Give People Hope: A grounded theory analysis of Perspectives of Health Professionals and Cannabis Users on Cannabidiol-based Therapy for Chronic Pain in New Zealand

Priyanka Kumar

Auckland University of Technology

A thesis submitted to the Auckland University of Technology in partial fulfilment of the requirements for the degree Master of Public Health

Faculty of Health and Environmental Sciences

2022

Attestation of Authorship:

I hereby declare that this submission is my own work and that, to the best of my knowledge, it contains no material previously published or written by any other person (except where explicitly defined) nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signed

Date 3rd October 2022

Table of Contents

List of Tables

List of Figures

Abstract

Medical cannabis is a controversial drug that has caused debate globally. New Zealand positioned itself to legalise medical cannabis in 2018, and the Medical Cannabis Scheme came into effect in April 2020 to provide access to quality medical cannabis products for treatment. However, while medical cannabis is legal, many challenges are associated with medical cannabis treatment in New Zealand for chronic pain. This study, therefore, aimed to understand the opinions and perspectives of health professionals and legal cannabis users in New Zealand about treating chronic pain with cannabidiol.

This study interviewed ten participants that were directly related to medical cannabis. The participants involved in this study were either associated with medical cannabis via their work, e.g., health professionals or were patients living with chronic pain, using medical cannabis, i.e., medical cannabis users and were distributed around New Zealand. To guide this study, the methodology of grounded theory developed by Glaser et al. (1968) was used. The core concepts of ***Gives hope, Ongoing struggles, Something must change and Choosing a healthier way forward*** emerged from the findings of this study. The reasons for medical cannabis use and significant challenges were highlighted in the concepts of ***Gives hope*** and ***Ongoing struggles***. Whereas the central concepts discussed in ***Something must change***, and ***Choosing a healthier way forward*** highlight the suggestions and recommendations that could be implemented in NZ to drive change and address the present barriers and challenges to medical cannabis treatment for chronic pain.

This study concludes that there are significant barriers to accessing medical cannabis treatment for chronic pain. Implementing education strategies centred around medical cannabis and

having a holistic approach to healthcare practices may reduce the obstacles and challenges currently associated with medical cannabis treatment in NZ.

Keywords: Medical Cannabis, Grounded Theory, CBD, Chronic Pain, CBD Treatment, New Zealand, NZ, Perspectives, Health professionals, Cannabis Users

Acknowledgements

Dhanyavaad, (Thank you) I put my hands together to thank the people who have contributed to completing my thesis. The completion of this thesis would not have been possible without the many people who have supported me in diverse ways throughout the different phases of this challenging but rewarding journey.

Firstly, I would like to thank my supervisors, Dr Charles Mpofu and Dr Dianne Wepa. Your constant guidance, encouragement and advice in my research and career have been invaluable. Thank you both for giving your time freely and always making yourself available for discussions and reviewing my work. The friendship and support you both have shown me encouraged me to have open conversations with you without fearing judgement. Thank you for being so patient and firm in your guidance to help me extend the boundaries of my abilities and for your genuine care not only for my academic journey but also for my personal and family life.

Secondly, I would like to thank my loving family, my parents, Pradeep and Arti Kumar, for their support (both financial and moral) and for raising me to believe that achievements like this one were within my capabilities. My brother Priyash, for his constant encouragement and my youngest sister Rupshika, for constantly being around to read my work on request at any time of day or night. To my partner, Royston, thank you for being understanding in the final months of my thesis writeup, constantly motivating me to do my ultimate best and keeping me grounded throughout my postgraduate journey. At this point, I also remember and extend my thanks to the various staff at AUT who have helped me at many points during my postgraduate journey to reach this stage.

Finally, I would like to extend my warmest thank you to all the participants that dedicated their valuable time to my study and shared their medical journey with me. Thank you for trusting me enough to open up and share your experiences about your journey with medical cannabis.

To all of you, dhanyavaad.

Chapter One: Introduction

In New Zealand (NZ), the many personal stories of using medical cannabis have highlighted people's positive experiences, which has caused debate within the media. These experiences have grabbed the attention of policymakers, politicians, health professionals, researchers and the public. At the time of writing this study, NZ experienced its first significant change with a dynamic shift in attitude towards medical cannabis. The Auckland University of Technology (AUT), where this study is based, launched NZ's first postgraduate paper on medical cannabis with over 90 students enrolled from a range of healthcare backgrounds (Keall, 2020).

Furthermore, in 2020, NZ held a general election and referendum to legalise euthanasia and the use of recreational cannabis. The referendum drew great interest from voters aged 18-25 (Electoral Commission, 2020). Euthanasia became legalised, and although the recreational use of cannabis remains illegal, the public's interest highlighted the lack of access to medical cannabis as a treatment option for chronic pain.

Such critical events in NZ demonstrated an interest in medical cannabis treatment for chronic pain. For example, the media highlighted a situation where a woman was granted access to medical cannabis in the form of a dried flower for brewing into a tea to alleviate chronic pain (Emma Russell, 2022). A contrasting story noted by the media in 2021 focused on a two and half year old boy called George who was diagnosed with Leukaemia. George received medical cannabis for his condition, however, his parents wanted access to delta-9-tetrahydrocannabinol (THC) to stop persistent Leukaemia associated nausea and vomiting (Newshub, 2021). The family wanted to try THC, the psychoactive component of cannabis. However, in NZ, the product that George could get legally was only CBD, which was not suitable for George and his condition. The family turned to an illegal supplier, better known as a green fairy in NZ, and

the family stated, "we no longer had to sit with a vomit bucket, and he wasn't in so much pain". There are numerous accounts within NZ where patients have become frustrated with the barriers to obtaining medical cannabis. Consequently, patients have turned to illegal substances such as the green fairy to relieve their symptoms (Palmer, 2019).

In New Zealand (NZ), the medical cannabis scheme (MCS) has been in place since April 2020 to provide access to legal, medical cannabis products (Ministry of Health, 2017a). Nevertheless, patients in NZ must meet stringent criteria such as having muscle spasticity accompanied by a suitable medical condition, e.g., Multiple Sclerosis (MS), to access medical cannabis on prescription. These requirements alongside the costs of treatment and the associated stigma make access to medical cannabis in NZ challenging for patients, especially those seeking treatment for chronic pain (Oldfield, Braithwaite, et al., 2020a). Additionally, although there are debated findings that support and discourage the use of medical cannabis as a suitable treatment for chronic pain. Treatment of chronic pain using medical cannabis is the most widely reported reason for medical cannabis use among patients (Piper et al., 2017; Ryan & Sharts-Hopko, 2017).

Other reported reasons for medical cannabis use include anxiety and depression, where some studies have reported favourable health outcomes for patients with mental health-related conditions (Chow et al., 2017; Lichtman et al., 2018). In comparison, other studies examining the effects of medical cannabis on chronic pain have reported statistically insignificant results and questioned studies reporting favourable outcomes for their study designs, biased reporting, using an unstandardised product, research affiliations and overlooking side effects of treatment (Häuser et al., 2018; Mücke et al., 2018).

Background

In NZ, after the legalisation of medical cannabis, an audit of the first 400 patients to receive cannabidiol (CBD) for a broad range of clinical groups was conducted (Gulbransen et al., 2020). The clinical group participants were grouped based on their presenting medical symptoms. The clinical groups included non-cancer chronic pain, neurological, mental health-related, and cancer symptoms. The results from the audit of patients receiving CBD treatment indicated that the groups of patients experiencing non-cancer pain and mental health-related symptoms experienced a significant improvement in self-reported mobility scores to carry out daily activities and improved their self-reported pain, anxiety or depression (Gulbransen et al., 2020).

In comparison, a slight statistically significant improvement was indicated for self-reported pain in those with cancer pain ($P = 0.047$) with no improvements in other areas such as neurological symptoms comprising of elements such as mobility ($P = 0.317$) and pain (0.18). In conclusion, the audit stated interpreting results with caution and suggested further investigation of the long-term effects of CBD use in future studies (Gulbransen et al., 2020). The audit results significantly highlighted the findings of medical cannabis to be inconclusive for chronic pain. Similarly, other studies have shown inconclusive results for chronic pain treatment with CBD. The work of Fitzcharles et al. (2016) noted that the information available on medical cannabis efficacy, tolerability, and safety for chronic pain treatment compared to conventional treatments is limited and of low quality to recommend routine clinical use.

Similarly, Maher et al. (2019) noted that the data supporting the use of THC and CBD medical cannabis products for chronic pain treatment are limited due to study quality or suggestive of modest evidence for only certain types of pain. Additionally, concluding that there is insufficient data to provide evidence-based clinical guidance and that there are currently a vast

number of non-standardised forms of medical cannabis products, which leads to difficulty in formulating conclusive recommendations for medical cannabis to treat chronic pain (Fitzcharles et al., 2016; Maher et al., 2019; Mücke et al., 2018). However, the significant events in NZ have drawn attention to chronic pain treatment with medical cannabis that cannot be ignored.

Rationale

Studies that have explored the perspectives of health professionals and medical cannabis users utilised surveys without participant interviews (Appleton et al., 2021; Rychert et al., 2021; Van den Berg et al., 2020). Furthermore, medical cannabis was not legal in NZ when these studies were performed. Hence, little is known about medical cannabis experiences in NZ after legalisation, which is a significant research gap at a time of global shifting attitudes towards medical cannabis treatment. It is vital therefore for critical groups such as patients, healthcare professionals and policymakers to understand the current opinions on medical cannabis treatment in NZ.

Importantly to highlight strengths, limitations, and challenges in the current MCS of NZ and consider implementing interventions catered to the experiences of people using medical cannabis treatment. Hearing real-world experiences of the controversial debate on medical cannabis treatment in the context of NZ may be a valuable tool to improve medical cannabis treatment for NZ patients (Klonoff, 2020). Researching perspectives of health professionals involved and medical cannabis users will contribute new knowledge to the debate and encourage the successful integration of medical cannabis practice into NZ safely to achieve better health outcomes for people in NZ overall.

Research question and aim

Given the controversial findings of medical cannabis as noted in the work of Mücke et al. (2018), its efficacy in treating medical conditions and the subjective stories of success for chronic pain. It is important to focus research on the most reported reason for medical cannabis use of chronic pain to add to the limited evidence that is currently available in NZ.

Situating myself in the study

As a community educator at a NZ not-for-profit organisation, I worked with many patients living with Multiple Sclerosis (MS) that wanted to use medical cannabis for their conditions. Through my role and working closely patients that had MS, I realised the difficulties of accessing medical cannabis treatment in NZ. Alongside working with patients and reading the success stories of medical cannabis experiences in the media while being a part of the university offering education in this area, I wanted to explore why people use medical cannabis. Therefore, this study aims to explore the reasons for using medical cannabis by service users and the perspectives of health professionals.

Aim: To examine the opinions and perspectives of health professionals and legal cannabis users in New Zealand about treating chronic pain with CBD.

The research enquiry is guided by the following sub-aims:

1) What are health professionals and cannabis users perspectives on treating chronic pain with CBD in NZ?
2) What are the suggested policy options to access CBD treatment in NZ?
3) What are the current legal, ethical, and scientific debates on cannabis in NZ and selected developed world countries?

Conclusion

The next chapter reviews the literature that justifies the need for this research. Although literature exists on the efficacy of medical cannabis, there is limited research that uses the perspectives of health professionals and medical cannabis users to understand the reason for medical cannabis use for chronic pain.

Chapter Two: Literature Review

This chapter encompasses a scoping review protocol, publication 1, *Analysing the perspectives of health professionals and legal cannabis users on the treatment of chronic pain with cannabidiol (CBD): A scoping review*. The protocol was developed to guide the following scoping study Analysing the perspectives of health professionals and legal cannabis users on the treatment of chronic pain with cannabidiol (CBD): A scoping review (Kumar et al.). This review was the first scoping review to be identified that answered the research question What are the perspectives of health professionals and legal cannabis users to use medical cannabis to treat chronic pain?

The findings of the selected five studies were extracted, synthesised and presented to describe what is currently known regarding the perspectives of health professionals and legal cannabis users to treat chronic pain. This paper is currently available as a preprint on the digital platform of the JMIR Research Protocols and has been accepted for publication after being submitted for a second review. The style of the main text and the references found in the protocol manuscript were utilised to meet and satisfy the requirements of the journal and editorial review comments.

Analysing the perspectives of health professionals and legal cannabis users on the treatment of chronic pain with cannabidiol (CBD): A scoping review

Original Paper

Miss Priyanka Kumar
Master of Public Health Student
School of Public Health
Auckland University of Technology
Auckland, 0627
ORCID ID: https://orcid.org/ 0000-0002-8712-8722
Email: rgz5670@autuni.ac.nz
MPH (candidate), PgDipSci, BSc

Dr Charles Mpofu
Senior Lecturer
School of Public Health
Auckland University of Technology
Auckland, 0627
ORCID ID: https://orcid.org/0000-0003-3316-3263
Email: charles.mpofu@aut.ac.nz
MHsc, Dr.MED

Dr Dianne Wepa[1,2,3]
[1]Associate Professor Mental Health
[2]Auckland University of Technology
[3]University of South Australia
University of Bradford, UK
ORCID ID: https://orcid.org/0000-0003-0270-1778
Email: dianne.wepa@aut.ac.nz
PhD, RSW, BSW, Mphil, GradCert Education (Digital Learning)

Abstract

Background: Medical cannabis is one of the most commonly reported treatments for chronic pain. The wide acceptance and research in alternative medicine has put medical cannabis in the limelight, where researchers are widely examining its therapeutic benefits, including treating chronic pain.

Objective: The purpose of this scoping review is to provide an overview of the perspectives on CBD as an alternative treatment for chronic pain among health professionals and legal cannabis users.

Methods: The framework of Arksey and O'Malley [1] guides the design of this scoping review, and the elements reported use the recommended guidelines of the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews) [2]. A comprehensive literature search accessed the following databased; (CINAHL complete and MEDLINE via EBSCO, Australia/New Zealand Reference Centre, PsycINFO, Ovid Emcare, Wiley Online Library, Scopus, Informit New Zealand Collection and Google Scholar) for published literature and then extended to include grey literature. Grey literature searches included searching the databases, Australia/ New Zealand Reference Centre, Informit New Zealand Collection, INNZ: Index New Zealand, ProQuest Dissertations & Theses Global, AUT Tuwhera Research Repository and Nzresearch.org.nz.

The studies included in this scoping review were assessed for eligibility for inclusion using the following criteria: published after 2000, English language and located in New Zealand (NZ) or Australia and perspectives of health professionals and medical cannabis users using interviews for data collection. Studies were screened for inclusion using Covidence, a software to filter search results and the risk of bias was assessed using the Critical Appraisal Skills Programme

(CASP) tool. Although this is not a required step for scoping reviews, this added an element of strength to this scoping review. Data will be analysed using thematic analysis guided by Braun and Clarke [3]. The findings from the data analysis will be presented in a table which will then inform the key themes for discussion.

Results: The database search started in October 2021 and was completed in December 2021. The total number of studies included in this review is five (n=5). Studies included have been completed in New Zealand or Australia and examine perspectives using participant interviews. This scoping review is anticipated to be submitted for publication in December 2022.

Conclusions: Using perspectives is a valuable tool to understand the challenges experienced by health professionals and medical cannabis users associated with medical cannabis treatment. Addressing these challenges through interventions that are highlighted through perspectives such as educating health professionals to increase access to medical cannabis in NZ may aid in policy reformulation for medical cannabis in the context of NZ. Thus, this scoping review highlights the importance of medical cannabis research and suggests recommendations to guide and inform medical cannabis policy in the context of NZ.

Keywords:

CBD; Cannabidiol; medicinal cannabis; medical cannabis; chronic pain; pain; perspectives; opinions; health professionals; medical professionals; users; medicinal cannabis users; medical cannabis users; New Zealand; NZ

Introduction

Medical cannabis is one of the most reported treatments for chronic pain [4, 5]. Chronic pain is one of the most disease-burdening conditions in the world [6, 7], estimated to affect one in five adults of the world's general population [8]. Opioids are currently the preferred method of treatment, trusted by physicians to manage chronic pain [9]. However, although opioids are readily attainable and a preferred method of treatment, there is excessive use of opioids globally as more people access opioid prescriptions for chronic pain management [10]. The commonly reported reasons for researching opioid alternative treatments are opioid-related drug abuse, overdosing, associated risks, and the high prescription rates [11].

Medical cannabis, or the *Cannabis Sativa L., (C. sativa),* is a plant of the Cannabinaceae family that has properties that are particularly interesting to researchers for their therapeutic benefits as alternative treatments for varying chronic conditions including chronic pain [12]. Comprising of two elements, delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD). THC is the psychoactive compound of the two where consumers experience a 'high' on consumption as it alters the functioning of the central nervous system (CNS). CBD, however, tends to be the focus of modern-day research for its medical benefits when consumed in small doses. The exact mechanism of how CBD works in the body is unclear. However, it is known to activate the body's internal endocannabinoids via the endocannabinoid system [13]. It is suggested that the neurotransmitters emitted from the CBD products bind to the cannabinoid receptors in the body's CNS and activate signals. The activated signals cause signal blocking, which results in relief from discomfort caused by medical conditions [13].

Background

In 2018, NZ legalised medical cannabis by amending the Misuse of Drug Act 1975 to control the use of cannabis as medicine. In April 2020, the Medical Cannabis Scheme was

implemented in NZ. The Medical Cannabis Scheme aims to allow access to quality medical cannabis products to qualifying users. Currently, qualifying users are limited to only those diagnosed with Multiple Sclerosis [14]. However, chronic pain management is one of the more commonly proposed reasons to want to use medical cannabis [6, 7]. While some studies show improvements when using medical cannabis for chronic pain [15, 16]. Other studies have emphasised their apprehensions with study designs and research affiliations with pharmaceutical companies suggesting more positive applications [11, 17-19]. Others explain that studies investigating the relationship between medical cannabis and chronic pain have a high prevalence of reporting bias, overreporting of results, small sample sizes, short duration outcomes and short follow-up periods [11]. These concerns are further justified by similar concerns voiced by researchers who strongly argue the need to expand research on medical cannabis and its use for chronic pain [19]. Overall, the findings from studies suggesting the effectiveness and efficiency of using medical cannabis as a treatment for chronic pain are considerably low, and therefore, further research is required [7].

Rationale

In addition to literature highlighting the inconsistencies of medical cannabis as an alternative treatment for chronic pain, seeking the opinions of health professionals and medical cannabis users may add another dimension to this body of evidence. The studies exploring the perspectives of health professionals and legal cannabis users using a government standardised CBD product is limited. Previously, studies explored the perspectives of health professionals and medical cannabis users utilising surveys without performing participant interviews. Therefore, this scoping review adds a methodological dimension too [20-22]. Furthermore, when these studies were conducted, medical cannabis was not legal in NZ. Therefore, these studies have not examined a form of standardised CBD treatment legal for use in NZ. This

highlights a possible limitation as the participants would have reported outcomes consuming substances from the black market.

For this reason, study results cannot be directly linked to chronic pain treatment with CBD, considering the amount of unknown concentrations of CBD, THC and other contaminants in black market substances. Perspectives of individuals with chronic pain who use medical cannabis and the perspectives of health professionals who prescribe medical cannabis are essential and should contribute to the clinical, social, economic, and political discussion of medical cannabis in NZ. This scoping review aims to examine the perspectives surrounding medical cannabis use to treat chronic pain among health professionals and legal cannabis users. This scoping review is being performed as part of a qualification intended for achievement by the primary author (PK), which is not reported in this scoping review protocol.

Overall aim

This scoping review aims to provide an overview of the perspectives on CBD as an alternative treatment for chronic pain among health professionals and legal cannabis users.

The specific objectives are.

1) To search and synthesise literature on perspectives of health professionals and legal cannabis users in treating chronic pain with CBD.

2) To provide literature that will add to the current knowledge that may inform policy regarding prescribing CBD treatment for chronic pain in NZ.

Methods

The framework of Arksey and O'Malley [1] guides the design of this scoping review, and the elements reported will use the recommended guidelines of the Preferred Reporting Items for

Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) [2]. Scoping reviews have become a popular tool for synthesising evidence. Similar to a systematic review, a scoping review follows a structured process. A scoping study is practical when providing an overview of what is already known about a particular topic or in circumstances where the literature volume is broad and detailed. The most common reason to perform a scoping review is to identify and map the currently available evidence [1, 23]. A useful aspect of performing a scoping review is when studies aim to identify themes and concepts reported and discussed in the literature on a particular topic. To address the purpose of this review, a scoping review is a better suited approach compared to a systematic review as it seeks to examine the perspectives of health professionals and legal cannabis users while identifying and mapping the currently available literature on medical cannabis and chronic pain [24].

Developing the research question

The search protocol was developed using the PICO(T) tool, developed by Richardson, Wilson [25] and comprises the components People, Intervention, Comparison/Control, Outcome and Time. Scoping reviews have broad questions, as the general aim of a scoping review is to map the literature available on a topic. Therefore, two elements of the PICO(T) tool were applied to formulate a broad question sufficient to perform a scoping review. The two elements of the tool that were used in formulating the question for this scoping review are population/problem (P) and intervention (I) [26].

Research question

What are the perspectives of health professionals and legal cannabis users (population) about the use of medical cannabis (intervention) in treating chronic pain (problem)?

Searching the literature

The literature search was performed from October to December 2021. In the initial stages of searching, there was no restriction to searching by geography however, due to the number of results that were present for each search, the supervisors were consulted to narrow the search to studies limited to NZ and Australia. To our knowledge, this is the first scoping review to explore the perspectives of health professionals and legal cannabis users restricted to NZ and Australia. The decision to restrict the literature search by geographical location was taken given the nature of the study to explore the perspectives of health professionals and legal cannabis users where studies were limited. This scoping review also aims to add knowledge through a wider qualification to aid policy changes in NZ. Therefore, it is vital to explore the perspectives of health professionals and legal cannabis users to ensure informed policy change decisions in NZ. As a result, the literature search for this scoping review was restricted to NZ and Australia. In addition, reviewing the availability of literature without a geographical restriction is beyond the capability of the primary researcher in the time allocated for the completion of the intended qualification.

The databases that were searched included:

- CINAHL complete and MEDLINE via EBSCO.
- Australia/New Zealand Reference Centre (EBSCO).
- PsycINFO.
- Ovid Emcare.
- Wiley Online Library.
- Scopus.
- Informit New Zealand Collection
- Google Scholar.

