reported a dislike of ‘drugs’ in general. A small number of patients reported using recreational/illicit cannabis to treat medical symptoms, primarily through smoking, with

**Figure 2:** What do patients want to know about the use of medicinal cannabis?

- “If the product could potentially be useful for a condition I had I would like to know about it and the options I had and generally as much information about it as possible.” Female, age 20–29
- “What medications there are and how well users respond to them compared with other medication options?” Female, age 30–39
- “Risks/dangers/side effects of taking medical cannabis. What conditions etc the drug would be most suitable for etc?” Male, age 20–29
- “Benefits of cannabis for me with my condition—side effects, reactions, negatives—long-term usage issues and guarantee of supply—costs and supply issues (legal; otherwise).” Male, age 60–69
- “What it can help with? I am only aware of people needing to use it when they are extremely sick.” Female, age 30–39
- “Pro and cons, can you become addicted? Statistics of helping people with different conditions.” Female, age 30–39
- “Just if it would help any of my conditions basically, would it be beneficial, because I do believe that pharmaceutical companies need a kick up the arse.” Male, age 50–59
- “After effects at work, driving.” Male, age 30–39
- “I’d like to know its ingredients, its effects on nervous system, how it works and possible side effects.” Female, age 40–49
- “What it helps for? The side effects—negative and positive. Cost. How you take it? How long you can take it for? Where to get it from?” Female, age 40–49

the majority of these finding it effective, and two thirds indicating a reduction in use of other prescription medications. Less than half of this group stated that they had discussed medicinal cannabis with their doctor. The majority of patients wanted to know more about cannabis as a medicine from their doctor, either through accessing websites or being given pamphlets.

There are many possible reasons that may impact why patients display willingness to discuss medicinal cannabis but do not follow through with it. These include being happy with their current treatment, concerns around stigma, cost, bureaucracy, lack of trust and the fact that patients rarely initiate treatment discussions.<sup>11,17</sup> While a 'concordance' approach to undertaking a medical consultation,<sup>17</sup> where the patient and doctor have equal input into the discussion about medications is considered ideal, this does not always happen in practice, as patients may not be confident in asking about a treatment the doctor has not suggested for fear of upsetting them.<sup>18,19</sup> Without this patient input, the limited evidence of efficacy combined with the current illicit status of recreational cannabis may make it less likely that a GP will bring medicinal cannabis up in a consultation without a conscious plan to add this in to their usual practice.

There may also be an inherent appreciation of the apparent misalignment between progressive legislation and evidence-based medical practice. Patients' expectations are that doctor prescribed medicinal cannabis products are effective, 'approved' and safe. The Medical Cannabis Scheme guidelines in New Zealand, where products may need to meet a minimum standard based on GMP, have no requirements for clinical trials prior to being available to doctors on prescription.<sup>20</sup> Such products will be 'unapproved' by Medsafe, New Zealand's regulatory authority, but will be able to be prescribed as an exception to the Medicine's Act.<sup>21,22</sup> The Medical Council of New Zealand's Good Prescribing Practice guidelines<sup>23</sup> which identify strict rules for when unapproved medications may be prescribed, highlights the difficulties that doctors face if choosing to prescribe such medications.<sup>22</sup> Similar dichotomy is seen in the UK, where the NICE guidelines limit applications

of the recent law changes<sup>2,3</sup> and Canada, where despite law changes patients found it difficult to find physicians to support access of non-pharmaceutical medicinal cannabis due to lack of evidence for use compounded by its ongoing controversial status.<sup>19,24,25</sup>

It was expected that participants would not be aware of specific medicinal cannabis products. Although New Zealand is one of only two countries in the world that allows direct-to-consumer advertising of medications,<sup>26</sup> medicinal cannabis products are excluded. As a result, patients can only increase their awareness through media reporting, accessing internet fora and discussions with healthcare professionals. It is of interest that of those who stated they were aware of Sativex®, nearly all of them stated that they thought it was a CBD only, suggesting that the public perception may be that 'medicinal cannabis' is synonymous with cannabidiol and does not contain the perceived harmful substance delta-9-tetrahydrocannabinol (THC).

It is of interest that the majority of the group who believed medicinal cannabis may be beneficial indicated that it is primarily helpful as a pain relief, with a number of whom believed it was *only* useful for pain, highlighting the widespread belief of its efficacy despite patchy medical evidence for this. Currently an internet search by a patient using the terms 'cannabis for pain relief' will provide over 13 million results, many of which extol its virtues through 'medical news' websites. However, there is no peer-reviewed evidence for the use of medicinal cannabis in acute pain conditions with only low-moderate evidence of efficacy in chronic neuropathic pain.<sup>27,28</sup> Despite this, ongoing patient belief in the efficacy of cannabis for pain management will likely result in GPs seeing increased patient enquiries and prescription requests as the use of medicinal cannabis continues to be normalised.