In addition to the databases listed above, grey literature was searched using platforms dedicated to this purpose. The platforms that were used to search grey literature included the databases and websites listed below:

- Australia/ New Zealand Reference Centre
- Informit New Zealand Collection
- INNZ: Index New Zealand
- ProQuest Dissertations & Theses Global
- AUT Tuwhera Research Repository
- Nzresearch.org.nz

The keywords and phrases used to search were kept the same for consistency. The keywords were often combined with truncation and Boolean search techniques. An example of the search string is presented in Table 1, and the full search string can be found in the multimedia appendix. All the keywords used to modify the search during the database, grey literature and website searches are presented in Table 2.

Table 1: *An example of the search string used to search databases, grey literature and websites.*

Example of search string used to search.	CBD OR Cannabidiol* OR (Medical Cannabis) AND Pain OR (Chronic Pain) AND Perspective* OR Opinion* OR Experience* AND Professional* OR (Health professional*) AND (New Zealand) OR Aotearoa OR Australia
Example 1 of search string used to search websites.	Medical cannabis AND Pain
Example 2 of search string used to search websites.	CBD AND Pain AND New Zealand OR NZ

Eligibility criteria

Eligible studies were those published in English between 2000 and 2021 and were either qualitative or mixed methods studies using interviews. The recruited participants were 18 years or older and used medical cannabis for chronic pain or in conjunction with another condition. Studies eligible were those conducted in either NZ or Australia and must have aimed to

investigate the lived experience, perspectives, or opinions of either health professionals or all categories and users of medical cannabis, specifically CBD.

Exclusion criteria

Studies were excluded if they were conducted outside of NZ or Australia, did not use interviews and used other methods of analysing perspectives such as surveys. Studies focusing on medical cannabis for mental health-related disorders, examining the efficacy of cannabis treatment and recreational cannabis studies were also excluded from this review.

Table 2: *The search terms that were used to perform database and grey literature search.*

CBD	Pain	Perspectives	Population	Geography
CBD, Cannabidiol, Medical cannabis, Medicinal cannabis, Medical marijuana, Medicinal marijuana	Pain, Chronic pain, Neuropathic pain, Chronic condition, Non cancer chronic pain	Perspective, Opinion, Attitude, View, Experience, Lived experience, Knowledge User experience, Professional experience	Professional, Health professional, Medical professional, User, Patient, Doctor, Nurse, Pharmacist	New Zealand, NZ, Aotearoa, Australia, Aus, Auz

Screening/selecting the studies

After the search was completed in each database, the search results were exported as a RIS file into the reference manager EndNote X9. After all search exports from each database were completed, a final XML file was exported from EndNote X9 and imported into Covidence. Covidence is a web-based software useful when performing a type of comprehensive literature review [27]. The purpose of the software is to aid in screening studies, data extraction and quality assessment required to perform a full review [27, 28]. Covidence was used for this review in all stages to screen titles and abstracts for the first screen, the full-text screening stage where studies were either included or excluded, data extraction and quality assessment of the studies included. The primary researcher (PK) completed the initial screening and selected the

articles to be screened in the abstract screening stage. The second reviewer, also the secondary supervisor in this research project (DW), also individually screened the titles for abstract screening in Covidence. Although it is not required to include an appraisal of the literature in a scoping review, articles included in our scoping review will be critically appraised using the Critical Appraisal Skills Programme tool (CASP). Appraising literature that is included in the review will aid in further identification of research gaps.

The quality assessment was performed in Covidence. At this stage, the template provided by the software Covidence was customised to suit the data present in qualitative studies, adapting it to the CASP checklist for qualitative studies [29]. The CASP tool is a simple tool that can be used to appraise the strengths and limitations of qualitative research methodology. CASP is commonly chosen among novice researchers as the tool is user friendly and easy to understand. CASP was created for appraising health-related research and is endorsed by the Cochrane and the World Health Organisation for use in qualitative evidence synthesis [30, 31]. It is for these reasons that CASP was selected as the most appropriate tool to be used in this scoping review.

The full-text screening was completed by both the primary researcher (PK) and the second reviewer (DW) in December 2021. Data extraction and CASP were initially completed by the primary researcher (PK) and reviewed by the second reviewer (DW). The third reviewer, also the primary supervisor of this project (CM), was assigned to resolve conflicts following discussions at each stage. However, no conflicts were present throughout the stages of progress. Therefore, the third reviewer's involvement was not required in the process. At the completed full-text screening stage, five studies met the eligibility criteria to be included in the review (Figure 1). Considering the low number of studies (n=5) to be included, the researcher consulted with supervisors to consult advice to proceed. The consensus was reached to expand

to include more grey literature. The search results yielded from the grey literature search and selection process of results are shown in Figure 2.

Data analysis and presentation

The findings of this scoping review will be presented in a tabular format. The articles included in the review will be summarised and displayed in categories describing the studies included in the full review. Analysing the results will consist of a narrative synthesis to link the results and research objectives using thematic analysis guided by Braun and Clarke [3], a commonly used technique suitable for analysing qualitative literature. The data analysis will be carried out by the primary researcher (PK) and will be validated by the primary (CM) and secondary (DW) supervisors. The template to extract the relevant data, from the included studies and the description of information that will be extracted are presented in Table 3.

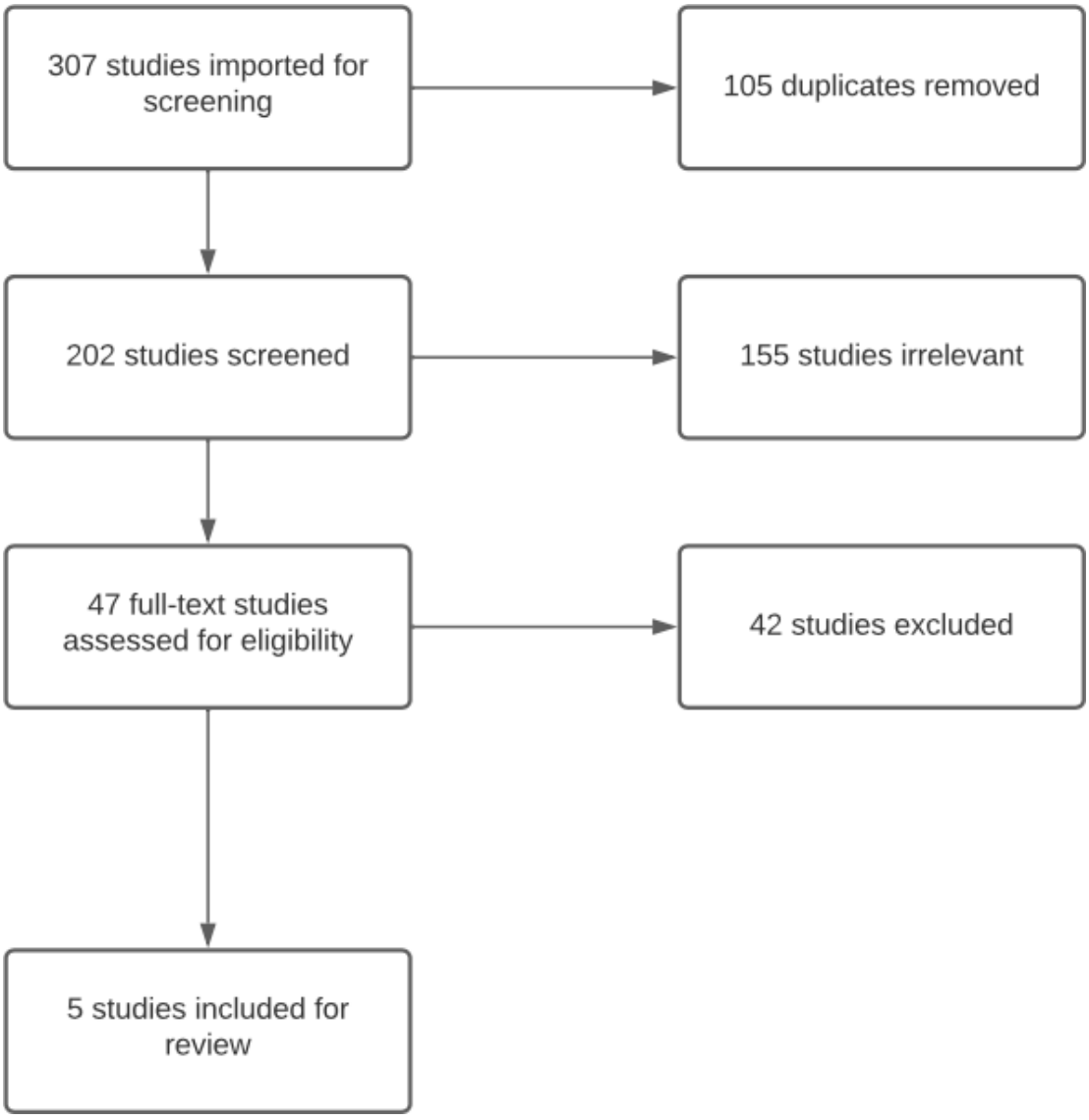
Table 3: *Template for data extraction*

Study	Country	Design	Participants	Main Findings
Description of information being extracted: The title, and reference of the study.	Description of information being extracted: Identify the country the study was conducted in.	Description of information being extracted: Details of the study design, methodology, and research frameworks.	Description of information being extracted: Details of the participants, number of participants, age etc.	Description of information being extracted: Results of the study, highlights, limitations, and conclusions.

Results

An initial search of the databases was conducted in October 2021. After consulting with the supervisory team CM and DW for this project to continue, the search was completed in December 2021. We anticipate that the full scoping review will be completed in December 2022, as this scoping review is part of a qualification that the researcher PK is currently undertaking. The full scoping review is anticipated to be submitted for publication in December 2022.

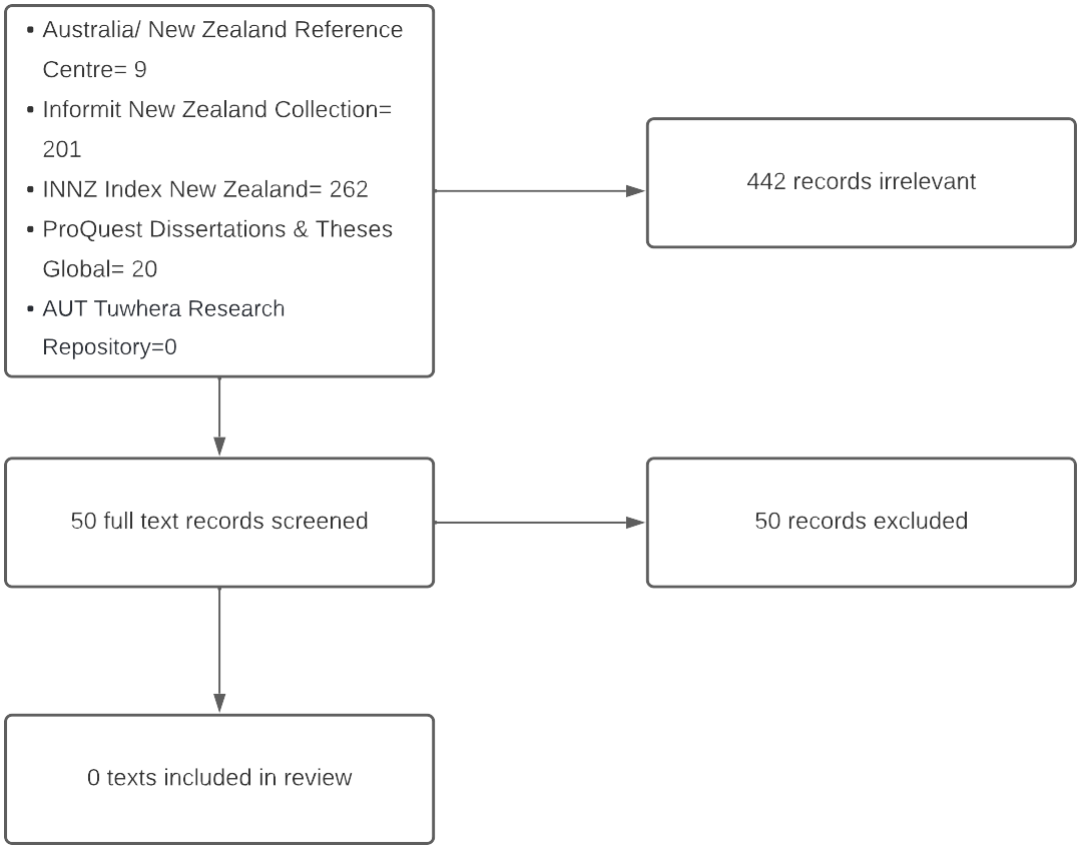
Figure 1: *PRISMA-ScR flow diagram of the study selection process from databases.*



The scoping review includes five articles in the initial review. The process of finding the articles to be included in the review is presented in Figure 1, showing the PRISMA-SCR flowchart. Of the final articles included, one of the articles is a study performed in NZ, while the others were performed in Australia. All five studies included in the scoping review were qualitative studies conducted by interviewing participants and had the common aim of understanding perspectives. Four of the articles explored medical cannabis related perspectives,

while one explored the use of opioids in the population of pharmacists. Although this study is not directly related to medical cannabis perspectives for pharmacists, the themes present in the study are associated with the aim of this scoping review and will contribute valuable insights to the discussion.

Figure 2: *Flow diagram of the study selection process from grey literature*



The databases, Australia/New Zealand Reference Centre, Informit New Zealand Collection, INNZ: Index New Zealand, ProQuest Dissertations & Theses Global, and AUT Tuwhera Research Repository were searched alongside the website nzresearch.org.nz. The website nzresearch.org.nz enabled searching of thesis, dissertation and academic articles produced at education institutes throughout NZ. The databases did not reveal relevant information specific to this scoping review. The search for grey literature was performed after consultation with supervisors to find more texts relevant to the aim to be included in the full review. However,

the search results were unable to yield results related to the topic of this review (n=0). Given the limited timeframe to complete the scoping review as part of a qualification for the primary author (PK). The supervision team agreed that data saturation was reached at this stage of the literature search.

Discussion

To our knowledge, this is the first scoping review to explore legal cannabis users and health professional perspectives to treat chronic pain with medical cannabis in NZ and Australia since the rollout of medical cannabis in both countries. Studies previously performed were before medical cannabis legalisation and utilised surveys [20, 32-36]. This makes our review focusing on regulated and prescribed medical cannabis products using interviews unique as it examines perspectives to develop themes that highlight the research gaps and challenges to accessing medical cannabis relevant to NZ. The developed themes discussed in this scoping review may highlight why medical cannabis users prefer medical cannabis over other first-line treatments and aid in bettering medical cannabis treatment for chronic pain in NZ.

This scoping review highlights the current barriers that patients using medical cannabis through the health system experience. These outlined barriers may assist in proposing recommendations that may guide policy shifts in NZ and suggest future study directions. These suggestions will be formed from the themes that arise from this scoping review results, such as spill-over effects of medical cannabis, the impact of medical cannabis on the youth, the existing barriers to access medical cannabis treatment, e.g., the associated treatment costs, the limited knowledge of health professionals to recommend medical cannabis treatment and the stigma associated with medical cannabis use.

The suggestions and recommendations in this review will focus on highlighting and addressing the barriers identified through perspectives to improve the future of accessing medical cannabis in NZ. Suggestions may include noting the improvements to educate health professionals in other countries and the effects of education in medical practice, e.g., achieving higher prescription rates to access medical cannabis for users through the health system that may improve access to medical cannabis. Increasing education among health professionals and increasing access to medical cannabis using the health system may also reduce the stigma surrounding medical cannabis use. Other suggestions may include conducting a study examining the perspectives of health professionals and legal CBD users in NZ to understand the reasons for using medical cannabis. A future study in this direction may highlight the challenges experienced by health professionals and medical cannabis users of NZ. Therefore, studying the perspectives of health professionals and medical cannabis users to suggest recommendations may aid in informing knowledge for NZ policymakers that may provide better access to medical cannabis and guide future policymaking on medical cannabis in NZ.

The future directions of this study will include suggesting the current research that the primary author (PK) is undertaking, which includes interviewing medical cannabis users and health professionals to examine CBD user perspectives in NZ and highlight their experiences of using medical cannabis through the NZ health system. This research will follow the suggestions of this scoping review and interview participants that may provide valuable information to guide policy reformation of medical cannabis in NZ.

Limitations

The inclusion criteria for this scoping review are limited to studies that use qualitative methods. Therefore, the results may not represent the broader population of perspectives studied using other methods, e.g., surveys. However, this scoping review will recommend future study in NZ

that uses interviews to add knowledge that examines the reasons for using medical cannabis in NZ. We also recognise that limiting the scoping review to include studies from only NZ and Australia may not represent the body of knowledge that exists on medical cannabis user and health professional perspectives globally. However, it is essential to note that this scoping review aims to provide suggestions for policy recommendations in NZ. Therefore, it contributes to the currently limited evidence for the country for which recommendations are being suggested.

Conclusions

The conclusions of this scoping review will summarise the importance of medical cannabis and the reasons for its use among medical cannabis users and health professionals using perspectives. A summary of the evidence discussed will be an important component to reinforce the success of addressing the overall aim. The challenges highlighted through the discussions of this scoping review include access to medical cannabis due to associated treatment costs, the limited knowledge of health professionals to recommend medical cannabis treatment for chronic pain and the stigma associated with its use.

These elements indicate that using perspectives to understand the reasons for medical cannabis use may enforce policy changes that address the current challenges in NZ for chronic pain treatment with medical cannabis. Through this scoping review, the importance of implementing interventions that educate health professionals to increase access to medical cannabis using the health system may address a significant barrier, e.g., the limited knowledge of health professionals to prescribe medical cannabis. Additionally, this scoping review may suggest introducing a wider selection of medical cannabis products into the NZ market. Introducing new products may reduce the associated costs of treatment through competition and will increase product variety for consumers that are currently limited.

Highlighting the concerns raised by health professionals and medical cannabis users may reinforce the importance of medical cannabis research using perspectives. The same is demonstrated through the overall aim of this scoping review which highlights the importance of understanding perspectives to contribute to effecting positive change for the future policy reformation of medical cannabis in the context of NZ. Future research directions undertaken by the primary author (PK) will be summarised. The summary will acknowledge the contribution of the research currently being undertaken as a valuable contribution to advancing medical cannabis research using perspectives in NZ that may contribute to future policy reformation for medical cannabis in NZ.

Acknowledgements

This protocol and the subsequent review will contribute toward the primary author's (PK) Master of Public Health degree. The wider project that is being undertaken by the primary author (PK) is being supported by a research budget from the Auckland University of Technology and the dedication and guided direction of the primary (CM) and secondary (DW) supervisors.

Conflicts of interest

The author and associated persons of this scoping review have no conflicts of interest to declare.

Abbreviations

CASP: Critical Appraisal Skills Programme

CBD: Cannabidiol

CM: Charles Mpofu

CNS: Central nervous system

DW: Dianne Wepa

NZ: New Zealand

PK: Priyanka Kumar

PRISMA-ScR: Preferred Reporting Items for Systematic Reviews and Meta-Analyses

Extension for Scoping Reviews

THC: Delta-9-tetrahydrocannabidiol

Multimedia Appendix 1:

Search string used to perform the search for published literature in electronic databases.

Reference:

1. Arksey, H. and L. O'Malley, *Scoping studies: towards a methodological framework.* International journal of social research methodology, 2005. **8**(1): p. 19-32.
2. Page, M.J. and D. Moher, *Evaluations of the uptake and impact of the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Statement and extensions: a scoping review*. Systematic reviews, 2017. **6**(1): p. 1-14.
3. Braun, V. and V. Clarke, *Using thematic analysis in psychology.* Qualitative research in psychology, 2006. **3**(2): p. 77-101.
4. Piper, B.J., et al., *Chronic pain patients' perspectives of medical cannabis.* Pain, 2017. **158**(7): p. 1373.
5. Ryan, J. and N. Sharts-Hopko, *The experiences of medical marijuana patients: A scoping review of the qualitative literature.* Journal of Neuroscience Nursing, 2017. **49**(3): p. 185-190.
6. Häuser, W., F. Petzke, and M. Fitzcharles, *Efficacy, tolerability and safety of cannabis-based medicines for chronic pain management–An overview of systematic reviews.* European Journal of Pain, 2018. **22**(3): p. 455-470.
7. Mücke, M., et al., *Cannabis-based medicines for chronic neuropathic pain in adults.* Cochrane Database of Systematic Reviews, 2018(3).
8. Goldberg, D.S. and S.J. McGee, *Pain as a global public health priority.* BMC public health, 2011. **11**(1): p. 1-5.
9. Ljungvall, H., et al., *"My life is under control with these medications": an interpretative phenomenological analysis of managing chronic pain with opioids.* BMC musculoskeletal disorders, 2020. **21**(1): p. 1-14.
10. Celentano, D., *The worldwide opioid pandemic: epidemiologic perspectives.* Epidemiologic Reviews, 2020. **42**(1): p. 1-3.
11. Maher, D.P., et al., *Cannabis for the treatment of chronic pain in the era of an opioid epidemic: a symposium-based review of sociomedical science.* Pain Medicine, 2019. **20**(11): p. 2311-2323.
12. Hill, K.P., *Medical marijuana for treatment of chronic pain and other medical and psychiatric problems: a clinical review*. Jama, 2015. **313**(24): p. 2474-2483.

13. Lu, H.-C. and K. Mackie, *Review of the endocannabinoid system*. Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 2021. **6**(6): p. 607-615.
14. Ministry of Health. *Access to cannabis for therapeutic use*. 2017; Available from: https://www.health.govt.nz/system/files/documents/pages/access_to_cannabis_for_therapeutic_use.pdf.
15. Chow, E., et al., *Efficacy of different varieties of medical cannabis in relieving symptoms.* Journal of Pain Management, 2017. **10**(4): p. 375-383.
16. Lichtman, A.H., et al., *Results of a double-blind, randomized, placebo-controlled study of nabiximols oromucosal spray as an adjunctive therapy in advanced cancer patients with chronic uncontrolled pain.* Journal of pain and symptom management, 2018. **55**(2): p. 179-188. e1.
17. Abrams, D.I., et al., *Cannabis in painful HIV-associated sensory neuropathy: a randomized placebo-controlled trial.* Neurology, 2007. **68**(7): p. 515-521.
18. Ellis, R.J., et al., *Smoked medicinal cannabis for neuropathic pain in HIV: a randomized, crossover clinical trial.* Neuropsychopharmacology, 2009. **34**(3): p. 672-680.
19. Fitzcharles, M.-A., et al., *Efficacy, tolerability and safety of cannabinoids in chronic pain associated with rheumatic diseases (fibromyalgia syndrome, back pain, osteoarthritis, rheumatoid arthritis).* Der Schmerz, 2016. **30**(1): p. 47-61.
20. Appleton, K., et al., *Attitudes towards and use of cannabis in New Zealand patients with inflammatory bowel disease: an exploratory study.* The New Zealand medical journal, 2021. **134**(1530).
21. Rychert, M., et al., *Predictors of medical cannabis users' willingness to utilise a new prescription Medical Sannabis Scheme in New Zealand.* The New Zealand medical journal, 2021. **134**(1534).
22. Van den Berg, M., et al., *Cannabis-based medicinal products in arthritis, a painful conundrum*. The New Zealand medical journal, 2020. **133**(1515).
23. Anderson, S., et al., *Asking the right questions: scoping studies in the commissioning of research on the organisation and delivery of health services.* Health research policy and systems, 2008. **6**(1): p. 1-12.
24. Munn, Z., et al., *Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach.* BMC medical research methodology, 2018. **18**(1): p. 1-7.
25. Richardson, W.S., et al., *The well-built clinical question: a key to evidence-based decisions.* Acp j club, 1995. **123**(3): p. A12-A13.
26. Auckland University of Technology. *Systematic Review*. Formulate a research question 2021 [cited 2021 7 november 2021]; Available from: https://aut.ac.nz.libguides.com/systematic_reviews.
27. Verdejo, C., et al., *What you need to know about scoping reviews.* Medwave, 2021. **21**: p. e8144-e8144.
28. Babineau, J., *Product review: covidence (systematic review software).* Journal of the Canadian Health Libraries Association/Journal de l'Association des bibliothèques de la santé du Canada, 2014. **35**(2): p. 68-71.
29. Critical Appraisal Skills Programme. *CASP Qualitative Studies Checklist*. 2019 [cited 2021 December 2021].
30. Hannes, K. and S. Bennett, *Understanding evidence from qualitative research.* 2017.
31. Hannes, K. and K. Macaitis, *A move to more systematic and transparent approaches in qualitative evidence synthesis: update on a review of published papers.* Qualitative Research, 2012. **12**(4): p. 402-442.

32. Gates, P.J. and L. Albertella, *The Cannabis Information Helpline: Assessing Interest in the Medicinal Use of Cannabis in Australia.* Substance Use and Misuse, 2017. **52**(12): p. 1634-1638.
33. Jacobs, N.I., et al., *Survey of Australian psychiatrists' and psychiatry trainees' knowledge about and attitudes towards medicinal cannabinoids.* AUSTRALASIAN PSYCHIATRY, 2019. **27**(1): p. 80-85.
34. Karanges, E.A., et al., *Knowledge and attitudes of Australian general practitioners towards medicinal cannabis: A cross-sectional survey.* BMJ Open, 2018. **8**(7).
35. Oldfield, K., et al., *Medical cannabis: knowledge and expectations in a cohort of North Island New Zealand general practitioners.* The New Zealand medical journal, 2020. **133**(1508).
36. Oldfield, K., et al., *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.* The New Zealand medical journal, 2020. **133**(1522).

Analysing the perspectives of health professionals and legal cannabis users of chronic pain with cannabidiol (CBD): A scoping review

Introduction

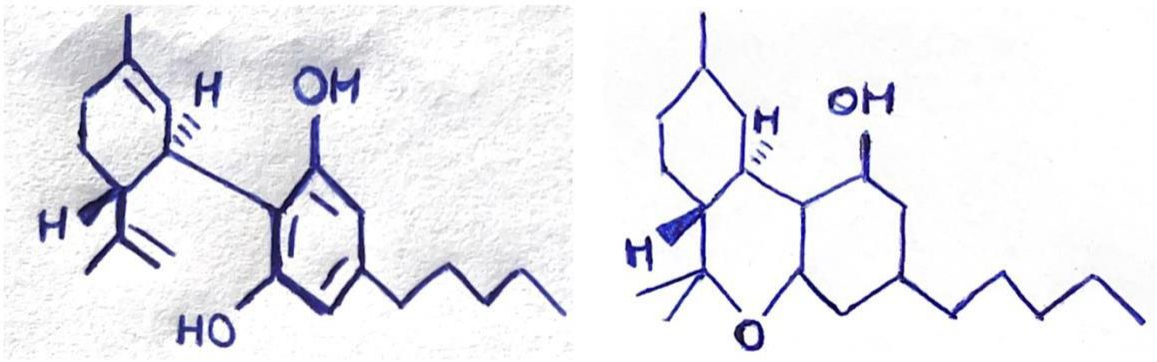
Chronic pain can be a disease-burdening condition and affects more than 30% of people worldwide (Cohen et al., 2021). Patients with chronic pain associate themselves with a lower quality of life and report ongoing medical expenses (Yong et al., 2022). The World Health Organization (2021) states that opioids are the most commonly recommended and preferred method of treatment, trusted by physicians to manage chronic pain (Ljungvall et al., 2020). However, the prescriptions that continue to be sought for chronic pain contribute to the rising opioid pandemic (Celentano, 2020). Opioids can cause breathing difficulties, and overdose can lead to death.

Furthermore, non-medical use, prolonged use, misuse and use without medical supervision can lead to opioid dependence (World Health Organization, 2021). The number of people suffering from opioid dependence continues to increase globally, while less than 10% of people worldwide in need of treatment receive it (Degenhardt et al., 2017). These reasons form the primary interest in researching opioid alternative treatments (Maher et al., 2019).

Medical cannabis, or the *Cannabis Sativa L.*, *(C. sativa),* is a plant of the Cannabinaceae family. The properties of the plant have become attractive to researchers as an alternative medical treatment for various chronic conditions, including chronic pain (Hill, 2015). Medical cannabis contains two main elements in its makeup, delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD). THC is a psychoactive compound where people who use cannabis experience a ‘high’ on consumption. This occurs as the substance alters the functioning of the central nervous system (CNS). CBD, however, is being researched for its medical benefits

when it is consumed in small doses. The exact mechanism of how CBD works in the body is unclear. However, it is known to activate the body's internal endocannabinoids via the endocannabinoid system (Lu & Mackie, 2021). It is suggested that the neurotransmitters emitted from the CBD products bind to the cannabinoid receptors in the body's CNS and activate a signal. The activated signal causes signal blocking, relieving discomfort caused by medical conditions (Lu & Mackie, 2021).

Figure 3: *The chemical structure of CBD (left) and THC (right)*



Note: This figure illustrates the chemical structure of CBD, shown on the left and THC on the right. Both structures are part of the *C.sativa* plant. CBD is the structure being researched for its medical properties. In comparison, THC is the structure that is associated with the intoxicating effects a person experiences upon ingestion.

Medical cannabis is legalised in over 30 countries, so people living with chronic conditions can consider using it as an alternative treatment method (Prosk et al., 2021). As more people choose medical cannabis, physicians are challenged with questions about its use to manage chronic pain (Hill, 2014). However, although medical cannabis is legal in many countries worldwide, including New Zealand (NZ), physicians face a lack of clinical guidance and inconsistent knowledge to recommend using medical cannabis for chronic pain and other

chronic conditions (Ng et al., 2021). Therefore, although medical cannabis has changed the landscape of alternative medicine, the research supporting medical cannabis use for chronic pain remains inconclusive and warrants further investigation (Mücke et al., 2018).

History

Medical cannabis has existed for decades (Pisanti & Bifulco, 2019) and was more commonly known in the early years as marijuana. Although the history of the origin and the primary uses of the drug are unclear, it is believed that the history of marijuana use dates back to 800 years (Pisanti & Bifulco, 2019). Derived from the *C. sativa* herbaceous plant that originates from Central Asia (India and China), *C. sativa* has been widely used for food, fibre, oil and medicine (Blaszczak, 2014). The first reference in the history of marijuana use is linked to the Chinese emperor Shen Nung. It is suggested that the plant was commonly used as anaesthesia during childbirth and surgery.

Cannabis was also used in Chinese pharmacopeia to treat fatigue, rheumatism, malaria, and pain. Chinese physicians also extracted oil from the plant for other external medical therapies in the form of medicated oils or balms for relief from eczema and psoriasis (Blaszczak, 2014). Although marijuana was mostly used for its medicinal properties, people were familiar with its psychoactive properties during that period. From the little information that is available about the history of marijuana use and its evolution through the years (Pisanti & Bifulco, 2019). It is believed that the mind-altering properties were used for relaxation and healing purposes among some ancient communities (Burnett & Reiman, 2014).

The oldest evidence that somewhat suggests the use of marijuana for relaxing pursuits is shown by the remains of burned cannabis seeds that have been found in the graves of shamans. The

religious leaders and healers from China and Siberia. The burning smell of cannabis can be related to aromatherapy, where the release of aromas is associated with experiencing a sense of calm (Burnett & Reiman, 2014). After many years, the Muslims introduced hashish, a product derived from the marijuana plant, into Iran (Persia) and North Africa to be smoked for relaxation and social entertainment (Blaszczak, 2014).

After that, marijuana migrated through the regions of Africa and the United States of America (USA) at the beginning of the 20th century. After the Mexican revolution, the USA received an influx of immigrants from Mexico. As a result, the Mexican people brought their culture and customs, such as the use of marijuana, into the USA. Adopting the Mexican culture led to the wide use of marijuana for medical and personal purposes. According to Bostwick (2012), eating marijuana seeds for their nutritional benefits and smoking the plant to relieve symptoms of pain and nausea were encouraged. As a result of widespread use, the media and the public victimised the Mexican people and spread false claims regarding marijuana. The demonisation of the Mexican people and the widespread use of marijuana led to the introduction of the Marijuana Tax Act and the regulation of marijuana by the Drug Enforcement Agency (DEA). As a result, the DEA controlled the use and possession of the plant or its parts in natural or synthetic form. The use of marijuana became criminalised in the USA until December 2020. After that, due to lobbying from pressure groups, marijuana became an acceptable legal and medical substance in 47 States (Alharbi, 2020).

The Background of Medical Cannabis in the New Zealand Context

In 2018, NZ amended the Misuse of Drug Act 1975 (Drug Act) to make the use of cannabis legal as a medicine. The amendment to the Drug Act meant that medical cannabis could be controlled under the Medicines Act 1981. This act limits the amounts and types of products

that enter the country and determines which products are sold to consumers. The current regulation in NZ allows cannabis to be used as a medicine. This regulation also attempts to align with other government initiatives to prohibit misuse and abuse of the drug (Alharbi, 2020).

In April 2020, the Medicinal Cannabis Scheme (MCS) was implemented in NZ. The MCS aims to allow access to quality medical cannabis products to qualifying users. Qualifying users are limited to only those diagnosed with Multiple Sclerosis (MS) (Ministry of Health, 2017a). MS is an autoimmune disorder that disturbs the CNS. People diagnosed with MS commonly experience abnormal tightness of muscles, usually due to prolonged muscle contraction, a condition referred to as muscle spasticity (Currie, 2001). In NZ, the decisions of health officials and policymakers are influenced by health research that highlights the success of the treatment or medication during clinical trials (Choi et al., 2005). Evidence suggests that medical cannabis use in patients with MS calms muscle spasticity. Therefore, policymakers have included MS patients under the umbrella of qualifying users of medical cannabis in NZ. This is because sufficient evidence is available to make informed decisions about its use in MS patients (Abrams, 2018; Riva et al., 2019).

However, the latter is observed for chronic pain, the more commonly proposed reason for using medical cannabis (Häuser et al., 2018; Mücke et al., 2018). While some studies (Chow et al., 2017; Lichtman et al., 2018) show improvements when using medical cannabis for chronic pain, others have emphasised their apprehensions with study designs and research affiliations with pharmaceutical companies that suggest more positive applications of medical cannabis (Abrams et al., 2007; Ellis et al., 2009; Fitzcharles et al., 2016; Maher et al., 2019). Maher et al. (2019) explains that studies investigating the relationship between medical cannabis and

chronic pain have a high prevalence of reporting bias, overreporting of results, small sample sizes, short duration outcomes and short follow-up periods. The concerns of Maher et al. (2019) are further justified by similar concerns voiced by Fitzcharles et al. (2016), strongly arguing the need to further research on medical cannabis and its use for chronic pain.

More research is also required on the unknown risks and harms that result from prolonged use of medical cannabis for chronic pain. Studies have mainly overlooked potential side effects that might arise while using medical cannabis, such as dependency and overdosing risks (Abrams et al., 2007; Ellis et al., 2009). These potential side effects are often omitted during study trials and inferred as outcomes that could not be considered. Often because of limitations such as small sample sizes, sample characteristics and the limited data obtained for the study subjects (Abrams et al., 2007; Ellis et al., 2009). Moreover, most clinical trials that have studied the effects of medical cannabis on chronic pain have failed to use a baseline of 30% to report pain reduction in their participant groups at the endpoint (Dworkin et al., 2008). The 30% threshold is the approved clinical guideline considered a significant sign of pain reduction in most patients with chronic pain (Dworkin et al., 2008; Farrar et al., 2001).

Therefore, while there is a statistically significant measurement of chronic pain reduction from medical cannabis treatment during study trials (Boehnke et al., 2016), it is often during the duration of the study period, and the results usually do not portray a meaningful, clinically significant decrease in pain intensity. Thus, it represents moderate quality evidence to endorse the use of medical cannabis to treat chronic pain (Andreae et al., 2015; Lynch & Campbell, 2011). Furthermore, 9% of adults who use medical cannabis have developed dependence. In comparison, 17% of people risk developing an addiction if use starts in their adolescent years, although the risk remains less than the risk of developing dependence on opioids and alcohol

the risks of medical cannabis use cannot be dismissed (Hall & Degenhardt, 2009; Volkow et al., 2014). Other health-related risks include the early onset of poor cognitive function, increased anxiety, worsening of depression, and schizophrenia (Black et al., 2019; Crippa et al., 2009; Degenhardt et al., 2003; Di Forti et al., 2015; Meier et al., 2012).

The Cochrane Collaboration published an exhaustive systematic review and meta-analysis suggesting the use of medical cannabis to treat chronic pain (Mücke et al., 2018). The review evaluated the effectiveness, tolerability, and safety of therapy with medical cannabis and other cannabis-based remedies. Products of all cannabis variations, e.g., herbal, plant-based and synthetic cannabis, were included in the review. These studies compared the treatment of medical cannabis to placebo or other first-line treatment drugs for chronic pain in adults. The study assessed the differing results from other systematic reviews on the efficiency of treating chronic pain with medical cannabis (Boychuk et al., 2015; Finnerup et al., 2015; Petzke et al., 2016; Whiting et al., 2015). Mücke et al. (2018) concluded that there was no high-quality evidence to show that any cannabis-based medicine, for example, herbal cannabis, THC/CBD oromucosal spray, synthetic or plant-based THC was relatively successful in treating chronic pain. Inferior quality evidence was also reported to utilise medical cannabis for sleep-associated problems, psychological distress, and health-related quality of life. Mücke et al. (2018) further emphasised that there was sufficient moderate quality evidence to show that more people withdrew from studies because of experiencing adverse effects and questioned the efficacy of treatment when using cannabis-based medications compared to placebo.

Overall, the findings suggest that the appropriateness and efficiency of evidence for medical cannabis to treat chronic pain are low. Mücke et al. (2018) arrived at these conclusions by considering the limited amount of strong evidence, poor quality of studies with restrictive study

sample sizes and exclusion of people with current or historical substance abuse and serious medical diseases (Mücke et al., 2018). A high risk of study and reporting bias and selective sampling of participants that assured the study results were in favour of their objectives were also presented in studies included in the review, thus further corroborating the concerns outlined by others such as Fitzcharles et al. (2016) and Maher et al. (2019).

Considering the research gaps present, it is essential to understand that although research inquiry is ongoing, most studies that assessed medical cannabis treatment have used non-standardised medical cannabis products. Therefore, although medical cannabis research is advancing, and the studies being performed contribute new knowledge to the existing literature, no concrete conclusions have been reached that strongly justify the efficacy of medical cannabis in treating chronic pain. The heterogeneity of the results in medical cannabis research can be explained by studies using higher concentrations of CBD, THC, or CBD:THC ratio products and heterogeneous study populations. Therefore, the absence of clear evidence and conclusions to suggest the efficiency of using medical cannabis for chronic pain remains a controversial topic.

Alongside the inconsistency of evidence, medical cannabis is a costly alternative and challenging to access for people with chronic pain (Oldfield, Eathorne, et al., 2020). Health professionals have also raised their concerns around the use of black market substances where consumers are unaware of the chemical makeup of their medical cannabis product, increasing their chances of consuming contaminants (Boden, 2019) or products that are higher in THC (Ng et al., 2021; Oldfield, Eathorne, et al., 2020). In NZ, alongside the MCS, the MOH has set out a criterion where for products to be labelled as CBD products, the concentrations of both chemical components must be 49mg of CBD, while the total amount of THC and other

substances must be less or equivalent to 0.7mg (Ministry of Health, 2017a). The MOH also requires a Certificate of Analysis, outlining detailed information about the laboratory testing, batch numbers, and the concentrations of the chemicals in the product (Glass & Ashton, 2019; Ministry of Health, 2017a).

It is vital to have a standardised criterion controlling all medical cannabis products available in NZ. An international survey has argued that many people used medical cannabis before its legalisation and highlights that users reported feeling safer and more confident receiving uncontaminated, high-quality products since the legalisation (Troutt & DiDonato, 2015). In NZ, the 2012-2013 Health Survey reported that 11% of adults used cannabis in the last 12 months. A further 42% of the surveyed group reported using cannabis for medical purposes (Ministry of Health, 2015). Another NZ study investigated the medical use of cannabis in NZ at the time of policy change occurring in NZ to legalise medical cannabis use (Rychert et al., 2020) and noted that many of the population, 68.5% reported using cannabis for medical reasons daily. The most common cause was managing chronic pain and aiding sleep problems. A further 17.5% reported using medical cannabis once or twice a week, and 9.6% reported using it a couple of times a month (Rychert et al., 2020). The prevalence of using cannabis in NZ is high. However, considering the study led by Rychert et al. (2020) and the 2012-2013 NZ health survey conducted before the legalisation of medical cannabis, its consumers may have been sourcing their supply through other illegal means with a non-standardised product. Therefore, controlling medical cannabis products through the MOH guidelines and the MCS assures health professionals that their concerns about black market substances are being mitigated. However, the lack of professional knowledge to suggest medical cannabis for chronic pain among medical professionals remains a challenge (Ng et al., 2021; Oldfield, Eathorne, et al., 2020).

Rationale

Studies exploring the views of health professionals and legal cannabis users using a government-standardised CBD product is limited. The literature on the topic is in its early stages because of inconsistent findings and varying perspectives about the perceived benefits and risks. Previously studies that have explored the views of health professionals and medical cannabis users have utilised surveys without participant interviews (Appleton et al., 2021; Rychert et al., 2021; Van den Berg et al., 2020). Furthermore, medical cannabis was not legal in NZ when these studies were performed. Therefore, these studies have not researched a form of standardised CBD treatment legal for use in NZ. This is a limitation as the participants in the study were consuming substances from the black market.

For this reason, the study results cannot be directly linked to treating chronic pain with CBD considering the unknown concentrations of components that are presented when using black market substances. Perspectives of individuals with chronic pain who use medical cannabis and the views of health professionals who prescribe medical cannabis are essential and should contribute to the clinical, social, economic, and political discussion of medical cannabis in NZ. This study aims to understand the perspectives surrounding medical cannabis use to treat chronic conditions among health professionals and legal cannabis users.

Overall aim: The purpose of this scoping review is to provide an overview of the perspectives on CBD as an alternative treatment for chronic pain in medical professionals and cannabis users.

1) To analyse the perspectives of medical professionals and cannabis users on the treatment of chronic pain with CBD.

2) To provide knowledge and add to the current knowledge that can inform policy regarding prescribing CBD treatment for chronic pain in NZ.

Methods

Scoping reviews have become a popular tool for synthesising evidence. Similar to a systematic review, a scoping review follows a structured process. A scoping review is helpful when providing an overview of what is already known about a particular topic or in circumstances where the literature volume is broad and detailed. The most common reason to perform a scoping review is to identify and map the currently available evidence (Anderson et al., 2008; Arksey & O'Malley, 2005). A valuable aspect of performing a scoping review is when studies aim to identify themes and concepts, which are then reported and further discussed on a particular topic. For this study, a scoping review is a better suited approach as it seeks to understand the perspectives of health professionals and legal cannabis users (Munn et al., 2018).

Developing the research question

The search protocol was developed using the PICO(T) tool, which comprises the components of People, Intervention, Comparison/Control, Outcome and Time. Scoping reviews have broad questions as a scoping review aims to map the literature available on a topic (Arksey & O'Malley, 2005). Therefore, two elements of the PICO(T) tool were applied to formulate a broad question to perform a scoping review. The two elements of the tool that were used in preparing the question for this scoping review are population/problem (P) and intervention (I) (Auckland University of Technology, 2021).

Research question

What are the perspectives of health professionals and legal cannabis users (population) to use medical cannabis (intervention) to treat chronic pain (problem)?

Searching the literature

In the initial stages of searching, there was no restriction to searching by geography; however, due to the number of results present for each search, the supervisors were consulted to narrow the search to studies limited to NZ and Australia. This decision was taken given the nature of the study to explore the perspectives of health professionals and legal cannabis users where studies were limited. This scoping review also aims to establish knowledge through a wider qualification for policy changes in NZ; therefore, it is vital to explore the perspectives of health professionals and legal cannabis users to ensure informed policy change decisions. Therefore, considering the points raised, the literature search for this scoping review was restricted to NZ and Australia. In addition, reviewing the availability of literature without a geographical restriction is beyond the researcher's capability in the time allocated for completing the intended qualification of achievement. It is, therefore, beyond the scope of this review.

The databases that were searched included:

- CINAHL Complete and MEDLINE via EBSCO.
- Australia/New Zealand Reference Centre (EBSCO).
- PsycINFO.
- Ovid Emcare.
- Wiley Online Library.
- Scopus.
- Informit New Zealand Collection
- Google Scholar.
- Grey literature.

The keywords and phrases used to search were kept the same for consistency. The keywords were often combined with truncation and Boolean search techniques, which are presented in Table 4.

Table 4: *Search terms used for the electronic databases and grey literature searches.*

CBD	Pain	Perspectives	Population	Geography
CBD Cannabidiol Medical cannabis Medicinal cannabis Medical marijuana	Pain Chronic pain Neuropathic pain Chronic condition Non cancer chronic pain	Perspective Opinion Attitude View Experience Lived experience Knowledge User experience Professional experience	Professional Health professional Medical professional User Patient Doctor Nurse Pharmacist	New Zealand NZ Aotearoa Australia Aus Auz

Inclusion and exclusion criteria:

The inclusion and exclusion criteria developed to search databases systematically are summarised in the table below (Table 5).

Table 5: *The eligibility criteria for the studies that will be included in the scoping review.*

Inclusion	**Exclusion**
Studies published in the years 2000 - present	Publications before 2000
Studies published in English	Studies published in another language
Qualitative studies, mixed methods studies that used interviews.	Quantitative and mixed methods studies that did not use interviews.
NZ/Australia studies	International studies
Studies investigating lived experiences, perspectives, opinions.	Study investigates efficacy of cannabis treatment.