Encouragingly, 83% of participants reported wanting information about the use of medicinal cannabis in the same way that their healthcare provider would recommend any medicine. This indicates that patients in New Zealand will be generally receptive to professional recommendations as to medicinal cannabis use as products become more widely available.



## Strengths and limitations

The overall sample size provides reasonable confidence in the outcomes derived from questions with high response rates with the quality of data enhanced by the availability of a study investigator allowing for clarification of questions during survey completion. Two participants posted in their answers as they were unable to complete the questionnaire due to time constraints, with 98.5% of responses recorded in the presence of an investigator. For the primary outcome, the proportions of participants amenable to use prescribed medicinal cannabis products and willing to discuss this with their GP or specialist were in excess of 90%, with lower confidence interval boundaries of 85% suggesting a relatively precise estimation of current opinion in a GP practice patient population.

There are also some methodological limitations. Time-pressured patients may be less likely to complete the questionnaire at the end of a consult, resulting in selection bias toward those who are time rich. Response rates varied depending on reception staffing levels on the days investigators were present and the limited geographical representation limits national generalisability. Despite this, the overall response rate of 37.2% is within the expected range when compared with GP patient surveys undertaken in New Zealand, the UK and Canada, which range from 19.8–55.9%.<sup>29–31</sup> Responder bias is likely in such a polarised topic, with those who have strong opinions about cannabis more likely to respond, and while comparative GP patient surveys regarding medicinal cannabis use in the general practice population were not identified, overseas studies in oncology patient populations have reported response rates of 27.4–63%.<sup>32–34</sup> Non-response bias was unable to be assessed due to the anonymous nature of initial recruitment for the survey. While the availability of an investigator aimed to minimise confusion between medicinal cannabis use and the upcoming referendum about the legalisation of recreational cannabis, participant concerns around illegality of cannabis, distrust of cannabis companies, previous

convictions and anti-drug sentiment may have negatively impacted the response rate. Due to the length of the recruitment period, it is acknowledged that attitudes towards medicinal cannabis may have altered, however this is unable to be tested.

While the proportion of males in this sample was less than that of the general population, it is consistent with males attending GP consultations 30% less often than females.<sup>35</sup> There was overrepresentation of the elderly, which may be consistent with the population group who typically visit their GP.<sup>36</sup> In this sample Māori were under-represented (4%), where 8–11% of all consultations in targeted age ranges would be expected,<sup>37</sup> likely due to the geographic location of the general practices involved and the demographics of the practice population. This under-representation is in keeping with previous New Zealand research undertaken in the general practice population, where Māori were more likely to be under-represented in the initial recruitment and subsequent completion of questionnaires.<sup>29</sup> This limits the generalisability of the results, and identifies an area in which future research could be undertaken.

## Conclusion

This study suggests a not insignificant number of patients presenting to general practice believe that medicinal cannabis may provide them clinical benefit; however, few have actively discussed this with their GP or specialist. The gap between those expressing a willingness to discuss medicinal cannabis with their healthcare professional and those who actually do is a concern and likely multi-factorial in nature. It is important that patients feel comfortable discussing cannabis in general, both illicit and medical use, with doctors facilitating these discussions. There is need for accurate and accessible information about the use of cannabis as a medicine to guide patient-doctor consultations in the context of the current evidence base and legislative status in New Zealand.

## Appendix

### Medical cannabis—patient experience questionnaire

1. Are you aware of any prescribed medical cannabis products?

Yes  No  - go to question 3

2. If yes, have you heard of any of the following medications?

	Aware of product? (Y/N)	Primary constituents (tick all that apply)		Available in NZ? (Y/N)	Estimated cost per year to patient (NZ \$ amt)
		THC*	CBD*		
Dronabinol (Marinol)					
Nabiximols (Sativex)					
Nabilone (Cesamet)					
Epidiolex					

\*THC = delta-9-tetrahydrocannabinol, CBD = cannabidiol.

3. Would you take a prescribed medication made from medical cannabis?

Yes  No

4. Please can you state what medical conditions you see your doctor for:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. Please list the prescribed medications you take for your medical conditions:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

6. Do you believe that medical cannabis products may be helpful for your medical conditions?

Yes  - go to part a) No  - go to part b)

a) If yes, what benefits do you think medical cannabis products will give you (tick all that apply)?