Screening/selecting the studies

After the search was completed in each database, the search results were exported as an RIS file into the reference manager EndNote X9. After all search exports from each database were completed a final XML file was exported from EndNote X9 and imported into Covidence.

Covidence, is a web-based software that is useful when performing a type of comprehensive literature review (Babineau, 2014). The purpose of the software is to aid in screening of studies, data extraction and quality assessment required to perform a full review (Babineau, 2014). Covidence was used for this review in all stages to screen the title and abstracts for the first screen, full text screen where studies were either included or excluded, data extraction and quality assessment of the studies included in this scoping review.

The primary researcher (PK) completed the initial screening and selected the articles to be screened in the abstract screening stage. The second reviewer, one of the supervisors in this research project (DW), also individually screened the titles for abstract screening in Covidence. At the quality assessment stage, the template provided by the software Covidence was customised to suit the data present in qualitative studies, adapting it to the Critical Appraisal Skills Programme (CASP) checklist for qualitative studies.

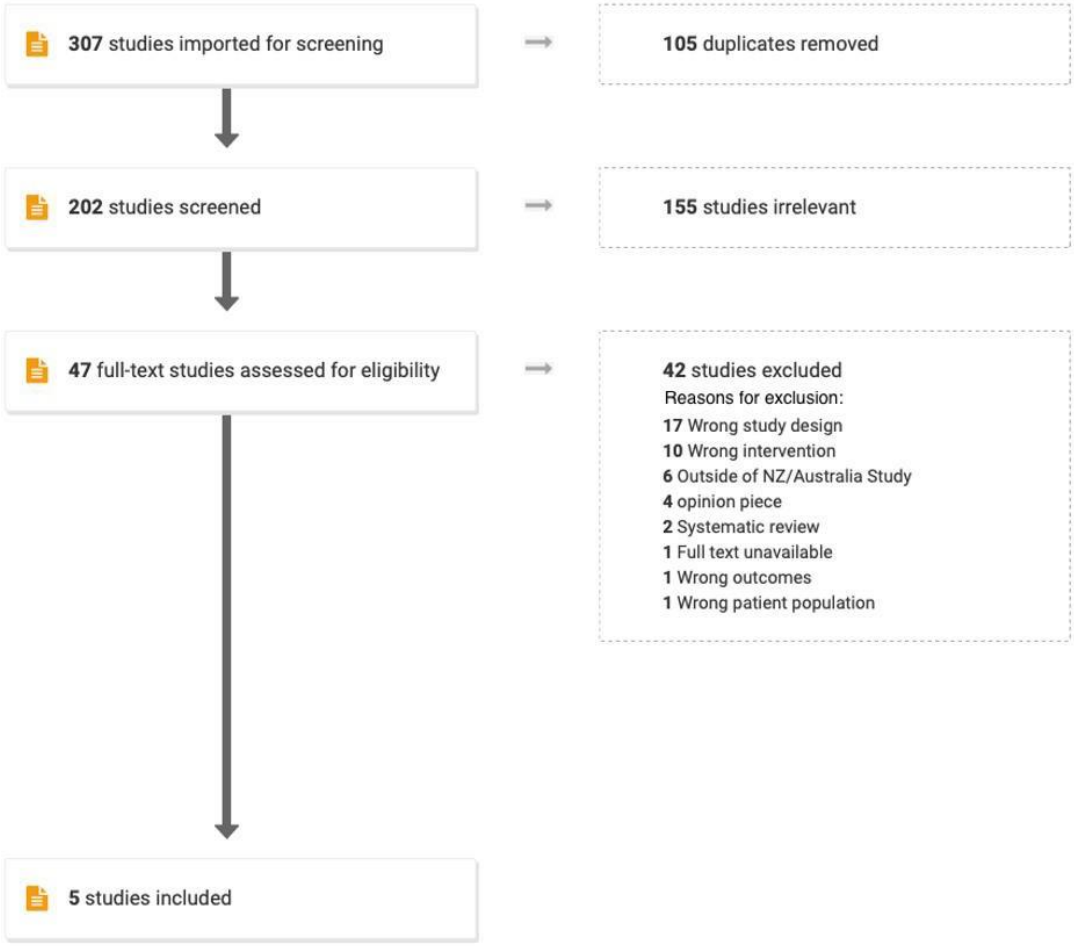
The CASP tool is a simple tool that can be used to appraise the strengths and limitations of qualitative research methodology. CASP is commonly chosen among novice researchers as the tool is user friendly and easy to understand. CASP was created to be used for appraising health related research and is endorsed by the Cochrane and the World Health Organisation for use in qualitative evidence synthesis (Hannes & Bennett, 2017; Hannes & Macaitis, 2012). It is for these reasons that CASP was selected as the most appropriate tool to be used in this scoping review.

The full-text screening was completed by both the primary researcher (PK), who was the first reviewer and the second reviewer (DW) using Covidence in stages as guided by the software (Babineau, 2014). Data extraction and CASP were initially completed by the primary researcher and the first reviewer (PK) and cross-examined by the second reviewer (DW). The

third reviewer, also the primary supervisor of this project (CM), was assigned to resolve conflicts following discussions at each stage. However, no conflicts were present throughout the stages of progress to the completion of this scoping review. Therefore, the involvement of the third reviewer was not required in the scoping review process.

At the completed full-text screening stage, five studies met the eligibility criteria to be included in the review (Figure 4). Considering the low number of studies to be included the researcher consulted with supervisors for advice to proceed. A consensus was reached to expand to include more grey literature. The AUT Tuwhera Research Repository, the Kiwi Research Information Service, was searched for theses, dissertations and academic articles produced at education institutes throughout NZ. The NZresearch.org.nz was also searched after consultation with supervisors to find grey literature on the topic. However, the search results were unable to yield results related to the subject of this review to increase the number of articles included in the initial review. The decision was made to continue with the review as this scoping review is being performed as part of a Master of Public Health qualification that contains an additional component of interviews to understand the perspectives of health professionals and legal cannabis users for chronic pain

Figure 4: *The PRISMA-ScR flow diagram of the study selection process included in the scoping review.*



Results

The scoping review includes five articles, and the process of finding the articles to be included in the review is presented in Figure 4. Of the final articles included in the scoping review, one of the articles is a study performed in NZ, while the others were performed in Australia. All five studies included in the scoping review are qualitative studies performed by conducting interviews with the recruited participants and have had the common objective of understanding perspectives. Four articles explore medical cannabis-related perspectives, while one examines the use of opioids in the population of pharmacists. Although this study is not directly related to medical cannabis perspectives, the themes present in the study are associated with the aim of this scoping review and, therefore, will contribute valuable points to the discussion.

Table 6: *Data extraction table for all data extracted from the studies included in the scoping review.*

Study	Methods	Main findings
Using cannabis for pain management after spinal cord injury: a qualitative study (Bourke et al., 2019).	Qualitative, descriptive analysis, semi-structured interviews. Conducted in New Zealand. N=8 18 years or older people with spinal cord injury (SCI), living in NZ and able to communicate in English and self-identified using cannabis for pain related to their SCI.	Aim: The aim of this study was to understand why individuals with SCI choose to use cannabis to manage their pain and their experiences of doing so. Themes: The prison of pain The prescribed drugs do not work Choosing to use cannabis Negotiating an unfamiliar illegal context Free to pursue meaningful outcomes You cannot always get what you want Using cannabis was a useful intervention. Patients considered using cannabis as the last option when other first line treatments were ineffective or after experiencing side effects. Increase in cognitive functions when reducing prescription medication, reported feeling overall improvements in their physical health. Cannabis does not eliminate pain intensity, however, is able to help tolerate pain. Favourable outcomes for sleep and social activities were reported. Accessing cannabis is complex e.g., unregulated products and criminal conviction consequences are unknown.

		Educated themselves on the subject, e.g., the effects of cannabis, doses and products due to the lack of professional advice.
Implementation of medicinal cannabis in Australia: innovation or upheaval? Perspectives from physicians as key informants, a qualitative analysis (Hallinan et al., 2021).	Qualitative, in-depth interviews guided with open-ended questions. Conducted in Australia. N=21 Key informants based in the Eastern states and territories of Australia, in the roles of physicians, researchers, policy, prescribing, advocacy, government departments. Participants affiliated with cannabis production, working/operating specialist cannabis clinics or dispensaries were excluded from participating.	Aim: Explore physician perspectives on the prescribing of cannabinoids to patients to gain a deeper understanding of the issues faced by prescriber and public health advisors in the rollout of medical cannabis. Themes: Medical Cannabis as an innovation. Diffusion and Dissemination of Medical Cannabis. Health System Readiness. Implementation of Medicinal Cannabis Rollout. Concerns regarding complexity. Using medical cannabis is innovative and reported improvements in conditions that did not respond to traditional medication. Medical cannabis has advantages and outnumbers the side effects. Articulation of benefits of using medical as vague. Prescribing medical cannabis was complex, and there is doubt around its efficacy. Expression of concern around the political rollout. Concerns about potential harms e.g., cognitive function damage, brain development in youth and affirmed their views to only prescribe for conditions recommended by the Therapeutic Goods Authority (TGA) and concerns around the lack of empirical evidence suggesting efficacy of medical cannabis and adverse effects. Concerns about black market substances and its quality, concentration and contaminant substances, without TGA standards participants feared the toxicology of the unregulated product. Some participants reported participating in trials of medical cannabis by providing it to their patients, giving the participants the opportunity to understand how to prescribe medical cannabis products and monitor their patients' response. Many participants reported gaining knowledge through mostly professional and peer networks, while some reported gaining knowledge through peer reviewed publications and through government websites. Some also reported not being confident of the knowledge base of other colleagues. Most reported the paucity of validated evidence on the effects and adverse outcomes associated with

		medicinal cannabis use was a major limitation in the rollout of cannabis to patients. Prescribers also indicated they had minimal explicit knowledge on the Special Access Scheme prescribing process, especially regarding how to prescribe an unregistered medicine to a patient. Participants described the speed of changing medical cannabis from a herb to a medicine as 'the bolting horse' implying the rapid political change to address public demand while many of the participants in the medical profession were unaware and reported feeling the change was too fast and coupled their concerns with providing a way for recreational users to access legalised cannabis under the disguise of a medicine. Social influences and patients' beliefs of medical cannabis benefits provoked consideration to prescribe medical cannabis in most participants, while some also reported that their doctor patient relationship and their duty of care to their patients were also considerations taken to take up prescribing medical cannabis in their clinical practice. Some participants reported the lack of leadership and direction from medical and government agencies in the initial stages of the rollout, however, some later reported this improved with time. Concerns of needing more formal education was reported, some reported despite being mostly self-taught being competent to prescribe but would be in favour of attending educational workshops while highlighting that self-teaching was 'burdensome' and 'time consuming' but had to delve in knowledge as they had a 'duty of care towards their patients'. Participants also reported requiring a 'monitored adverse effects' of using cannabis system to understand what to monitor when undertaking a patient review and coupled this with reasons that it was important for the safety of future patients wanting to use medical cannabis particularly for children and youth.
The role of medicinal cannabis in clinical therapy: Pharmacists' perspectives	Qualitative, semi-structured interviews. Performed in Australia. N= 34	Aim: To explore and investigate Australian pharmacist's views on medicinal cannabis and their role in its supply. Primary Themes: Safety Legislation

(Isaac et al., 2016).	Australian pharmacists registered with the Australian Health Practitioner Regulation Agency OR Professionals part of the Leading Representatives of Professional Organisations	Stigma Collaboration Secondary Themes: Patient safety Pharmacy safety Nationalised legislation Clear scheduling Rights and Responsibilities Differentiation between medicinal and recreational cannabis Public Health Transparency, training and discussions Collaboration and communication Reported positive views for legalisation to use medical cannabis as an alternative treatment for chronic conditions. Participants acknowledged the concerns and associated risks of using medical cannabis and safety was identified as a major concern. Participants expressed the importance of having more training and learning provided to them continuously regarding all areas of medical cannabis. Study reported the need for a greater degree of collaboration between key groups of professionals to enhance transparency, and the importance to include pharmacists as well as transparent communication in all areas of medicine including medical cannabis. Study reported importance of needing a nationalised legislation to maintain uniform regulatory policies. Stigma needs to be managed for the successful roll out of medical cannabis in Australia. Raising awareness, implementing more education to disseminate information around medical cannabis needs to be implemented to make a clearer understanding and differentiate between medical cannabis and recreational cannabis. These are important to shift the public opinion on medical cannabis.
Challenges faced with opioid prescriptions in the community setting - Australian	Qualitative, in-depth, semi-structured interviews. Performed in Australia.	Aim: To identify challenges faced by community pharmacists in Australia in the dispensing of prescription opioids. Themes: Perceived gatekeeper role Relationship with the prescriber Relationship with the patient

pharmacists' perspectives (Makdessi et al., 2019).	N= 25 Practitioners registered/licensed with the Australian Health Practitioner Regulation Agency and practicing in a community setting.	Bias Safety concerns Interventions Concerns of prescribed opioid misuse relating to safety, over prescribing and prescriber accessibility was highly reported. Interprofessional trust and professionalism concerns. Reports of power imbalance in the pharmacist-doctor relationship, a more collaborative approach is needed to optimise patient care. Acknowledgement of pharmacist opinion is necessary in the decision making for patient care. Addressing issues such as the lack of confidence to discuss treatment options with patients also requires management and providing further training.
Attitudes of Cancer Patients to Medicinal Cannabis Use: A Qualitative Study (Wilson & Davis).	Qualitative, focus group and individual interviews. Conducted in Australia. N= 16 People with a cancer diagnosis, 18 years or older, English speaking.	Aim: to explore attitudes, barriers, and concerns of cancer patients from one regional community in Australia to gain a better understanding of the experiences faced in using medicinal cannabis. Themes: Perceived benefits Access difficulties Uncertainty Support There was a reduction of cancer treatment side effects including reduction in associated pain, chemotherapy induced nausea and sleep problems with no reported side effects. Reports of high level of personal efficacy in participants. Access difficulties and medical cannabis use costs were concerns for participants. Facilitating cannabis discussions were a common barrier to access cannabis among participants, reported as feeling judged for their choice. The lack of GP knowledge on the subject was highlighted and suggested it is perhaps due to the inconclusive evidence available. Some doctors and participants reported feeling confident to have discussion of cannabis with their doctor, some doctors also reported being inclined to prescribe cannabis and reported being well informed. Participants reported that they did not feel any stigma from family and friends and hence suggested that since legalisation there are high

		levels of acceptance for cannabis treatment in the community.

Discussion

This review examined the perspectives of health professionals and medical cannabis users towards using medical cannabis for chronic pain. Based on the results, all the studies included in this review that interviewed medical cannabis users reported favourable attitudes towards using medical cannabis. Similar favourable attitudes have also been reported toward using medical cannabis in other studies (Kvamme et al., 2021; Maida & Biasi, 2021).

The positive attitudes reported in studies exploring user perspectives may be explained by the underpinning of their beliefs about medical cannabis and its many benefits. This phenomenon of the views being underpinned by beliefs surrounds the debate deeply when questioning the use of medical cannabis. Keeping this in mind, we may assume the positive attitudes reported by patients toward the many benefits of medical cannabis are underpinned by the belief that medical cannabis is more beneficial than other first-line or synthetically derived treatments. However, its efficiency in treating chronic pain is uncertain and not commonly assessed in studies using a qualitative methodology. This is because the aim of these studies is mainly to explore the attitudes, perspectives and opinions on medical cannabis use.

Furthermore, studies that have used other study designs, such as randomised control trials and quantitative analysis methods, have found low to moderate evidence of significant improvement reported by patients that used medical cannabis for various medical conditions (Mücke et al., 2018). Therefore, the findings are ultimately based on participant-centred reporting, and their experiences are often expressed as their own opinions and beliefs. Hence can often result in an overreporting of the efficacy or benefits of medical cannabis treatment

without scientific reasoning. However, this is acceptable in studies explicitly seeking out participant experiences about the phenomena under investigation, such as medical cannabis (Polkinghorne, 2005).

Moreover, this review also revealed that physicians in Australia have a poor understanding of the dosage recommended for prescribing medical cannabis and the Special Access Scheme (SAS), supporting prior research findings. The low to moderate knowledge that health professionals, inclusive of doctors and pharmacists, have about prescribing, recommending, dosing and efficacy of using medical cannabis for chronic pain aligns with several other studies that have reported limited knowledge of health professionals in the same (Ablin et al., 2016; Arnfinsen & Kisa, 2021; Fitzcharles et al., 2014; Michalec et al., 2015; Ziemianski et al., 2015). Most importantly, Hallinan et al. (2021) reported that health professionals obtained their knowledge regarding medical cannabis through their research of medical literature, other professional networks, and news media. However, many health professionals described this as a time-consuming and burdensome activity. But reported pursuing knowledge of medical cannabis to honour their duty of care towards their patients and respect their doctor-patient relationships. To enumerate as health professionals reported being self-taught about medical cannabis, this finding suggests that health professionals, particularly in Australia, currently have no continuing education opportunities related to medical cannabis after its legalisation and rollout to patients (Lintzeris et al., 2020).

Ongoing education opportunities

These findings indicate the need for ongoing education opportunities as health professionals develop their understanding of medical cannabis by self-teaching. In contrast, continued professional development and education regarding medical cannabis among health

professionals is vital as currently, there is a reported low to moderate knowledge among this crucial group of people. Implementing continuing education programs for health professionals about medical cannabis effectiveness and its evidence in terms of what works and does not work and under what circumstances is important to support improved health care among patients and enhance the knowledge base of health professionals about medical cannabis. Therefore, continuing education regarding medical cannabis among health professionals will keep their knowledge up to date and reinforce learning that may ultimately lead to better patient care (Warden et al., 2010).

In addition, through educational programs implemented by the government and medical organisations, there will be a standardisation of information regarding medical cannabis among all health professionals that are eligible to prescribe. This will allow them to understand the areas of medical cannabis that are currently reported as lacking, such as prescribing, recommending, dosing and efficacy of using medical cannabis as a treatment. Continued education on medical cannabis will additionally provide health professionals with the window of opportunity that will enable them to gain confidence to prescribe medical cannabis to patients seeking information without burdening health professionals to carry out the task of self-teaching. Offering continued education opportunities may also aid in avoiding any confusion and discrepancy in the information given to patients seeking medical cannabis to treat their conditions which may contribute to bettering patient-centred care overall (Karanges et al., 2018).

The New Zealand Position

Compared to Australia, NZ studies examining the perspectives of health professionals and medical cannabis users using specifically CBD is limited and, therefore, highlight a research

gap. This is particularly interesting when considering the shifting dynamic of the ongoing and aggressively progressing medical cannabis debate in NZ. The research gap presented here is concerning, as NZ and other countries such as America and Australia have one of the highest cannabis use rates in the world (Fischer et al., 2020). Statistics show that 15% of the NZ general adult population has reported using cannabis regularly for self-medicating and recreational purposes. In addition, compared to the adult population, cannabis use among youth reportedly declines. It is shown to be lower than the levels of use reported for alcohol or tobacco (Ball et al., 2020). While the reported decline in the youth is positive, the youth, however, remains the population demographic that society is the most concerned about when considering cannabis-related risks, harms, adverse effects and the ongoing conversations to further advance medical cannabis regulations in NZ (Fischer et al., 2020).

It is important to acknowledge the referendum held in NZ in the 2020 election to legalise recreational cannabis when addressing the topic of medical cannabis conversation in NZ. The referendum fell short of legalisation for many important reasons, including the gaps in researching the safety profile of recreational cannabis, the lack of consensus concerning the consequences of legalising cannabis to date, and informed scientific evidence on critical public health issues such as the implications of recreational cannabis legalisation on the youth (Hall et al., 2019), access to cannabis, driving under the influence of cannabis, workplace safety, normalisation of using recreational cannabis (Leung et al., 2019), the long-term use trends and impact on other illegal, e.g., methamphetamine, and legal, e.g., the effects of cannabis use on tobacco and alcohol (Smart & Pacula, 2019). In NZ, the goal to make NZ smoke-free by 2025 would also be negated if recreational cannabis was legalised in NZ (Ministry of Health, 20 December 2021). Others opposed to the legalisation also argued that cannabis legalisation was hindering the long-standing public health goal of NZ from being smoke-free by 2025 and the

broader link to the United Nations Sustainability Development goals of achieving good health and wellbeing, goal three as part of a global community (Rimmer, 2021).

Public demand for further political change

In addition, evaluating the ongoing public demand for further political changes to the medical cannabis policy in NZ, global policy changes and impacts may be considered a learning curve and an opportunity for improvement to ensure the same effects are not observed in NZ. Therefore, it's critical to find the balance between the public's constant demand for changes to the current medical cannabis regulations and ensure that NZ has effective cannabis controls, whether for medical or recreational cannabis. It is also vital to ensure that the research gaps identified before the election are addressed before any additional changes are made to the regulations already in place. Focusing on the youth demographic is most important as it is crucial to consider whether the policy includes adequate safeguards to protect best the health and well-being of not only all people, but especially the youth, who remain the population that is identified to be the most at-risk and vulnerable to substance abuse and misuse (Theodore et al., 2021).

Furthermore, the underpinning belief that medical cannabis users and its supporters have about the many medical uses for medical cannabis is also a factor that fuels the advancing corporate interests in supplying medical cannabis products. This is because they know the public interest in supporting the market. The messages being pushed from the public include the need to broaden the criteria of what types of products are available to use, as in other international markets. This message is also persistent with beliefs that a wider variety of product selection will enforce prices of medical cannabis products to be more affordable due to the competitive nature of manufacturing companies. The positive messages from the public that consistently

demand more actions of political change echo public support to reach an even wider general population that may aid in creating a public movement of support which may ultimately force policymakers to take action and, as a result, cause amendments to medical cannabis regulations that are already in place.

The public good chain of influence & the spill over effects

In addition, the public good chain of influence has been prominent in this scenario where the industry seeks to advance corporate interests by pushing key messages in the public mind to influence policymakers. The chain of influence described here has been demonstrated in NZ, where public demand and their expression of interest in medical cannabis led NZ to legalise medical cannabis in 2018 (Adams et al., 2021). In addition, we continue to see advancements in this influential public policy chain, to legalise medical cannabis for more conditions, access to more products, and the call to lower GMP standards and legalise recreational cannabis (Sinclair et al., 2021). However, the most notable change for medical cannabis users will be to gain access to more variety of products being available for use in NZ (Sinclair et al., 2021).

At the time of writing this review, the legalisation of using dried cannabis flower, which can be brewed into a tea for consumption to treat pain and anxiety has been incorporated into the list of allowed medical cannabis products that are available for sale and consumption by its consumers' (Emma Russell, 2022). Previously, dried cannabis flower was illegal for consumption or possession in NZ, and the only legal product available to users on prescription was Sativex, an orally administered spray. However, as the medical cannabis debate continues to shift dynamics in NZ, the changes that are being implemented are evidence that the public is being heard (Dew & Armstrong, 2021).

The evolving medical cannabis dynamic in NZ raises concerns for key groups such as the health professionals of NZ, the general public and the consumers of medical cannabis. In NZ, the medical cannabis company known as Rua Bioscience is promoting its business as a benefit for the people by promoting employment opportunities. Similarly, previous medical cannabis companies have used luring messages of tax cuts, new business opportunities, and new job opportunities to endorse the government's bill for cannabis legalisation (Adams et al., 2021). The blurred lines between the recreational cannabis industry and the medical cannabis industry also cause spillover concerns, particularly among health professionals. Spillover is the term used to refer to the legalisation of recreational cannabis because of medical cannabis legalisation. The partnership between a tobacco company and a medical cannabis company demonstrates the increased blending of boundaries between industries (Adams et al., 2021; Aranda et al., 2021). Canada sets an example of the referred spillover effects, where companies with the initial focus of supplying medical cannabis progressed to providing to the recreational cannabis market (Shanahan & Cyrenne, 2021).

In the United Kingdom, a company known as Drug Science is known to be partnering with pharmaceutical companies in research work to collect data that will illustrate to policymakers that medical cannabis has several benefits and should be as widely accessible and affordable as other approved medications (Drug Science, 2022). It is difficult to separate the influence of the medical cannabis industry, the scientific community, medical cannabis advocacy organisations, and patient groups as the boundaries of the individual groups overlap seamlessly. This makes it possible for the medical cannabis industry to continue leveraging political and public support for compassionate cannabis law reformation as they continue to receive support from different groups of advocates (Gornall, 2020).

Furthermore, in addition to the merger seen with the tobacco industry, the alcohol industry has also demonstrated its merger capabilities with the medical cannabis industry. Compared to alcohol, recreational cannabis has been characterised as having a lower potential for addiction and violence-induced harm (Nutt et al., 2010). The assumption that cannabis is less damaging than alcohol and tobacco is a popular justification for cannabis legalisation in some public opinion (Resko et al., 2019). Advocates for the cannabis industry have taken upon this favourable comparison to propose that the current strictness of the regulations should be less restrictive in terms of expanding the criteria for what medical cannabis may be used for (Venuto, 2019). The recent debate regarding access to more products has strengthened the perception that medical cannabis has many benefits. However, the majority of these still require validation by scientific investigation. Although currently, medical cannabis is only portrayed positively, with only a few to no disadvantages of its use (Whiting et al., 2015).

Therefore, in this scenario of merging industries and spillover effect concerns, NZ provides a valuable case study to examine the influence of the newly formed cannabis industry (Adams et al., 2021). This is because NZ has only recently established a domestic medical cannabis industry and has recently considered legalising recreational cannabis use through a national referendum vote in October 2020. Although the referendum failed, the narrow margin of defeat indicates favourable attitudes to legalise recreational cannabis in NZ soon. Furthermore, since the legalisation of medical cannabis in NZ, several medical cannabis corporations have appeared in the country in recent years with a complete focus and devoted intention to supply strictly to the medical cannabis market. However, if further changes take place to the current regulation of cannabis in NZ, the current medical cannabis industry in NZ may have the potential to cater the supply of cannabis products to the recreational market of NZ should the situation arise.

Limitations

The inclusion criteria during the literature search stage were limited to qualitative studies using interviews. Therefore, the results may not represent the broader population of perspectives studied using other methods, e.g., surveys and mixed methods. However, this scoping review will recommend future study in NZ that uses interviews that examine the reasons for using medical cannabis in NZ to add knowledge to existing literature. Additionally, limiting the scoping review to include studies from NZ and Australia may not represent the body of knowledge on medical cannabis users and health professional perspectives globally. However, in this case, it is essential to note that this scoping review aims to provide recommendations for policy in NZ. Therefore, it contributes to the currently limited evidence for the country for which recommendations are being suggested and will provide valuable information to policymakers of NZ.

Strengths

Scoping reviews are a great tool to map literature on a broad topic and provide an overview of the state of evidence in a field, indicating a reliable method to provide an overview of the literature available on medical cannabis. In addition, for this scoping study, the framework of Arksey and O'Malley (2005) guides this scoping study and reports elements as suggested by the PRISMA-ScR guidelines, therefore has followed a systematic process from the beginning to the end of the review. In addition, while scoping reviews do not require literature included in the review to be appraised, in this study, the CASP tool was used to appraise literature, adding a methodological element of strength.

Conclusion

This review concludes that the studies seeking to understand the perspectives of medical cannabis users have reported favourable health outcomes. Acknowledging the controversial findings around the desired uses of medical cannabis for chronic pain is vital. It is also essential to draw focus to the research gaps that society faces when thinking about furthering the use of medical cannabis in NZ. The research gaps present around the safety profile of medical cannabis, spillover effects, and the impact of medical cannabis legislation on the youth are under-examined. These need consideration before considering law reformation in NZ. Research has also brought to attention the current lack of knowledge in health professionals, as most have reported being self-taught with no guided education intervention standardising information regarding medical cannabis to follow after legalisation.

The ongoing education opportunities among health professionals are recommendations for a sensible way forward. Engaging health professionals in continuous education opportunities provided by medical cannabis lead organisations or the MOH ensures that doctors can build on their limited knowledge. Doing so will also ensure that health professionals have standardisation of information and, importantly, more current and updated knowledge on the topic. Having medical cannabis education opportunities led by the MOH will also ensure that the information being delivered to patients wanting to use medical cannabis is consistent. Therefore, giving health professionals educational opportunities may mean they have more current knowledge and the confidence to safely recommend and prescribe treatment with medical cannabis, which may contribute to better overall patient-centred care in NZ.

Conclusion

This chapter has presented a publication of the protocol used to locate the literature. The scoping review resulted from following the protocol that presents the literature on medical cannabis and the perspectives of health professionals and legal cannabis users using medical cannabis to treat their medical conditions. The lack of quality evidence to support the use of medical cannabis for chronic pain is evident, and the research gaps are discussed and analysed. Finally, recommendations, future study directions and the elements of strength and limitations of this study are explained before concluding the scoping review.

The challenges highlighted through the scoping review findings have informed the methods of this study. The significant challenges resulting from the scoping review were used to develop open-ended questions for the interview to engage participants in conversations regarding prescribing and the use of medical cannabis in NZ. The following chapter explains the methodology and methods used in this study, the justification for using grounded theory, and its suitability for this research topic.

Chapter Three: Methodology and Methods

Introduction

This chapter begins with an explanation of interpretivism and grounded theory, the methodology used to guide this research project. This chapter then justifies the suitability of grounded theory for this study and the different data analysis processes used. The data analysis processes that are described in this chapter follow the guided approaches described by Glaser (1978) for line by line coding and move into the method described by Charmaz (2006) for focused coding before using the process described by Corbin and Strauss (2014) to develop concepts. The concepts developed using the approach described by Corbin and Strauss (2014) were later used to identify key findings of this study that is discussed in chapter four, the findings and further analysed in the discussion of this thesis, chapter five.

Interpretivism

Research paradigms are integral to performing research and reflect a robust research design. Paradigms are a system of ideas researchers use to generate knowledge (Mills et al., 2006). The interpretivist paradigm encourages researchers to understand lived experiences from the perspective of those living them. Therefore, the interpretive paradigm focuses on recognizing, capturing and narrating the meaning of experiences and actions (Fossey et al., 2002). The grounded theory methodology has guided this research, and the research paradigm of interpretivism was utilised to design this research project.

Interpretivism is an appropriate research paradigm for this type of qualitative research and its adopted research methods of interviews with participants. The simultaneous interaction with participants to collect and construct meaning from the data has informed the research findings that were further developed to inform the concepts discussed in chapter five. The interpretivism paradigm was the most appropriate as this research utilised the experiences of its participants

to form an understanding of the phenomena under investigation being medical cannabis (Kankam, 2019). Using the interpretivism paradigm enabled viewing and relating to the participant's experiences. Interpretivism stimulated understanding of the lived experiences of those who lived them, highlighting the concepts central to the participants lived experiences and building an understanding of the uses of medical cannabis.

Grounded theory

Grounded theory was first presented in the 1967 book The Discovery of Grounded Theory (Glaser et al., 1968) as a set of flexible guidelines to guide researchers to focus on data collection of research and generate theories through the data analysis (Corbin & Strauss, 2014). Grounded theory is a qualitative methodology that allows the researcher to "get close to the data" (Weingand, 1993) and develop conceptual components of explanation from the data itself. The role of grounded theory can be outlined as the careful and systematic study of the relationships of the individual's experience to society and history (Corbin & Strauss, 2014). Therefore, qualitative research guided by grounded theory creates the possibility of interpreting real-world experiences from the study participants perspectives and develops theory relevant to real-world experiences (Weingand, 1993).

In this study, the process of using grounded theory has been used as an analysis method; hence, this study has not used developed a theory. This is acceptable when time is a constraint and samples are limited, as in this study.

Claiming that application of the GT method always can, and must, result in theory is incorrect, misleading, and unnecessarily intimidating. All GT work should start with aspirations to theory-building, but researchers should bear in mind that the practicalities of

research (in particular, limits to theoretical sampling—see the later section) could stymie their efforts at producing theory. For example, highly practical considerations such as limited time and funds—issues that are common in student projects including doctoral work—might present obstacles to developing a theory. We contend that significant progress toward constructing categories, and spelling out links between them, with the view to achieving conceptual clarity, is a sufficient (if not necessarily the ideal) outcome for a GT study (Timonen et al., 2018, p. 4)

Using grounded theory as a qualitative research methodology is beneficial when information on a topic is limited or existing knowledge requires a new interpretation. Grounded theory can be related to the interpretivist mode of enquiry that is rooted in the understanding that knowledge is relative, socially constructed and dependent on experiences (Grant & Giddings, 2002). Using grounded theory as a methodology for understanding people's experiences is helpful for qualitative research. Researchers are encouraged through grounded theory to remain open to adopting interpretations of the data that may emerge and to search for meanings and understanding that builds innovative theory.

The grounded theory process involves theoretical sensitivity and generating meaningful and powerful codes representing the data's emergent concepts. Theoretical sampling brings quality to the research by recruiting participants to create meaningful data for the data collection stage. The coding process breaks down the data into noteworthy observations to develop concepts and requires simultaneous involvement from the researcher during the data collection and analysis process (Glaser et al., 1968).

Suitability of grounded theory to this study:

I have used grounded theory for this research as the principles of grounded theory resonated with me. Grounded theory is well suited for this research as there is limited research to understand the experience of medical cannabis users and health professionals with medical cannabis for chronic pain in the New Zealand (NZ) context. Grounded theory encouraged and guided me to stay close to the data I collected, truly allowing me to capture the concepts relative to medical cannabis use in NZ. This data would reflect people's real-world experiences but result in findings grounded in the empirical world. The collection of qualitative data through grounded theory will aid in understanding the aims of this research through the co-construction of knowledge, adding a quality dimension to pre-existing but currently limited knowledge of medical cannabis in New Zealand (NZ). Therefore, while research exists on the efficacy of medical cannabis, it is vital to understand the reasons people prefer using medical cannabis using perspectives. For these reasons, grounded theory was the best-suited approach for this study.

Methods

Recruiting participants:

According to the purposeful sampling proposed by Schatzman and Strauss (1973), I selected people that would help answer the aims of my research. I considered the time I had to achieve the intended qualification and decided that purposeful sampling would be the best fit to collect meaningful results in a short time. Using the purposeful sampling approach suggested by Schatzman and Strauss (1973), I recruited participants with similar philosophies or ideologies of medical cannabis, serving as a starting point for selecting participants for recruitment.

The approach led me to select participants that this project intended to research, such as health professionals prescribing medical cannabis, cannabis users, and professionals working in an industry related to medical cannabis, e.g., mental health, addiction and rehabilitation services, medical cannabis awareness organisations and academia. Recruiting a small number of people from different areas in the field would ensure that the population of interest is represented appropriately while also generating data that would be examinable during the intended length of this research project.

At first, this study intended to recruit five participants. However, ten were recruited (n=10) for this study because of participant interest and the need to be inclusive. The snowball sampling method was used to recruit participants. This was the most convenient way to generate a purposeful sample of participants that would benefit the research aims by providing valuable information related to the research aims (Heckathorn, 2011). Potential participants were contacted using the publicly available contact information and prior professional, personal and educational institution networks. The known networks used as an initial point of contact were the Canterbury Men's Health and Petersgate Counselling Centre in Christchurch. The participants of interest at these locations were invited to participate voluntarily via email. In this research, clinicians were not involved in the recruitment process of their patients, as this could have caused power imbalance issues. Therefore, all medical cannabis users who participated in this research were recruited through professional networks using snowball sampling.

Interview process

Interviewing is the commonly adopted method of data collection in grounded theory research (Charmaz & Belgrave, 2012). Interviewing in this method comprises a set of techniques later

used to build concepts grounded in the data (Corbin & Strauss, 2014). Data collection and data analysis in grounded theory occur synchronously. The synchronous process directs the course of inquiry to form concepts in the data. Emerging concepts from the data guide the researcher to collect more information efficiently, expanding the data collected to fulfil the concepts emerging in the dataset (Bagnasco et al., 2014). Simultaneous data collection and analysis processes direct the researcher toward building concepts and theory from data known as theoretical sampling, an essential principle in conducting grounded theory research (Glaser & Strauss, 2017).

For this research project, interviews began in December 2021. Initially, participants were scheduled for interviews in August 2021. However, the August lockdown in the Auckland region of NZ (Te Kāwanatanga O Aotearoa, 2022) impacted the original intended interview start date. The participants were consulted if they would like to proceed with their original communicated times, and 8 participants preferred not to proceed as they could not manage to work from home and organise a time for an interview. Upon consultation with the participants, the period of December 2021 to February 2022 was suited to participants. This was considered, and participant interviews started in December 2022 and were completed in February 2022. Accommodating participants' needs was necessary to ensure that participants were comfortable throughout their involvement in this research project. Ensuring the comfort of participants in this research project assured that participants would continue to be involved in this research project as this was a supportive space for them, where they discussed their experiences openly (Farber, 2006).

The interviews lasted a minimum of 60 minutes and, in most cases, lasted over 90 minutes. Semi-structured interviews were conducted with probing questions when required. Semi-structured interviews are widely used in qualitative research and provide value to

establish an initial relationship with the participant as the questions focus on the relationship the participant has with the research study (DeJonckheere & Vaughn, 2019). In addition, a semi-structured interview process helps to gather information from the participants about their personal experiences, perceptions and beliefs related to the topic of interest and is a useful and effective method for data collection when the researcher requires open-ended data to explore the thoughts or feelings deeply about personal and sensitive experiences (DeJonckheere & Vaughn, 2019).

A questionnaire was developed before data collection started to use as a guide. However, this was not needed after participants were asked, “tell me about your experiences with medical cannabis” and “tell me why medical cannabis over something else?” prompting participants to engage in conversation with me about the experiences they wanted to share.

Table 7*: An early reflection memo of the interview process 18/01/22*

Collecting data and analysis was a simultaneous process, so I had an idea pretty early of the ideas that were likely to emerge as patterns in the interview process. It is important to focus on these emerging ideas in the upcoming interviews to see if these will be emergent concepts in the data. I must focus on asking questions that probe experiences that might be similar to those already discussed. If these emerge as similar experiences among participants, creating complete data around these ideas is important so they can be developed later. I must remember to only probe and not force participants to talk about these experiences since everyone is different, and some may not feel the same way or have encountered experiences of similar nature.

Coding

The coding process started with detailed, line-by-line coding, a widely used method and usually the first step in grounded theory analysis. Line-by-line coding is used to code interviews initially by using short, descriptive codes. The term commonly used to describe codes that emerge from the data as excerpts of what is being said by the participants are defined as in vivo codes. According to Glaser (1978), line-by-line coding, commonly called open coding, was used to code the data in the first stage, followed by the second round of focused coding guided by Charmaz (2006), whereby existing significant codes directed the analysis process. The focused coding round used the approach described by Corbin and Strauss (2014), where codes were grouped to denote a concept or concepts of hierarchy that led to the development of sub and core categories.

The approach of Glaser (1978) for coding resonated with me as I was able to immerse myself in the data and stay true to depicting the data in its raw form by using the process of open

coding that used the participant words to code. Using open coding, I could continuously compare the codes, which increased my familiarity with my data, and I could understand the participant's experiences more deeply. This process helped me remain close to the data. The open coding process described by Glaser (1978) was a more natural coding process for me, as while using this process, I could be free of my opinions while reading my data. This process made it easy for me to immerse myself in coding only what the participants were saying. Using this method, I was confident that I was grounded in what the participants were saying, and so for this reason, open coding was the best method to approach the first round of coding. Another reason for using the open coding method was that when I engaged with the data in the initial stage before beginning the coding process, I thought of themes and applied more significant meanings to the transcripts as I read. To free myself of preconceived notions and meanings already forming in my mind while engaging with the data in the first instance, I related well to coding by open codes as guided by Glaser (1978). Therefore, for the method of analysis for this research project, Glaser (1978) was used as this was the best way to stay true to the data collected during participant interviews and depict a true reflection of understanding the participant's lived experiences with medical cannabis (Table 7).

An example of how I engaged in the process of coding line-by-line for my first participant is shown in Table 7, who was a medical cannabis user. In Table 7, the column that appears on the left are codes that were created from the words of the participant. In this process, I began coding what the participants were describing by remaining open to the data and noticing nuances within it (Wepa, 2016). For example, at this point, one participant noted, "it's given me my life. It's easy to take". In this instance, I could have coded the transcript to imbue my view of this information, e.g., the concept of ***gives hope*** that later developed. However, using the open

coding method, I knew I needed to remain focused on the participant's words and resist transitioning into analysis at this early stage.

After coding three transcripts in each participant group using this method, I found that I had reached the saturation point of my data. At this point in the coding process, there were detailed codes for medical cannabis users and health professional participant groups. From this point onwards in the coding process, the remaining transcripts for both groups were coded using the detailed codes already created in the open coding stage. At this stage, I decided to use Corbin and Strauss (1990) for further focused coding. This decision was made because creating new codes was no longer necessary after the first few transcripts in each group were coded.

Table 8: *An example of the open coding process using line-by-line coding to code the first transcript.*

Transcript	Initial/Open Coding
I have complex regional pain syndrome which is shortened to an acronym of CRPS which they called CRPS.	Experiences pain Chronic pain
It's very, it's a rare disease. I also have fibro, I'm also immunocompromised and there's a whole lot of other stuff, but those are the most important ones to why I'm using medical cannabis.	Reasons to use medical cannabis Important reasons to use medical cannabis
They haven't funded it. I've had to pay from $1000 a month four years ago. I can now get CBD at $110 a month. It's it's given me my life, it's easy to take. Uhm, of a reasonable price now.	No funding have to pay Cost is better now Given life back Reasonable price now
Uhm, they have two high, high, trying to think of the word on that count at the moment they have two high appearances on it.	High appreciation cost

The remaining transcripts were coded with the existing codes. Moving forward in the coding process, the Corbin and Strauss (1990) method was used for focused coding. Before I moved on to focused coding and developing core categories, I had to stop and reflect on the open coding method I was using. At this stage, I found it challenging to continue doing line-by-line coding for the remaining transcripts as I noticed repetition in what the participants were saying. I realised I was having difficulty continuing with line-by-line coding as I often found that the

more codes I had and the more I kept creating was becoming difficult to remember once I couldn't see them on my screen.

Here I found myself going back and forth. This was because I had to keep reading my codes and making sure I wasn't creating new codes that were doubles of the codes I had already created that meant the same thing but were worded differently. Therefore, as this was becoming time-consuming and taxing of the work that I was doing in this coding process, I decided to use Corbin and Strauss (1990) as this process assured that I was reading my transcripts over repeatedly to help me remember the codes and keep coding with the same codes when the participants were saying similar things. This created more familiarity with my data and ensured I was coding using the participant's words and remaining close to the data by using what the participants were saying in this second round of focused coding.

I achieved the process of focused coding by first organising the descriptive codes into a parent-child relationship. For this step, I used the software Nvivo; the term parent-child is a term used to refer to the hierarchical organisation of codes in the software (Maher et al., 2018). In this process, I grouped the codes I had created in the open coding round with other codes. The grouping of the codes was done by the meanings of the codes. The codes with identical or similar concepts were grouped to create a similar category that will be used later in the analysis. This categorical formation was achieved by using the parent-child relationship function in Nvivo, an example of this is shown in Table 9.

Table 9*: Examples of open codes being grouped together to create focused group categories.*

Challenges	Positive Things	Suggestions	Background/other comments
Doctors lack knowledge Inconsistent and unclear regulations Wrong attitudes Hard to get Not enough support	Easy to take Aware of benefits It's a natural product Doctors support	Need to raise awareness Better regulations Local research and trials Government should fund it	Reads about benefits for pain Sources of information Knows research in the field Reads research

Note. Table 9 shows the open codes being grouped together for the medical cannabis user participant groups to create focused group categories that resembled the similar meanings of the open codes into groups that had similar meanings but were worded differently.

Focused Coding

For both participant group transcripts, the codes were put into four categories; the codes were grouped based on their similarities in meaning. Corbin and Strauss (1990) use the term concept and category to show relationships of higher order forming. Categories are focused codes that are grouped to resemble the same meaning. Concepts are developed from categories to show the relationship between the categories and illustrate the same meaning, forming a core concept used in the analysis and discussions stage.

Table 10: *An early reflection memo of the coding process in the early stages 05/05/22.*

While doing the line-by-line coding I often found that the more codes I had and kept creating were becoming difficult to remember once I couldn't see them on my screen, so I had to go back and forth to keep reading my codes and make sure I wasn't creating new codes that were doubles of the codes I had already created. These probably meant the same thing but were worded in a different way so just making sure to read the interview transcripts, again and again, is a way to remember the codes and keep coding with the same codes when similar things were being said by the participants. I was thinking this is getting difficult there must be a way to do this better. This is the moment I researched further into coding in a grounded theory study and found the approach of focused coding which I used to continue coding the transcripts. I found it helped me get into the flow of coding better and I can really see some of the patterns in my data now.