Symptom control (eg, spasticity, nausea/vomiting) (please list specific symptoms)

\_\_\_\_\_

\_\_\_\_\_

Pain relief

Decrease anxiety

Cure my condition

Any other benefits (please list)

\_\_\_\_\_

\_\_\_\_\_

b) If no, why not?

---

---

---

---

7. Have you ever used recreational cannabis to treat a medical condition or symptom?

Yes  No  - go to question 8

a) If yes, what medical condition or symptom did you treat?

---

---

---

---

b) How did you take it?

- Smoked (pure)
- Smoked (with tobacco)
- Vaped
- Oil
- Edibles
- Other (please specify)

c) Did you find it effective for your symptoms or condition?

Yes  No  - go to question 8

d) If effective, have you decreased the amount of your prescribed medications for your medical condition?

Yes  No

8. Would you feel comfortable discussing using cannabis (whole plant and/or medical product) as a medication with your GP?

Yes  - go to part a) No  - go to part b)

a) If yes, have you discussed medicinal cannabis (whole plant and/or medical product) with your GP?

Yes  No  - go to question 9

i) If yes, did you feel you were informed about the evidence for/against use as well as any possible side effects associated with use of medicinal cannabis (whole plant and/or medical product)?

Yes  No

ii) Did your GP prescribe a medical cannabis product for you?

Yes  No

iii) Did you fill your prescription? How much did it cost you per month?

Yes  No

Cost (NZ\$) \_\_\_\_\_

iv) Have you found it effective?

Yes  No  - go to question 9

v) If effective, have you decreased the amount of your other prescribed medications for you medical condition?

Yes  No

b) If No, why not (tick all that apply)?

- Stigma
- Worried about legal implications
- Cost of product
- Other (please specify)

---

9. Would you feel comfortable discussing medicinal cannabis (whole plant and/or medical product) with your specialist(s)?

Yes  - go to part a) No  - go to part b) I don't see a specialist  - go to question 10

a) If yes, have you discussed medicinal cannabis (whole plant and/or medical product) with your specialist (s)?

Yes  No  - go to question 10

i) If yes, did you feel you were informed about the evidence for/against use as well as any possible side effects associated with use of medicinal cannabis (whole plant and/or medical product)?

Yes  No

ii) Did your specialist prescribe a medical cannabis product for you?

Yes  No

iii) Did you fill your prescription? How much did it cost you per month?

Yes  No

Cost (NZ\$)

---

iv) Have you found it effective?

Yes  No  - go to question 10

v) If effective, have you decreased the amount of your other prescribed medications for your medical condition?

Yes  No

b) If no, why not (tick all that apply)?

- Stigma
- Worried about legal implications
- Cost of product
- Other (please specify)

---

10. What information from your doctor would you like about cannabis as a medicine and medical cannabis products?

---

---

---

---

11. What would be the best way we could communicate this information?

- Website
  - Pamphlet
  - Poster
  - Podcast
  - Social media (Facebook/Twitter/Instagram)
  - Other (please specify)
-

12. Demographic information

**Age (years):**

- Under 20
- 20–29
- 30–39
- 40–49
- 50–59
- 60–69
- 70–79
- 80+

**Gender:**

- Male
- Female
- Other (please specify) \_\_\_\_\_
- Prefer not to disclose

**Ethnicity: Which ethnic group do you belong to? (Tick all that apply)**

- NZ European
- Māori
- Samoan
- Cook Island Maori
- Tongan
- Niuean
- Chinese
- Indian
- Other (such as Dutch, Japanese, Tokelauan). Please state:

---

Source: SNZ, 2001 Census

**Competing interests:**

Karen Oldfield declares that she has received funding through a Clinical Research Training Fellowship from the Health Research Council of New Zealand (HRC). Irene Braithwaite, Alex Semprini and Karen Oldfield are members of the Medical Cannabis Research Collaborative (NZ), an impartial collaboration of academics and regulatory experts with an interest in research into the use of cannabis as a medicine. Ingrid Maijers, Allie Eathorne and Richard Beasley have no competing interests to declare. The Medical Research Institute of New Zealand has undertaken unrelated consultant work for RuaBio, Zealand Health Manufacturing, Whakaora Pharma and Helius Therapeutics.

**Acknowledgements:**

The authors wish to acknowledge the GP practice staff who made running this study possible—thank you for your engagement. We also wish to acknowledge all the participants who took time out of their busy day to answer the questionnaire during their trip to see their doctor—thank you for your time and involvement. Thank you also to Victoria Catherwood (named with permission), our patient advocate, whose input was invaluable to the study process.