In this stage of the focused coding process, I categorised the open codes into sub-categories based on the description of their codes that could be grouped to describe a relationship. I used the method of focused coding described by Corbin and Strauss (1990). This step was essential to making relationships between the focused codes and forming relationships to form categories and core concepts. Subsequently, I read each code within each group. I eliminated the duplicates (codes that covered the same content but were separate codes because of slightly different wording) by merging two or more codes into one. From this point onwards, in the process known as focused coding, I used these codes to code the subsequent interviews in the health professional group, which I grouped under the sub-categories: challenges, positive things, background information and suggestions. I created these sub-categories only to make it easier to make sense of the data (Table 9).

Naming the emerging patterns from the data:

In grounded theory naming the emerging social patterns in the collected data is an essential step in the data analysis process. A concept is a pattern developed by constantly comparing data by comparing incidents. Validity is achieved, after trying to fit the best words, when the chosen one best represents the pattern, it is grounded in the data, and best describes the patterns put together (Glaser et al., 1968).

Table 11 *A later stage reflection memo for struggling to name the concepts 10/07/22*

In conversation with Charles and Dianne today, I reflected on my coded transcripts and found that the concepts were too general. It needs to be focused and capture the key messages the participants are expressing, which are coming through as patterns. It is important to bring personalisation of these concepts through the participant's words to be clear about the concept's significance to them. Reading through the sub-categories I have created, and the transcripts again will help participant quotes stand out. These will help me develop the patterns and lead to core concepts I want that will reflect what's being said by participants.

As I read and coded the subsequent transcripts, the process also involved analysing, thinking, and interpreting the data in more detail so more significant meanings could emerge. I achieved this process by merging codes to create sub-categories and categories, which later developed core concepts. At the last stage, I blended the sub-categories into categories, which I further merged to form core concepts. After developing core concepts, I scrutinised the focused codes again. I self-reflected on my thoughts while carefully reading the coded content once again several times, bearing in mind the research question. I compared the two coded data groups for the medical cannabis users and health professionals. I also further compared the content of each interview to each other and among the two distinct participant groups. I did this case comparison process between the two participant groups and across each participant interview transcript to make sure I was able to understand my coded data. This process was an important step to finalise the codes for the core concepts I developed after reflecting on the interview content. It was essential to create concepts that would help me answer the research questions while also conveying the words of the participants at the later discussion stage.

Criteria for evaluating grounded theory

Glasser defines the criteria for evaluating a grounded theory study according to four elements of fit, workability, relevance, and modifiability (Glaser & Strauss, 2017). Fit is defined as the validity, and answers the question, does the concept appropriately express the pattern in the data it aims to conceptualise? In my study, I coded the data remaining close to the data, where the participant's words were used in the coding process at both the open and focused coding stages. The focused codes later developed core concepts grounded in the words of the participants. Remaining close to the data during the data analysis stage resembles the criteria of fit recommended by Glaser to evaluate grounded theory.

Workability criteria assess the relationship of concepts, the main concern and the desired resolution for participants. Relevance similarly addresses the significance of the study, keeping the focus central to the main concerns of the participants involved (Glaser & Strauss, 2017). Therefore, to adhere to workability and relevance, this study develops concepts grounded in participant data and proposes recommendations that may address the barriers and challenges significant to the participant's experiences.

The modifiability criteria in this study are apparent through the interviewing and data analysis stage. The continuous reflection after each interview navigated the following interview to areas that would contribute to creating whole concepts. Following the interview, the data analysis saw new ideas emerging, modifying the following interview to provoke experiences related to the new concepts emerging from previous interviews. The emergence of new concepts consistently evoked analytical challenges. However, it did not disprove emerging concepts but provoked an additional full exploration of the final core concepts to show a well-painted picture.

Interviewing through zoom to manage the impacts of Covid-19

Traditionally in qualitative research, face-to-face interviews have been used. However, recently online interviews have been more commonly used (Bauman, 2015; Kite & Phongsavan, 2017). For this research project, researching without a geographical restriction reduced challenges for travel, associated costs to perform the study and the required time for travelling. Travelling to different locations to conduct face-to-face interviews could have impacted the length and day set aside for the interview. Alongside the challenges of travelling, considering an alternative method of data collection to keep the research in continuous progress was required in the current Covid-19 situation in NZ. The unpredictability of lockdowns during 2021, the data collection stage of this research and travel restrictions were essential to consider so that I could

carry out my research safely, preventing harm to the participants and myself. For this reason, data collection through interviews was deployed online through the online platform Zoom.

Moving away from traditional methods, the advantages of interviewing on Zoom

Interviewing online provides a cost and time-effective alternative to in-person interviews and allows communication of people in different geographical locations in real-time (Gough, 2006). Online interview methods are typically used to save costs for research where there may not be funding available for travel, such as for this research project (Deakin & Wakefield, 2014; Sedgwick & Spiers, 2009). Therefore, to access a more extensive and diverse population of intended participant groups, online interviews were the most suited method to interview participants in a shorter amount of time by eliminating elements of associated costs and time it would have taken to travel and reducing unpredictable circumstances, e.g., lockdowns (Winiarska, 2017).

Additionally, research has highlighted that the quality of online interviews does not differ from in-person interviews. Participants have expressed their preference for the flexibility and convenience of online interviews (Cabaroglu et al., 2010; Deakin & Wakefield, 2014) and indicate that participants are more open and expressive (Mabragana et al., 2013). Online interviews via zoom are also convenient for them to take part in without downloading the software. Therefore, using zoom was seamless, as I could create a meeting and send the invitation via a link to their preferred contact email so that they could access the interview with ease.

Limitations of using Zoom for interviews

Alongside the many positive elements of conducting interviews on zoom, there is an important limitation of conducting online interviews. It is the removal of physical presence. Therefore, although audio and visual options in an online interview allow the participant and interviewer to hear and see each other, they are not in the physical presence of each other. Therefore, during the interview, the researcher can encounter missed opportunities for observations. Due to an online presence, there may be a limited observation of participant body language and emotional cues (Cater, 2011). Therefore, this research eliminates a dimension from data collection and analysis that may have been otherwise useful for understanding participant perspectives of medical cannabis.

Additionally, in an online interview, participants have the liberty to choose their interview space, hence may encounter distractions or lack privacy. Unlike in an in-person interview external elements may distract online participants. To navigate the distractions that could have occurred, I encouraged the participants to choose a quiet location and did the same. By encouraging participants to choose a quiet place for the interview and by doing the same, I was able to ensure the privacy and confidentiality of participants. Thus, although there are limitations to consider when considering online interviews for this research project, the advantages outweighed the disadvantages. Therefore, online interviews were the preferred method of data collection.

Ethical considerations

Ethical approval was sought and provided by the Auckland University of Technology Ethics Committee (AUTEC). The approval was granted on 21 September 2021, application number 21/244. In writing up my ethics protocol, I used the guidelines outlined by the AUTEC to

ensure I respected the reputation of my associated institution, the Auckland University of Technology. Carrying out research respectfully and ethically was vital to me as I intended to speak to people who would perhaps be willing to be vulnerable with me and share their experiences with a medication associated with a personal medical condition. I also intended to speak to health professionals in different areas; therefore, being professional and respectful in my approach was vital as I had pride in being associated with studying at a well-known university. As a novice researcher, it was important for me to ensure that my participants had a positive experience with their involvement in my research.

A consent form (Appendix 3) and information sheet (Appendix 2) were provided to participants interested in being involved to ensure that they were fully informed of the study, what was required of them, the interview process, their rights and the risks of involvement in this research project. Participants were given 14 days to consent to this research and could withdraw from the study up until three weeks after the interview. Potential participants were initially contacted via email (Appendix 4) which specified the circulation of the email to their known contacts that would be interested in participating. Upon reading the emails, people interested in participating contacted me directly. In the initial conversation, I discussed the research content with them and provided them with the information sheet and consent form via email. In this process, the participants were also screened for their participation eligibility, e.g., their association with medical cannabis.

Consent

The consent form was developed according to AUTEC guidelines. Informed consent was obtained from participants by signing the consent form (Appendix 3), taking a picture or scanning it, and sending it directly to the researcher. Informed consent was also obtained from

participants at the beginning of the interview in an oral manner to record the interview audio. Participants' privacy was also considered by not only encouraging participants to choose a private, quiet location but also encouraged to use a headset with a microphone rather than computer audio, and I also did the same. However, many participants were in a quiet space alone in their homes and opted to use computer sound and audio.

Recording safety

Zoom was a beneficial platform for interviews in this research as one of the features of using zoom includes password protection for confidentiality and recording capacity to either the host's computer or Zoom's cloud storage. Zoom automatically saves the interview into two files, one audio-only file and a separate file with combined audio and video. This feature helps support the participant's choices about being recorded with audio and video or audio only. For example, an audio-only option is available if participants do not want their video recorded to protect their privacy. The audio-only function allows the camera to be on during the meeting. However, it only records audio that maintains the in-person connection between the interviewer and participant while respecting their wishes (Gray et al., 2020). For this research project, I had my video on for the duration of the interview to maintain a connection with my participants and maximise the chance of observations.

The audio-only recording function was a helpful function of zoom in this research project and was used for all participant interviews. This was due to the impact of Covid-19 and the inaccessibility to AUT campuses during lockdowns. The collected data was stored on my private, password-protected secure computer for a short time. However, using the option to save recordings as audio files to my personal and secure computer via storage provided through AUT also enhanced participant confidentiality as academic institution organisation cloud

storage is safe and secure compared to other cloud storage platforms (Buchanan & Zimmer, 2012). For this research project, the original intention to store the data was in the research supervisor's office on the AUT north campus in room AE107, on an encrypted folder on a network drive on AUT premises.

Conclusion

In this chapter, I have summarised the research methods used in this study. I have explained how I have implemented the grounded theory methodology and the techniques involved in the methodology process. I have described my position as the researcher in this study and the reasons it is essential to understand the experiences of people central to the debate on medical cannabis in chapter 1, situating myself in the study. I have explained the suitability of grounded theory for this research and how it encouraged me to be close to the data during data collection and analysis. In the next chapter, this study presents the findings and explains ***Give People Hope: Cannabidiol-based Therapy for Chronic Pain in New Zealand. Perspectives of Health Professionals and Cannabis Users - A Grounded Theory Approach***

Chapter Four: Findings

Introduction

The findings from this study are presented in this chapter. Four concepts emerged from the data as core concepts that were significant to health professionals and medical cannabis users. The core concepts of ***Gives hope, Ongoing struggles, Something must change and Choosing a healthier way forward*** are presented and explained in this chapter. This study aimed to understand the opinions and perspectives of health professionals and legal cannabis users in New Zealand for chronic pain treatment with CBD.

Below is a breakdown of the aim into three further questions guided the research enquiry.

1) What are health professionals and cannabis users' perspectives on treating chronic pain with CBD in NZ?

2) What are the suggested policy options to access CBD treatment in NZ?

3) What are the current legal, ethical, and scientific debates on cannabis in NZ and selected developed world countries?

Introduction to the emerging concepts

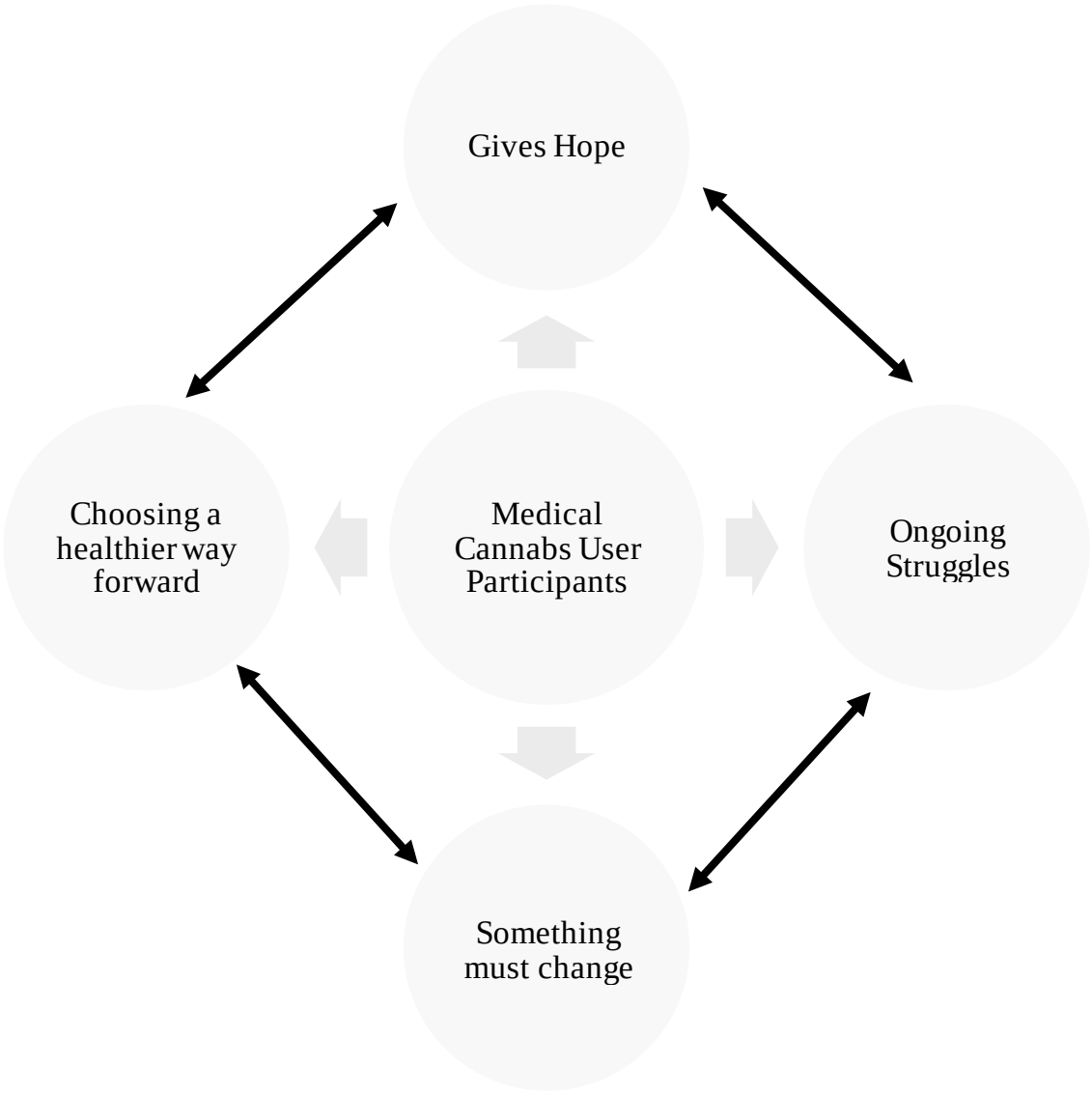
Although similar concepts were discussed by both health professionals and medical cannabis users, the differences in their opinions were distinct. This section presents the findings for each core category (Figure 5 and Figure 6). The core concept of ***gives hope*** is discussed and concretely shows that health professionals and medical cannabis users believe that medical cannabis can help with various conditions. The findings from ***gives hope*** show that health professionals were more aware that much of their patient's knowledge regarding medical cannabis is anecdotal. Health professionals expressed that more research is required to prove these claims from patients, particularly for chronic pain, anxiety and depression. The core

concept of ***ongoing struggles*** is discussed later which breaks down further into the subcategories of *personal and societal, legislative and governmental barriers* and those specifically related to *health practitioners.* Again, although health professionals and cannabis users discussed similar challenges, the specific challenges within each group differed. The core concept of ***something must change*** discusses the findings suggested specifically by participants and ***choosing a healthier way forward*** the final core concept that emerged from the findings illustrates the recommendations to address the challenges that is currently experienced by participants in NZ regarding medical cannabis treatment.

Figure 5: *The final core concepts developed to reflect the health professional participant's stories and experiences.*

As seen in Figure 5, the final core concepts developed from the codes in the health professional groups reflect the participant's stories and experiences. These concepts did not link to each other but instead were talked about as individual concepts. The core concepts developed for health professionals, and medical cannabis user participants are the same (Figure 5 and Figure 6).

Figure 6: *The core concepts developed from coding the interview transcripts of the medical cannabis user participant group.*



As seen in Figure 6, the final core concepts developed from the codes in the medical cannabis user group are depicted. In contrast to the health professional participant group, the concepts linked together and were referred to in conversation from one key concept to another. The most significant discussions were the sub-categories discussed in the core concept of ***ongoing struggles***, which referred to the concept of ***something must change*** to identify the necessary changes needed in NZ. Participants, therefore, concluded the concept discussion in ***something must change*** with recommendations in the context of NZ in the concept, ***choosing a healthier***

way forward. Therefore, as shown in Figure 5 and Figure 6, although the core concepts developed for health professionals and medical cannabis user participants are the same, it is essential to note that the way the participants in the respective groups talked about their experiences in each category is vastly different.

Gives Hope

Both health professionals and medical cannabis users discussed why they find using medical cannabis beneficial for their condition. The expressed opinions showed that there was a range of benefits for using medical cannabis both in terms of medical conditions that can be treated with medical cannabis and other advantages for the doctors, patients and society overall. The health-related benefits both health professionals and medical cannabis users mentioned was that it *helps with mental health-related distress.* However, it is important to point out that the professionals were more cautious in their statements. In this case, although the health professionals were aware that medical cannabis is being used to treat mental health conditions, health professionals expressed caution and awareness in their conversation that most of these benefits they were aware of were through patient experiences and not through literature material.

"Mental health issues, such as anxiety, depression and sleep problems" (Participant 9, Health Professional), for which it can "give them a quick relief" (Participant 9, Health Professional). They also stressed that "this isn't a professional opinion at all", exercising caution following on to say these (Participant 6), are rather anecdotal evidence of "so many amazing stories" (Participant 7).

Also, as discussed later in **ongoing struggles**, some participants explained that overreliance on medical cannabis leads to mental health issues. The medical cannabis users seemed more

convinced that medical cannabis indeed helps with mental health-related distress, and here they referred to their own experiences, e.g., a quote from Participant 2 shows that they relate their use of medical cannabis to getting relief from anxiety "is known for lowering your anxiety" (Participant 2). Both health professionals and medical cannabis users also explained that cannabis *helps ease pain.* However, the health professionals stressed that they have never had the experience of prescribing it for this purpose. Participant 5 expressed, "haven't had too much experience with pain and, yeah, cannabis" (Participant 5), even though they were, aware of people using it for this purpose. The medical cannabis users, on the other hand, shared several personal stories in which they struggled and explained their painful experience with their conditions, which was eventually overcome when they were prescribed medical cannabis.

"Extreme pain" (Participant 3) that was "notoriously difficult to relieve" (Participant 3), to the point that "I've had three years I wanted to commit suicide every day" (Participant 2).

Both participant groups believed that medical cannabis *helps with a range of conditions* other than the ones described above. The medical cannabis users in particular described a variety of medical conditions for which they believed medical cannabis to be effective and also expressed their favourable attitudes towards medical cannabis interventions for substance abuse therapy.

"a wide range of illnesses or conditions" [including] "frequent seizures", "neurological issues" (Participant 1), epilepsy (Participant 2) and autism (Participant 3). Participant 3 also explained that it is effective "if someone wanted to come off drug abuse, drug addiction or alcohol addiction", and Participant 2 noted that cannabis "gave me control of my bladder again and it gave control of my bowel again, it's given me my life".

The health professionals were also aware that "it's being used for everything under the sun" (Participant 7), but also explained that "it's only [been] approved for moderate to severe spasticity in MS" (Participant 7), and that it *helps with multiple sclerosis* was mentioned by two health professionals.

In terms of other benefits of medical cannabis, both health professionals and medical cannabis users believed it is *less risky than many known drugs.* Participants mainly talked about the small number or absence of side effects. Participant 1 explained, "there's a lot of prescription drugs out there that (…) have a lot of, um, negative side effects". The health professionals also expressed this view.

"[I] genuinely believe that the risk profile is significantly less than [that of many] prescription drugs which I've been prescribing anyway" (Participant 8). Medical cannabis is "unlikely to do much harm" (Participant 8), it has few side effects and "the addiction side of things" (Participant 7) is "pretty mild" and "no worse than cutting out all your caffeine" (Participant 7). Another reason why they believe medical cannabis to be safe is that "very few people have allergies or (…) reactions to it" (Participant 9). Partly related to this was also that *it is natural* and, as a result, "it doesn't have a lot of other chemicals attached to it" (Participant 3). Participant 3 also explained that it is also something that is "not new globally" and it has been used "for many centuries" in various contexts.

Medical cannabis users also praised medical cannabis because it is *easy to grow*, *it is not bad for the environment* and *legalising marijuana benefits the economy.* The health professionals, in turn, also pointed out that it *helps doctor-patient relationships,* explaining that listening to the patients and being willing to prescribe medical cannabis increases patient trust, as they felt comforted and received care without judgement and understanding.

"They feel respected and understood when I am willing to professionally engage with their concerns and requests around medical cannabis" (Participant 8). According to Participant 9, it also *gives people hope*, because "the patient leaves with a prescription, they leave with hope" and the "possibility that this really will make a difference to them". As he further explained, "every week, patients will tell me that this has been life-changing", and he liked that the patients are "really excited to improve the quality of life".

Finally, as described in the following section, the possibility of abusing medical cannabis and the related laws was mentioned by health professionals and medical cannabis users as a challenge to navigating medical cannabis. Two health professional participants believed that *there is a small chance of abuse.* Participant 7 explained, for example, that "it will be pretty bloody expensive to abuse it" (see ***ongoing struggles*** for the discussion of the cost of medical cannabis as one of the barriers), and Participant 6 explained that even if they do, "you'd much rather they went to the doctor and had something that was pure", rather than "getting it on the street".

Ongoing Struggles

Personal and Societal Challenges

As noted in ***gives hope***, although some, both health professionals and medical cannabis users, praised medical cannabis specifically for the absence of side effects, *side effects of long-term use* were at the same time the most discussed challenge by the professionals. Those who commented pointed out that over-reliance on cannabis may lead to mental health problems rather than help to treat them, and whilst people seem to want to believe that medical cannabis helps them, in practice, "our emotional capacity is not designed to function using a substance like that" (Participant 4).

At the same time, several health professionals raised concerns about *people being too quick to use it,* explaining that in many cases, cannabis gives a "kind of placebo effect" (Participant 5). Several health professional participants also agreed with Participant 8, who explained that although he has "no problem in exploring that option with patients", "I have never as yet used it first line for anything". At the same time, however, most people are "very keen to try something that's quite different in the way of the medicine" (Participant 9), even if there is no data to prove its effectiveness. This partly relates to another discussed challenge of *people being likely to abuse it,* which health professionals and medical cannabis users discussed. This relates not only to the problem of people simply over-relying on cannabis and using it as a "short-term intervention" (Participant 5) but also to the cases of deliberately abusing the system to get access to cannabis to use it "non-medically" (Participant 8).

Finally, another challenge discussed by medical cannabis users and health professionals was the sub-category of *overall lack of knowledge and stigmatisation*. There is a "negative stigma around people that might want to use medical cannabis" (Participant 1) and around cannabis itself. Therefore, "some people might almost be embarrassed to ask" (Participant 1) their doctor about medical cannabis. Participant 9 shared similar views, explaining that stigma is a significant challenge.

"Some people are very nervous, especially elderly people (…) about getting high or worried that it's still illegal". Stigma plays "the biggest part" (Participant 6), and society stigmatises those using medical cannabis as "a drug addict or a stoner" (Participant 6). Overall, "there's a lot of misinformation" and "the public had not been educated at all" (Participant 2).

Legislative and Governmental

Within this sub-category, health professional and medical cannabis user participants discussed the cost of medical cannabis as one of the main difficulties to access medical cannabis. The users also raised concerns about the *overall difficulties to get it.*

[People] "get it prescribed and then they can't afford to buy it" (Participant 2), and "most people can't afford the cannabis doctor" (Participant 3). The cost was described as "the main limiting factor" (Participant 8) by several participants, and "there are lots of people who can never afford that" (Participant 9).

Because of this, and *the overall difficulties to get it,* some decide to buy it from elsewhere. There were several reasons why participants expressed their difficulties in getting medical cannabis. These were discussed in the micro categories used to develop the sub-category that it is difficult to access medical cannabis due to the *conservative and outdated laws and approach,* a *lengthy approval process, strict and unsupportive laws and regulations* and *inconsistent and vague regulations.* It is also *difficult to control and regulate* medical cannabis, which adds to the previously identified problem of people trying to abuse it.

Two participants from the medical cannabis users raised concerns that *research findings are being ignored,* pointing to the fact that although, according to them, Israel "extensively researched cannabis" (Participant 3), "you're not allowed to draw from research from Israel" (Participant 3). Participant 2 also pointed to research conducted in Israel and noted that "for some reason, our government isn't looking at that research". Although none commented on research conducted in this specific country, several health professionals commented on *limited research* as a barrier. As previously noted, some felt that there is generally "a lack of data" (Participant 9) when it comes to the use of medical cannabis. Participant 8 raised concerns that

New Zealand has a "lazy" approach, "piggybacking on the research that the other countries are doing, rather than embarking on their own". Participant 9 discussed the challenge of *a wide variety of different forms* of medical cannabis, meaning there was no one keeping up with the changes and explained these were the reasons that it's so hard to access medical cannabis.

"[It] gets harder and harder for other doctors to prescribe and keep up with all the changes and doses and what it [medical cannabis] could be used for".

Sceptical and Reluctant Doctors

The main challenge relating to health professionals was *sceptical and reluctant doctors*. Several health professionals commented on this topic, explaining that they are aware that their colleagues "rarely or never prescribe it" (Participant 8). This links, according to them, to several factors, including the lack of research and strict regulations. Participant 9 believed, in turn, that this is about the previously described stigma and "the idea that cannabis is illegal and it's a harmful drug", and Participant 8 linked this to the "lack of knowledge". The users also described problems with having medical cannabis prescribed, mainly believing that *doctors lack knowledge.* Participant 2, for example, described a situation in which a hospital doctor disrespected them.

"[he] laughed in my face and told me, don't be stupid" when told that medical cannabis is legal. It is believed that "some doctors have (…) opposition to it" (Participant 3) and, what is worse is, "they don't want to get the knowledge".

This partly relates to the final challenge identified in this group, the *lack of consistency between health professionals,* with Participant 8 explaining that the problem lies in "the variety of [the doctors'] opinions to it". Knowing these challenges, and before turning to specific *suggestions*

that both groups of participants made. ***Something must change*** outlines the sub-categories of the particular *ways to overcome challenges* that may help health professionals and medical cannabis users.

Something must change

Based on the health professionals' interviews, *being open-minded but not overly excited* emerged as a common trait among this group. They were mostly accepting and open-minded toward considering medical cannabis in treatment and were willing to "explore that option" (Participant 8) in theory. Still, they also knew that the current research findings were limited (see ***ongoing struggles***). Thus, although *open-mindedness and prioritising the patient* are important to them, as it helps to build trust and good rapport, they are also aware that medical cannabis is not recommended for first-line treatment.

"There are guidelines around the world that say that you should try standard treatments [first], and if they don't work, then the third or fourth line would be to look at medical cannabis" (Participant 9). As such, most "have never as yet used it first line for anything" (Participant 8).

This also leads to the importance of *trusting the patients*. As noted above, health professionals prioritise their patient's needs and make an effort to ensure a good relationship with them, part of which is to trust their patients. They are willing to discuss the possibility of using medical cannabis in treatment. When asked about the possibility of people abusing medical cannabis and using it in a non-medical way, Participant 9 commented, "we'll have to wait and see how people are using those, but to some extent, you have to trust that people know what's right for them".

Something must change reflects closely what the medical cannabis users had to say on this topic, as *good relationships with the doctor* and *supportive, educated and open-minded doctors* came out in conversation. Reflecting on how the health professionals felt, they "prefer to have an open relationship and (…) full support" (Participant 3) from their doctors, and two of them praised the doctors they had come across. The good relationship is also important because of the previously identified challenges in these findings of some doctors being sceptical and reluctant and the fact that getting prescribed medical cannabis depends on individual doctors and their opinions and values.

Finally, both groups talked about the importance of learning about medical cannabis. The health professionals mentioned *actively educating oneself and others about cannabis*, noting that they try to keep track of current research. Participant 8 also speaks to other practitioners, as well as learns from his patients and does some of his own research. Participant 9, in turn, belongs to "several groups" (e.g. "society of cannabis clinicians"), visits "various websites", and attends conferences, where he both learns from others and gives his presentations. Regarding medical cannabis users, they also talked about *taking an interest and doing research. Although* one mentioned following peer-reviewed journals, they seemed to rely more on media and anecdotal evidence and storytelling of other people's experiences that were communicated to them. In addition to the discussion from which ***something must change*** was developed, both groups of participants made direct suggestions and recommendations for how to improve the current situation regarding medical cannabis, and these suggestions are outlined in ***choosing a healthier way forward***.

Choosing a healthier way forward

The health professionals suggested that *open dialogue and normalisation of cannabis* are needed, reflecting several of the previous findings in this paper that challenges with how

medical cannabis is perceived by both the medical professionals and the general public is a challenge. Those who commented felt, therefore, that it is necessary to "open this conversation" (Participant 6) and to "get the word out there and normalise it" (Participant 9). Similar views were expressed by the medical cannabis users, who suggested *education and awareness raising for the public and education and awareness raising for the practitioners.* This also relates to the suggestions *to make it more accessible and affordable* and, eventually, *to legalise cannabis* in a way that would make more products available for consumers. Considering the previously identified challenges with cost and availability, it is not surprising that the participants believed it to be "very important" (Participant 2) to make it "readily available" (Participant 2). They also suggested regarding recreational cannabis, "you need to make it legal so [the green fairies] could test what they've got" (Participant 2). Two participants also suggested *to allow people to legally grow it,* explaining that this would reduce the cost and increase availability. Doing this, in the opinion of Participant 3, would also "take away the need for anyone to steal from anyone else", and Participant 1 felt that this would "obviously" help "reduce the cost of health care in New Zealand".

At the same time, as Participant 1 explained, although access to medical cannabis should be increased, *potential patients should be well informed* about this type of treatment, including the possible side effects. This way, "they have the choice whether they want to use it or not" (Participant 1). Also, although Participant 1 shows support for this idea of legalising cannabis in principle, Participant 3 made it clear that it is important *to keep some regulations,* "whether you grow it at home (…) or not". They further explained, "it's just as important to keep some kind of regulation". A related suggestion is *to control and evaluate the use of medical cannabis,* and here those who commented explained that it is important to evaluate the people "to make sure they actually qualify" (Participant 1), as well as to control the prescribed amount to make sure that people are not "buying it to sell it" (Participant 2) and that "it's not going to put you

on a high". *Control and medical oversight* were also suggested by two health professionals, who felt that its use should be "controlled" (Participant 6). Finally, two users recommended *allowing various forms of medical cannabis,* including "joints" and "sprays" (Participant 1), and two felt that it is important to *do local research and trials* that will provide locally trusted results to support medical cannabis use for the people of NZ.

Conclusion

Chapter four presented and explained the findings of how each core concept emerged from the data. Health professionals discussed the core concepts as single elements. In comparison, the medical cannabis users discussed the concepts referring to each other and formed a cycle where one concept led to the next. The cyclic nature of discussions was significantly highlighted in ***gives hope*** that led to identifying and discussing the ***ongoing struggles***. These discussions led to further identifying elements of participant experiences, making suggestions to remove challenges in ***something must change***, and ultimately proposing recommendations highlighted through participant's experiences as part of the concept of ***choosing a healthier way forward***.

Chapter Five: Discussions and Conclusions

Introduction

This chapter discusses the significant difficulties for both groups of participants that have been revealed in the findings. In health professionals, there is hesitancy to prescribe medical cannabis for various reasons. Similarly, for medical cannabis users, significant challenges are experienced in accessing medical cannabis treatment in NZ, which are presented and discussed in this chapter. ***Gives hope***, is about the reasons for medical cannabis use from the lens of health professionals and medical cannabis users. Furthermore, the concept of ***ongoing struggles*** is about the challenges and barriers associated with medical cannabis treatment in NZ.

Additionally, the concept of ***something must change*** presents a discussion highlighting how current challenges could be addressed in NZ. The chapter proposes policy recommendations and interventions for medical cannabis that may benefit health professionals and medical cannabis users and allow the integration of medical cannabis into the healthcare practice of NZ safely in ***choosing a healthier way forward***. Finally, this chapter concludes with future research directions and highlights the steps forward for medical cannabis practice in NZ.

Core concept: Gives hope

Gives hope encapsulated discussions of why participants used medical cannabis, and both group discussions revealed differences in opinions. The medical cannabis users reflected on their positive experiences with medical cannabis, while the health professionals drew answers from their professional experiences. Here it is interesting to note that literature findings supported the answers from health professionals while being opinions of their own. ***Gives hope*** indicates how health professionals exhibited caution in their answers while also showing their support for using medical cannabis. In this instance, we can assume that health professionals,

although aware of the many uses of medical cannabis from patients, were protective of their professional identity and boundaries as their answers were opinions of their own but supported by statements from literature findings.

Gives hope also brings to attention the limited research available on hope in NZ. The work of Wepa (2016) explicitly highlights the importance of hope in healthcare settings in NZ. Additionally, hope is an intrinsic part of lived experiences (Banfield et al., 2018; Benzein et al., 2001) and therefore, it is essential to further research in lived experiences of patients using medical cannabis for chronic pain to understand their experience of using medical cannabis and how its use brought the hope of relief.

The hope of finding relief

Gives hope identified *mental health-related distress and helps ease pain* as the most common reason for medical cannabis use. It was mainly highlighted through the positive experiences of medical cannabis users that portrayed medical cannabis use as a way to have hopeful relief from their *mental health-related distress* and pain. In this case, the participants referred to their experiences that cannabis has a range of benefits, e.g., lowering anxiety, *helps ease pain*, helping with sleep problems and helping with managing Multiple Sclerosis (MS) symptoms, specifically depression that came with isolation from the community due to their disease. The reflection of positive experiences in participants aligns with those commonly reported among participants across other medical cannabis studies exploring user perspectives (Castañeda, 2020).

However, although participants may express feelings of relief from *mental health-related distress* after starting medical cannabis, there is poor quality evidence to support these

participant claims for *mental health-related distress,* particularly anxiety and depression (Black et al., 2019). The effects of using medical cannabis for *mental health-related distress* have been researched, and studies have reported contradictory findings. Hundal et al. (2018) assessed the impact of CBD on paranoid thinking and anxiety by creating a controlled immersive 3D reality experience in healthy participants resembling the experience of being on an underground train in London, where people commonly feel anxious. The high-impact immersive experiment reported no significant observations of CBD on anxiety, concluding that there were no benefits of dosing with CBD on anxiety in healthy volunteers with traits of high paranoia. In conclusion, this study proposed that a larger sample size study would be more valuable to report the observed effects on anxiety when using CBD for *mental health-related distress*.

In contradiction to Hundal et al. (2018), the work of Skelley et al. (2020) reported favourable outcomes for the use of CBD in treating anxiety with minimal adverse effects of using CBD for anxiety when compared to other existing pharmacotherapy drugs concluding by recommending researching the long-term safety and efficacy of CBD products formulated for medical use and their safety profile when used for treating *mental health-related distress*. This most notably brings to attention a research gap that requires attention (Skelley et al., 2020). The absence of research in this area needs attention as researching the safety profile of medical cannabis is essential to ensure knowledge availability regarding its unknown side effects for patients who desire to use medical cannabis. The call to perform research on the safety profile of medical cannabis is also evident in the work of Bannigan et al. (2022).

Corroborating the concerns by Skelley et al. (2020) that highlight the importance of understanding the safety profile of using medical cannabis for long-term treatment and as an alternative and adjunct therapy of approved drugs for *mental health-related distress* to prevent

the occurrence of unknown side effects in patients. Addressing the research gap will ensure that there is evidence available in the near future for doctors to recommend and prescribe medical cannabis with confidence to patients. It is important to note here that while participants report positive experiences during interviews, the contradictory findings and the existing research gaps warrant further investigation into the safe use of medical cannabis for *mental health-related distress* should be acknowledged (Benson et al., 2020; Bruce et al., 2021; Weinkle et al., 2019).

The hope for relief from pain

Both participant groups explained that medical cannabis *helps ease pain.* Here it should be noted that the health professional participants acknowledged that medical cannabis was not the first line of treatment they recommended for chronic pain. They further reiterated that they were well aware that their patients may be using it for treatment and management of their chronic pain. In comparison, medical cannabis users shared their personal stories about their experience of its use which showed that medical cannabis ***gives hope*** for living a better quality of life with their conditions. They emphasised their ***ongoing struggle*** with chronic pain in which they expressed their unbearable pain and difficulty finding relief while expressing that, ultimately, medical cannabis is the thing that ***gives hope*** to them to live a better life. Participant 2 spoke with gratitude, "It's given me my life back". The expression of relief noted here shows that using medical cannabis ended the ***ongoing struggle*** of living with pain and ultimately helped them find hopeful relief in the treatment they were searching for. It is important to note here that the comfort experienced by participants, as highlighted in ***gives hope,*** has been similar to the description of relief among other study participants (Dunne et al., 2022).

Gives hope indicates that the comfort received from medical cannabis is one of the benefits commonly discussed among participants and why its users believe that medical cannabis is suitable for managing various conditions. ***Gives hope*** and *helps ease pain* are among the most discussed concepts and imply it is of great significance to participants, although research may indicate otherwise. Therefore, although participants describe favourable outcomes in treating their chronic pain with medical cannabis, the literature findings echo contradictions similar to those for using medical cannabis for anxiety and depression (Black et al., 2019).

The conclusions of literature to support the use of medical cannabis to treat chronic pain is low to moderate quality, and instead, a perception that is anointed with using medical cannabis to provide relief for chronic pain (Sznitman & Bretteville-Jensen, 2015) compared to a reported scientific significant clinical improvement being noted in the condition which is reported in studies using more quantitative study methods (Andreae et al., 2015; Farrar et al., 2001). Therefore, while patients may describe favourable outcomes of using medical cannabis to treat their chronic pain, further research using trustworthy study designs is needed to suggest the use of medical cannabis for chronic pain patients (Mücke et al., 2018).

However, it is also essential to acknowledge the lived experiences described by patients and consider the gratitude that is expressed by the users of medical cannabis as ***gives hope*** demonstrates. The expression of appreciation associated with medical cannabis may be used to advocate the advancement of medical cannabis research for chronic pain to ensure further that the ***ongoing struggles*** of medical cannabis users are addressed. Advancing research in medical cannabis therapy for chronic pain may also ensure that patients living with chronic pain have the hope to live a better quality of life with their condition. Enabling research in medical cannabis specifically for chronic pain patients may also show the importance of medical

cannabis treatment in patient lives as ***gives hope*** highlights. Researching the importance of hope will also add to the body of literature that is currently limited on the significance of hope in healthcare settings in NZ (Wepa, 2016).

Additionally, ***gives hope*** demonstrates the cautious approach health professionals have to recommending medical cannabis although they know that patients are using medical cannabis for various conditions without the Ministry of Health (MOH) approval. Furthermore, ***gives hope*** highlights that health professionals know that the only approved condition for medical cannabis use is moderate to severe muscle spasticity for MS. The guideline to recommend cannabis therapy for MS patients is clear and evident in prior studies that show medical cannabis successfully improved the symptoms of MS, precisely muscle spasticity (Abrams, 2018; Riva et al., 2019). Therefore, health professionals in NZ exhibit confidence in prescribing cannabis-based therapy for MS patients. In comparison, ***gives hope*** indicates that although health professionals in NZ are willing to prescribe medical cannabis for MS patients, the latter is observed for patients with chronic pain due to the inconsistent findings. ***Gives hope*** draws attention to this aspect, and reiterates the importance to further research on medical cannabis, so health professionals can confidently prescribe medical cannabis for chronic pain (Black et al., 2019; Colizzi & Murray, 2018; Englund et al., 2013; Häuser et al., 2018; Hundal et al., 2018; Morgan et al., 2018).

Despite being studied in various clinical trials, the contradictory findings reported on the effects observed for medical cannabis research continue to remain unclear. As a result, the evidence of its therapeutic uses and the consequences of medical cannabis remains inconclusive. Therefore, while the number of studies conducted may acknowledge favourable user outcomes for their health, the inconsistent and contradictory findings reported in various studies cannot

be overlooked. These inconsistencies among studies highlight a significant research gap that highlights the challenge that patients are presented with when choosing medical cannabis.

Gives hope indicates that health professionals are not confident in prescribing medical cannabis for chronic pain patients as they lack clear guidelines and clinical evidence of its therapeutic effects. These elements represent a research gap illustrated by ***gives hope***. The research gap of lacking professional education among health professionals to prescribe medical cannabis for chronic pain patients is a barrier that prevents access to medical cannabis for patients in NZ. The barrier to accessing medical cannabis needs urgent attention in NZ, as more people desire to use medical cannabis for chronic pain. Therefore, researching medical cannabis therapy in chronic pain patients may be a solution to ensure health professionals are provided with clinical evidence to recommend and prescribe medical cannabis for chronic pain patients. Researching chronic pain effects on chronic pain patients may also provide an educational opportunity for health professionals to engage in ongoing professional educational development that will address the barrier of unclear guidelines. Educating health professionals regarding the uses of medical cannabis for chronic pain patients may allow medical cannabis practice in NZ to advance, hopefully giving patients living with chronic pain a better quality of life.

Gives hope explicitly demonstrates the current research gap of inconsistent findings that requires particular attention in future practice. As illustrated in ***gives hope*** the positive outcomes resembled views of people with a positive only lens while addressing medical cannabis use. Therefore, biased reporting may be assumed among these participants as their lens to view medical cannabis as a medicine with many uses dictates their experiences. As Sznitman and Bretteville-Jensen (2015) demonstrate, the experiences with medical cannabis commonly reported are often formed by the belief that participants hold before sharing their

experiences. Here it can be seen that the shared positive experiences with medical cannabis may have previously been informed by the belief that medical cannabis has many medical uses and minimal to no side effects compared to other first-line treatment drugs, e.g., opioids and their hopeful relief of finding a treatment that works for them.

However, research that examines the safety profile of medical cannabis is limited and more randomised clinical trials are required to suggest the safety profile of medical cannabis compared to other first-line treatments used for chronic pain (Hoch et al., 2019; Rogers et al., 2019). As discussed previously ***gives hope*** highlights gaps in the research on using medical cannabis for chronic pain. Participants described that medical cannabis worked for a wide range of conditions. Some participants further explained that medical cannabis could be effective in aiding drug abuse or alcohol addiction rehabilitation, implying that medical cannabis can be used to modulate addictive behaviours. However, although ***gives hope*** indicates that participants discussed this as their knowledge about medical cannabis, limited research suggests that CBD may play a role in modulating addictive behaviours and requires further investigation to suggest otherwise (Navarrete et al., 2021; Prud'homme et al., 2015).

Gives hope similarly further highlights that research is recommended to demonstrate the ability of CBD to be a successful intervention for substance abuse and aid in modulating addictive behaviours. Using CBD interventions may also provide conclusions for the wide range of uses of CBD commonly suggested by study participants through their depiction of their medical cannabis use experiences. ***Gives hope*** indicates that further research examining the full potential of CBD may remove the tag of various uses commonly associated with medical cannabis. Furthering research in this aspect would indicate the full potential of the uses of CBD

and may provide data showing the usefulness of medical cannabis that may aid in ruling out the many suggested uses of medical cannabis as described by participants in ***gives hope.***

Gives hope also brings to attention further gaps in medical cannabis research. Participants describe their experiences with medical cannabis without side effects. However, this contradicts findings from other research where the outcomes monitored to assess the safety profile of medical cannabis are often overlooked during experimentation (Abrams et al., 2007; Ellis et al., 2009; Mücke et al., 2018). In these studies, participants with a history of drug or substance abuse are excluded from the study populations. Therefore, overlooking these research elements of a study design indicates that studies mapping the safety profile of medical cannabis exclude participants with existing health issues. The exclusion of study subjects with complications such as a history of drug abuse may indicate biased study results as excluding study subjects with complexities to assess the safety profile of medical cannabis may impact the study results and cause an unfavourable outcome to the aim of the study. Therefore, ***gives hope*** further suggests researching the safety profile of medical cannabis to ensure the safety of use to patients that choose medical cannabis-based therapy for chronic pain.

It is vital to address the research gaps highlighted through ***gives hope***, as this means that concrete conclusions can be drawn from the research regarding the safety profile for treating chronic pain. Further research in this aspect will also ensure the favourable health outcomes noted with medical cannabis use align well with the already positive experiences among its users and contribute additional knowledge that currently exists in contradiction which may contribute towards improving future practice with medical cannabis. Furthermore, as discussed previously, the literature on hope in NZ is limited (Wepa, 2016), and it is equally important to encourage research that highlights hope in its true essence, as participants discussed their

experiences in ***gives hope***. Hope is an essential aspect of using medical cannabis for participants and should be considered one of the driving elements to inspire research on medical cannabis to hopefully encourage change and allow medical cannabis access for chronic pain patients in NZ.

Core Concept: Ongoing Struggles

Ongoing struggles highlighted the barriers and challenges both participant groups experienced with medical cannabis. The discussions for both groups elaborated on their experiences and usually answered how they lived with these ***ongoing struggles***. Furthermore, participants discussed ways to overcome these ***ongoing struggles***, which are discussed later in the concept of ***something must change*** and ***choosing a healthier way forward***. Additionally, these discussions with both participant groups emphasised significant research gaps in each group that require attention to progress with the future of medical cannabis practice in NZ.