**Author information:**

Karen Oldfield, Senior Clinical Research Fellow, Medical Research Institute of New Zealand; PhD Student, Victoria University, Wellington; Allie Eathorne, Research Fellow, Medical Research Institute of New Zealand, Wellington; Ingrid Maijers, Medical Research Fellow, Medical Research Institute of New Zealand, Wellington; Richard Beasley, Director, Medical Research Institute of New Zealand; Professor of Medicine, Victoria University, Wellington; Alex Semprini, Deputy Director, Medical Research Institute of New Zealand; PhD student, Victoria University, Wellington; Irene Braithwaite, Deputy Director, Medical Research Institute of New Zealand, Wellington.

**Corresponding author:**

Karen Oldfield, Medical Research Institute of New Zealand, Private Bag 7902, Newtown, Wellington 6242.  
karen.oldfield@mrinz.ac.nz

**URL:**

[www.nzma.org.nz/journal-articles/knowledge-and-perspectives-about-the-use-of-cannabis-as-a-medicine-a-mixed-methods-observational-study-in-a-cohort-of-new-zealand-general-practice-patients](http://www.nzma.org.nz/journal-articles/knowledge-and-perspectives-about-the-use-of-cannabis-as-a-medicine-a-mixed-methods-observational-study-in-a-cohort-of-new-zealand-general-practice-patients)

**REFERENCES:**

- Misuse of Drugs (Medicinal Cannabis) Amendment Act.; 2018.
- The Misuse of Drugs (Amendments) (Cannabis and Licence Fees) (England, Wales and Scotland) Regulations 2018.; 2018.
- National Institute for Health and Care Excellence. Cannabis-based medicinal products. NICE Guideline. [Internet] Available from: <http://www.nice.org.uk/guidance/ng144/resources/cannabis-based-medicinal-products-pdf-66141779817157>. Published 2019. Accessed March 9, 2020.
- Schlag AK, Baldwin DS, Barnes M, et al. Medical cannabis in the UK: From principle to practice. *J Psychopharmacol.* 2020; 34(9):931–937.
- Oldfield K, Braithwaite I, Beasley R, et al. Medical cannabis: knowledge and expectations in a cohort of North Island New Zealand general practitioners. *N Z Med J.* 2020; 133(1508):12–28.
- Crowley D, Collins C, Delargy I, et al. Irish general practitioner attitudes toward decriminalisation and medical use of cannabis: results from a national survey. *Harm Reduct J.* 2017; 14(1):4.
- Karanges EA, Suraev A, Elias N, et al. Knowledge and attitudes of Australian general practitioners towards medicinal cannabis: A cross-sectional survey. *BMJ Open.* 2018; 8(7):1–9.
- Sideris A, Khan F, Boltunova A, et al. New York Physicians' Perspectives and Knowledge of the State Medical Marijuana Program. *Cannabis Cannabinoid Res.* 2018; 3(1):74–84.
- Gardiner KM, Singleton JA, Sheridan J, et al.

- Health professional beliefs, knowledge, and concerns surrounding medicinal cannabis - A systematic review. *PLoS One*. 2019; 14(5):e0216556.
10. Ware MA, Adams H, Guy GW. The medicinal use of cannabis in the UK: Results of a nationwide survey. *Int J Clin Pract*. 2005; 59(3):291–295.
  11. Rychert M, Wilkins C, Parker K, Graydon-Guy T. Exploring medicinal use of cannabis in a time of policy change in New Zealand. *N Z Med J*. 2020; 133(1515):54–69.
  12. Kruger DJ, Kruger JS, Collins RL. Cannabis Enthusiasts' Knowledge of Medical Treatment Effectiveness and Increased Risks From Cannabis Use. *Am J Heal Promot*. 2020.
  13. Gill HK, Young SD. Exploring cannabis use reasons and experiences among mobile cannabis delivery patients. *J Subst Use*. 2019; 24(1):15–20.
  14. NVivo qualitative data analysis software. 2018.
  15. Ministry of Health. HISO 1001:2017 Ethnicity Data Protocols. [Internet] Available from: <http://www.health.govt.nz/system/files/documents/publications/hiso-1001-2017-ethnicity-data-protocols-v2.pdf> Published 2017. Accessed May 2, 2019.
  16. Kwak SG, Kim JH. Central limit theorem: the cornerstone of modern statistics. *Korean J Anaesthesiol*. 2017.
  17. Stevenson FA, Cox K, Britten N, Dundar Y. A systematic review of the research on communication between patients and health care professionals about medicines: The consequences for concordance. *Heal Expect*. 2004; 7(3):235–245.
  18. Frosch DL, May SG, Rendle KAS, et al. Authoritarian physicians and patients' fear of being labeled "difficult" among key obstacles to shared decision making. *Health Aff*. 2012; 31(5):1030–1038.
  19. Belle-Isle L, Walsh Z, Callaway R, et al. Barriers to access for Canadians who use cannabis for therapeutic purposes. *Int J Drug Policy*. 2014; 25(4):691–699.
  20. Ministry of Health- Manatu Hauora. Prescribing Medicinal Cannabis. [Internet] Available from: <http://www.health.govt.nz/our-work/regulation-health-and-disability-system/medicinal-cannabis-scheme/medicinal-cannabis-regulation/upcoming-medicinal-cannabis-regulatory-information/prescribing-medicinal-cannabis> Published 2020. Accessed March 31, 2020.
  21. Medicines Act.; 1981.
  22. Braithwaite I, Newton-Howes G, Oldfield K, Semprini A. Cannabis-based medicinal products and the role of the doctor: should we be cautious or cautiously optimistic? *N Z Med J*. 2019; 132(1500):82–88.
  23. Medical Council of New Zealand. Good Prescribing Practice. [Internet] Available from: <http://www.mcnz.org.nz/assets/standards/ceae513c85/Statement-on-good-prescribing-practice.pdf> Published 2020. Accessed April 9, 2020.
  24. Kahan M, Spithoff S. How physicians should respond to the new cannabis regulations. *CJAM Can J Addict Med*. 2013; 4(3):13–20.
  25. Graham SD. Medical marijuana: Canada's regulations, pharmacology, and social policy: New policy reflects contradictions in social and medical trends. *Can Pharm J*. 2004; 137(1):23–27.
  26. Lee Ventola C. Direct-to-Consumer Pharmaceutical Advertising Therapeutic or Toxic? *P T*. 2011; 36(10):669–684.
  27. National Academies of Sciences Engineering and Medicine. *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research*. Washington, DC: The National Academies Press; 2017
  28. Stockings E, Campbell G, Hall W, et al. Cannabis and cannabinoids for the treatment of people with chronic noncancer pain conditions: a systematic review and meta-analysis of controlled and observational studies. *Pain*. 2018; 159(10):1932–1954.
  29. Poppelwell E, Esplin J, Doust E, Swansson J. Evaluation of the Primary Care Patient Experience Tool. [Internet] Available from: [http://www.hqsc.govt.nz/assets/Health-Quality-Evaluation/PES/MoH-PES-report-18April2018\\_2.pdf](http://www.hqsc.govt.nz/assets/Health-Quality-Evaluation/PES/MoH-PES-report-18April2018_2.pdf) Accessed 9th September 2020. Published 2018. Accessed September 9, 2020.
  30. Williams R, Lepps H. 2019 GP Patient Survey Results Released. [Internet] Available from: <http://www.ipsos.com/ipsos-mori/en-uk/2019-gp-patient-survey-results-released>. Published 2019. Accessed September 9, 2020.
  31. Slater M, Kiran T. Measuring the patient experience in primary care: Comparing e-mail and waiting room survey delivery in a family health team. *Can Fam Physician*. 2016; 62(12):e740-e748.
  32. Hawley P, Gobbo M. Cannabis use in cancer: A survey of the current state at BC cancer before recreational legalization

- in Canada. *Curr Oncol*. 2019; 26(4):e425–e432.
33. Macari DM, Gbadamosi B, Jaiyesimi I, Gaikazian S. Medical Cannabis in Cancer Patients: A Survey of a Community Hematology Oncology Population. *Am J Clin Oncol*. 2020; 43(9).
34. Martell K, Fairchild A, LeGerrier B, et al. Rates of cannabis use in patients with cancer. *Curr Oncol*. 2018; 25(3):219–225.
35. Wang Y, Hunt K, Nazareth I, et al. Do men consult less than women? An analysis of routinely collected UK general practice data. *BMJ Open*. 2013; 3(8):1–7.
36. Cumming J, Stillman S, Liang Y, et al. The determinants of GP visits in New Zealand. *Aust N Z J Public Health*. 2010; 34(5):451–457.
37. Crengle S, Lay-Yee R, Davis P, Pearson J. A Comparison of Māori and Non-Māori Patient Visits to Doctors: The National Primary Medical Care Survey (NatMedCa): 2001/02: Report 6.; 2005. <http://www.moh.govt.nz>