The lack of research VS the research findings are being ignored.

Ongoing struggles brought to attention the current *lack of research* to prescribe medical cannabis for more patient desired uses, especially chronic pain as a common concern for health professionals. The concern of the *lack of research* that exists for using medical cannabis for chronic pain is also reported among other studies (Maher et al., 2019; Ng et al., 2021). In contrast, to the concern raised by health professionals, the medical cannabis users conveyed that in their opinions, there continues to be an ***ongoing struggle*** to access medical cannabis for chronic pain on prescription from the doctor. This is because although medical cannabis research for chronic pain exists, the *research findings are being ignored.* Therefore, according to the opinions of medical cannabis users, the usefulness of medical cannabis is also being overlooked by the current *research findings are being ignored.*

The difference of views between the participant groups highlights the continuing debate on medical cannabis and its uses in medical practice. Alongside the *lack of research*, concerns are also expressed regarding the unknown adverse effects of medical cannabis use on its own and as an adjunct therapy. These reported concerns reinforce doubt among health professionals regarding medical cannabis for chronic pain. These doubts of health professionals are further supported by the consistently reported contradictory findings in the literature (Hallinan et al., 2021). Therefore, the inconsistency of results, as highlighted in ***ongoing struggles*** in studies on medical cannabis and chronic pain, continues to divide the health professional's perspectives and those who would like to use medical cannabis as a treatment option. Therefore, as emphasised by ***ongoing struggles,*** the *lack of research* and the *research findings are being ignored* are two significant barriers to accessing medical cannabis on prescription for chronic pain in NZ.

The inconsistent laws among the countries play a vital role in influencing the challenges medical cannabis users experience in NZ. The NZ medical cannabis laws are developed by using international laws as examples. However, the loopholes present in other countries indicate similar challenges to those that want to use medical cannabis in NZ. Here it should be noted that a window of opportunity is presented for law formation in NZ. The opportunity is advantageous to NZ as we can learn from the examples in other countries, allowing NZ to address the loopholes currently evident in existing medical cannabis laws overseas. Addressing the loopholes and learning from other country regulations will enable NZ to develop strict laws that remove barriers, limit challenges, and increase medical and in future recreational cannabis safeguards. Doing so will also perhaps ensure that NZ moves forward from the controversial

debate engulfing medical cannabis with robust solutions for the ***ongoing struggles*** currently experienced by medical cannabis users in other countries and in NZ.

Ongoing struggles highlight a principal concern among health professionals of the continuous demand for criteria of medical cannabis to be more inclusive of other medical conditions, e.g., *mental health-related distress*. These concerns shed light on the impact these laws will have on the youth (Joffe & Yancy, 2004). Several studies have previously researched the trends in rates of medical cannabis use in teenagers and adolescents. Interestingly, studies show an increase in cannabis use after legalisation (Ammerman et al., 2015; Choo et al., 2014; Friese & Grube, 2013; C. J. Hammond et al., 2020; Ladegard et al., 2020; Wright Jr, 2015). The increased rates of medical cannabis use among the youth are especially significant to NZ as *mental health-related distress* is a prevalent health issue among this population in NZ (Ministry of Health, 2020). Hence these results are a viable cause for concern among health professionals. Additionally, as outlined in ***ongoing struggles,*** the health professionals being concerned regarding the more inclusive criteria being advocated for is significant as the public continues to demand access to medical cannabis for other conditions. While in comparison, the health professionals express their ***ongoing struggle*** with the *lack of research* to prescribe medical cannabis for more patient desired uses in NZ, such as chronic pain.

The debate continues

Furthermore, statistics show that the most recent NZ election (October 2020) saw its highest political engagement from young voters. Perhaps due to the reason that both topics included in the referendum were of interest to youth voters. NZ voted on two issues, one to legalise euthanasia and secondly, recreational cannabis, in a binding referendum (Duncan et al., 2021). At the time of the election, abuse was an important common concept causing havoc among the

public. Similarly, ***ongoing struggles*** highlights the potential for medical cannabis abuse by health professionals for youth and adult users. ***Ongoing struggles*** further brings to attention the limited safeguards to protect vulnerable people from addiction, substance abuse and misuse. The abuse was a common concern for legalising both euthanasia and recreational cannabis. However, for euthanasia, the safeguards of the End of Life Choice Act (EOLCA) outweighed the concerns, resulting in a win for legalisation. As a result, the controversies that inundate the EOLCA continue to grow (Jaye, Lomax-Sawyers, et al., 2021; Jaye, Young, et al., 2021).

In comparison, similar concerns were present among voters to legalise recreational cannabis, even though safeguards were suggested to be in place to protect the youth from accessing recreational cannabis, e.g., the proposed age to buy recreational cannabis was 20, two years older than the legal age to purchase alcohol in NZ (Wilkins & Rychert, 2020). Similarly, ***ongoing struggles*** emphasise health professionals opposing views regarding medical cannabis and their concerns about its addictive nature and its unknown chemical components possibly present in uncontrolled black market substances. The *lack of research* to prescribe medical cannabis, including the correct dosage, safety, efficacy and long-term use side-effects, are also elements of the gaps in research that are emphasised in ***ongoing struggles*** and also brought to attention in the work of Colizzi and Murray (2018).

The risk of using medical cannabis in people with a history of drug abuse and its impact on the youth also remains unclear. Research suggests that the increase in cannabis use after legalisation raises another cause for concern. ***Ongoing struggles*** also brings to attention the various gaps in the literature especially the *lack of research* highlighted by health professionals. Furthermore, ***ongoing struggles*** provides significant reasons to further research medical cannabis in clinical trials to ensure the correct and safe use of medical cannabis in future

medical practice. Further research in this aspect may ensure that the ***ongoing struggles*** of the medical cannabis users, reporting that *research findings are being ignored*, are addressed, and informed conclusions can be drawn (Levine et al., 2017). Furthering research on the safety profile of medical cannabis may also ensure that health professionals in NZ can recommend the safe use of medical cannabis as they may have the reassurance of their ***ongoing struggles*** regarding the lack of research.

The vast divide between the critical groups associated with medical cannabis in NZ of health professionals, medical cannabis users and its advocates is also brought to attention in ***ongoing struggles.*** Achieving unity among key groups is necessary to better the future of medical cannabis practice in NZ. Therefore, ***ongoing struggles*** may also provide a solution for the ongoing struggles that are currently experienced by medical cannabis users. These include but are not limited to easier access to medical, e.g., by considering lowering its associated costs, access to a broader range of products in the market, and managing the unwillingness of medical professionals to prescribe medical cannabis for chronic pain. It is also essential to address the *lack of research* to grow the knowledge among health professionals to recommend and guide the use of medical cannabis for patients.

Additionally, irregularity in the laws to access medical cannabis for treatment and the plea to stop the *research findings from being ignored* and answering the call to perform medical research to collect evidence to support the use of medical cannabis for chronic pain are also essential considerations to make. Managing the ***ongoing struggles*** of health professionals and medical cannabis users may ensure the betterment of medical cannabis practice in NZ. As a result, the findings from ***ongoing struggles*** suggest that further research in medical cannabis may end the currently present controversial findings. As this may allow firm conclusions to be

drawn from the literature. Therefore, ***ongoing struggles*** highlights addressing the highlighted research gaps may provide NZ with options for ***choosing a healthier way forward*** with medical cannabis. Additionally, ***choosing a healthier way forward*** may ensure that NZ has appropriate solutions that suggest further recommendations to guide policy for the future of medical cannabis practice in NZ and set an example for other international law reforms for medical cannabis use.

Core Concept: Something must change

The core concept of ***something must change,*** carried forward the discussions from ***ongoing struggles*** which significantly highlighted the barriers and challenges with medical cannabis that participants of both groups encountered. ***Something must change*** demonstrates further research gaps and highlights both suggestions from both groups. These are, however, discussed in the core concept of ***choosing a healthier way forward***. This is because the conversations in this regard were dominated by suggestions and recommendations for the future in both participant groups.

Being more inclusive of the laws.

As highlighted in ***ongoing struggles***, inconsistencies and grey areas are present in the law of medical cannabis in NZ. Currently, in NZ, the Medicinal Cannabis Scheme (MCS) is in place to control how much and what products of medical cannabis are available in NZ. In this regard, ***something must change***, as the key groups of people involved suggest. The law in NZ that controls medical cannabis aims to prohibit misuse and abuse of medical cannabis, as seen in other country regulations that intend to do the same (Alharbi, 2020). The criteria that the MOH currently outlines align with the safety issues brought to attention by health professionals regarding patients consuming medical cannabis products from the black market that may have

contaminants. Consumption of black market substances may arise as a consequence of inaccessibility as patients who want to use medical cannabis cannot access medical cannabis via the health system (Boden, 2019).

To strengthen this argument that health professionals raise, nearly two-thirds of participants reported using medical cannabis before its legalisation. However, when asked to compare their experiences before legalisation, patients said they felt safer and more confident receiving an uncontaminated, high-quality product after legalisation (Troutt & DiDonato, 2015). The MCS in NZ is a starting point to begin listening to the increasing demands of the public to access medical cannabis from both groups of health professionals and medical cannabis advocates. It is the starting point to attempt to address the current barriers. However, as ***something must change*** highlights, change is required to enable NZ to progress in ***choosing a healthier way forward*** with medical cannabis practice in NZ. Although, ***something must change*** acknowledges that further work is required for the MCS to become more inclusive and appropriately address the ***ongoing struggles*** of medical cannabis users.

However, listening to the public and professional opinions regarding a particular topic in NZ has not always been the case. Euthanasia was legalised irrespective of the uncertainties and apprehensions about the shortage of safeguards in the EOLCA expressed by both the public and the health professionals. Around the time euthanasia was in the binding referendum, elders in NZ were led to think they were burdened to their loved ones by being alive with a disability or illness (Malpas et al., 2014). As a result of ***choosing a healthier way forward*** in this case, people continue to assert their concerns about the paucity of safeguards and potency for abuse in the EOLCA. ***Something must change*** emphasises that this may also be the case for medical cannabis if the concerns of health professionals and the ***ongoing struggles*** expressed by

medical cannabis users are not heard (Jaye, Lomax-Sawyers, et al., 2021; Jaye, Young, et al., 2021). Therefore, in this case, we can see that in NZ, the MCS in place is a way to invest trust in the law by the public. This is because the MCS in NZ aims to offer safeguards for people using medical cannabis products and also keeps in mind the ***ongoing struggles*** raised by health professionals.

Furthermore, ***ongoing struggles*** emphasises the grey areas of the criteria to access medical cannabis via the health system in NZ. The associated costs of prescription medical cannabis products and the unwillingness of doctors to prescribe medical cannabis are common ***ongoing struggles*** related to accessing medical cannabis from the health system. These concerns expressed by medical cannabis users amplify the fears that the people who cannot access medical cannabis on prescription from their doctor may source their supply from other alternative means, e.g., green fairies. However, having the MCS scheme in place shows that people can trust their product. Amending this scheme to benefit its users will ensure NZ has a safe way to monitor and control the medical market of medical cannabis. Doing so will ensure NZ is working towards an appropriate solution to mitigate the concern expressed by health professionals regarding black market substances and is ***choosing a healthier way forward*** together as a uniform nation.

Therefore, this example of controlling what products are available for medical use should be considered when considering drug law reformation in NZ. As ***something must change*** highlights that the drug laws could be reformed in a way that benefits the users of medical cannabis and mitigates the concerns of black market products raised by health professionals and the ***ongoing struggles*** of accessibility expressed by medical cannabis users. Implementing these considerations during drug law reformation in NZ ***gives hope*** to medical cannabis users

that ***something must change*** to help them better. Considering these aspects in drug law reformations in NZ while respecting the autonomy of medical cannabis users and their choice to use medical cannabis, is essential to monitor the safe use and supply of products via the MCS scheme. Therefore, reforming the laws in NZ may address the ***ongoing struggles*** of people who want to use medical cannabis to *help ease pain* and *mental health-related distress* and choose medical cannabis as an alternative treatment option for chronic pain (Ng et al., 2021; Oldfield, Braithwaite, et al., 2020b).

Core Concept: Choosing a healthier way forward.

In this concept, the conversations were dominated by suggestions and recommendations for the place of medical cannabis in medical practice in NZ. This concept draws on the personal experiences of the ***ongoing struggles*** of medical cannabis users and health professionals. It progresses to emphasise their suggestions for ***choosing a healthier way forward*** with medical cannabis in NZ. This concept also highlights the further research gaps that require attention before proposing recommendations on the importance and consequences of drug law reformation in NZ. This section will also emphasise the importance and relevance of researching medical cannabis in NZ to ensure that the future of medical cannabis in NZ is positive and benefits all key groups of people involved.

The better choice

As discussed before, ***ongoing struggles*** emphasises the strong public demand for drug law reformation in NZ. It implies that improving access to medical cannabis reduces the significantly experienced ***ongoing struggles*** and barriers for medical cannabis users. A proposed solution to achieve this small milestone requires expanding the type of medical cannabis products available that are currently limited in the NZ market. Ongoing struggles

further highlight that there may be an implication of prices being reduced as there is more market competition as a result of expanding the availability of medical cannabis products. Lowering prices of medical cannabis products as a result of expansion has also been noted in the work of Smart et al. (2017) where increasing product availability and reducing costs have shown an increase in consumer use. For NZ, access to more products will mean that prices of products are lowered for NZ consumers. Therefore, ***ongoing struggles*** highlights that reducing prices of medical cannabis products and expanding the products available on the market addresses two significant barriers to accessing medical cannabis treatments in NZ of associated costs and the limited variety of products available.

Furthermore, considering that access to a broader range of medical cannabis products at lower prices indicates a higher consumer consumption (Pacula & Lundberg, 2013; Ruggeri, 2013). It is important to note that there is currently a *lack of research* on dependant use associated with increased use when medical cannabis products are more widely attainable. This is regarding the potency of available products and the dependency caused by regular use among patients. Therefore, the existing evidence cannot provide precise estimations of the effects the price will have on demand. It is also unable to provide a measure of how much consumption of medical cannabis might change in response to price reductions caused by product expansion in the market. Thus, presenting a research gap that requires attention before proceeding with the law reformation of medical cannabis in NZ.

Furthermore, in the case of NZ, as highlighted in ***something must change,*** medical cannabis users prefer products with a higher THC or complete THC product. This finding is also examined in other studies reporting consumer preference for cannabis products (Smart et al., 2017). Here it is important to stress that studies have noted a surge in cannabis potencies for

both the legal and illegal cannabis market products in Europe (Freeman et al., 2019; Niesink et al., 2015). Therefore, it is essential to note that in the case of NZ legal markets for medical cannabis products have been recent. Therefore, as indicated in the US, there is limited data on the potency of products available in the market. Consequently, collecting data on these products is crucial before making them available to consumers. In this regard, the MCS of NZ will be a valuable tool to navigate the challenges of the potency of products. As in the case of NZ, the MCS will ensure that the products available to consumers have a standard chemical strength, making them safe for consumption regularly in patients.

Choosing a healthier way forward additionally suggests that while it is vital to address the ***ongoing struggles*** of consumers, ***something needs to change*** before we can move forward with medical cannabis practice in NZ**.** However, before the existing barriers can be removed and easier access to medical cannabis and availability to more products can occur, taking action will require collecting evidence on the research gaps identified before reconsidering the current medical cannabis laws in NZ. Furthermore, when considering law changes, NZ must assess the situation that has previously occurred in other countries. Canada, in this scenario, presents a good case study for NZ to learn from. This is because the public continues to advocate for more drug law reformations, although their ***ongoing struggles*** have previously been addressed. Hence, NZ is presented with an example of how the efforts to resolve the ***ongoing struggles*** of medical cannabis users may not stop the shifting dynamics of medical cannabis advocacy in NZ, and its advocates may continue to push for loosening the medical cannabis regulations further (Rehm et al., 2019).

Canada demonstrates that although regulations have been amended medical cannabis users continue to demand change. Similarly in NZ, medical cannabis users have also described their

ongoing struggles that will require attention cautiously as demand for continuous amendments continues. Canada has exceeded public expectations by amending its laws for medical cannabis to become more inclusive. However, addressing these demands first resulted in policymakers expanding the range of products available in the Canadian medical cannabis market. The further needs of the public caused changes to the law that enabled medical cannabis users to grow cannabis plants at home for their medical use (D. Hammond et al., 2020).

Furthermore, Canada legalised recreational cannabis in the hope of regulating and safely supplying cannabis to those that want to use it. The goal for Canada to legalise recreational cannabis was to control its sale and supply. This was so that the harms associated with drug use could be managed, and the access and consumption of recreational cannabis for the more at-risk populations could be limited. This included the people such as the youth and those using cannabis through the recreational market for medical purposes (D. Hammond et al., 2020). Therefore, in the case of NZ, when we consider ***choosing a healthier way forward*** with medical cannabis, we must ensure that the laws in place are inclusive but also allow protection to prevent further easing of the regulations by public demands, as seen in Canada.

Choosing a healthier way forward with medical cannabis in NZ includes advocating more product access. Here it is important to note that while other countries have proceeded to make more products available on the market, the use of medical cannabis legally through the health system has occurred gradually. Therefore, in the case of NZ, it is crucial to ensure that the relevant research gaps on adverse effects of long-term use, the safety profile and the implication of law changes on the youth are exhausted in research before ***choosing a healthier way forward,*** and changes are made to the current medical cannabis laws of NZ.

Education may be the way forward for policy

Choosing a healthier way forward, therefore, suggests that education is the avenue that should be considered to advance medical cannabis practice in NZ. As ***something must change*** emphasised, not only should educating the health professionals be a key motive for medical cannabis organisations and the MOH in NZ. ***Choosing a healthier way forward*** also suggests the importance of educating nurse practitioners and pharmacists. Educating all critical groups of people involved in the area of medical practice in NZ is essential to ensure an educated gateway to medical cannabis in NZ. Educating all key health professionals that may play a role in NZ in providing access to medical cannabis for patients may ensure that patients can delve into making an educated decision regarding their choice of using medical cannabis for their health as demonstrated in ***gives hope***.

Education will ensure that a standard of information is presented to patients who would like to explore the option of using medical cannabis. In NZ, an education initiative from the Auckland University of Technology (AUT) is in place to educate enrolled students on medical cannabis. This paper has seen enrolment from all health disciplines. However, although this is a thoughtful start to address the concerns of lacking education for medical cannabis and its associated elements e.g., dosage, efficacy, and products recommended for the various conditions as emphasised in ongoing struggles. Highlighted here is the importance of further researching medical cannabis to address the current research gaps and make available new evidence that can form a strong foundation for the education of medical cannabis in NZ. Creating a strong foundation for education may also aid in increasing the availability of standardised information for health professionals and medical cannabis users. It is also important to design the curriculum of the medical cannabis paper at AUT to ensure that it meets the needs of health professionals and medical cannabis users. Developing the paper to meet the

needs of health professionals and medical cannabis users may lead to successful outcomes and reduce the challenges associated with medical cannabis practice currently in NZ, as emphasised in ***ongoing struggles***.

Ongoing struggles emphasised by the *lack of research* also requires urgent attention. Researching medical cannabis is however tricky as mostly randomised clinical trials (RCT) are considered credible medical evidence to recommend a medical products (McPartland). However, performing a large-scale RCT for medical cannabis is time-consuming and costly, making it challenging to conduct (Kilmer & Burgdorf, 2013). In the case of medical cannabis, performing an RCT is challenging because of the complexity and rigour associated with creating an RCT study design for medical cannabis (Aviram & Samuelly-Leichtag, 2017; Lee, 2019; Whiting et al., 2015). Therefore, while health professionals may be willing to wait for high-quality evidence to suggest the use of medical cannabis for the conditions highlighted in ***gives hope***. The medical cannabis users, its advocates and patients looking for hopeful relief may not wait for the evidence to become available.

Using real-world evidence for policy

Furthermore, considering the global relaxation of medical cannabis laws and wide acceptance of trying medical cannabis for medical conditions. Making use of the real-world evidence that is currently available is crucial. ***Something must change*** highlights the usefulness of using real-world evidence as the desire to use medical cannabis continues to grow. Using the qualitative data that resembles the experiences of people living with chronic pain should be considered when considering law reformation in NZ to encourage ***choosing a healthier way forward*** with medical cannabis practice in NZ. Based on the notable experiences of patients highlighted in ***gives hope*** of using medical cannabis, health professionals could be educated

regarding the usefulness of medical cannabis using the perspectives of patients that are using medical cannabis through the NZ health system.

For medical cannabis, a large amount of unstructured data is available to use that illustrates global perspectives. Data representing NZ perspectives of legal, medical cannabis users are limited. Therefore, the findings from ***gives hope***, ***ongoing struggles*** and ***something must change*** could be used. However, proper frameworks and governance to apply the data in policy reformation in NZ are vital (Klonoff, 2020; Schurman, 2019). Real-world evidence data such as that discussed in ***gives hope***, ***ongoing struggles,*** and ***something must change*** may be a valuable tool for monitoring the post-approval pharmacovigilance of medical cannabis (Ehrenstein et al., 2013). The purpose of using real-world data in public health is usually to confirm the drug's effectiveness, monitor side effects and compare the drug to first-line treatments used for the condition of concern.

The collected information is eventually used to market and implement the drug safely into the market for patient use. Therefore, real-world evidence is a powerful means to benefit medical cannabis users in NZ. Using population-based data to detect safety events for specifically medical cannabis will ensure that restrictions are implemented to reduce harm (Baumfeld Andre et al., 2020). Therefore, in this case, for NZ, the experiences of patients currently using medical cannabis via the health system may be a beneficial tool to policymakers. As it may be used to educate health professionals regarding the use of medical cannabis for health conditions, including the patient desired benefits as highlighted in ***gives hope.*** Therefore, ***choosing a healthier way forward*** with medical cannabis suggests the practical implementation of available real-world evidence to guide future policy and law reformation in NZ.

Furthermore, allowing people to access medical cannabis through the NZ health system will also aid in reducing the consumption of black market substances, which may aid in mitigating another common ***ongoing struggle*** health professionals in NZ have emphasised. Increasing products in the NZ market may additionally aid in ***choosing a healthier way forward*** for medical cannabis in NZ. As together the elements of accessing cannabis through the health system, reducing black market substance consumption and increased access to a wider selection of medical cannabis products through the legal market may inspire patients to use medical cannabis safely. Using products will additionally aid in collecting data and monitoring the use of products, to collect data regarding its efficacy and tolerance in medical cannabis users for the treatment of chronic pain and other conditions. It will also add to the body of evidence on medical cannabis as post pharmacovigilance data, that may be useful for future medical cannabis policy reformation in NZ.

Furthermore, as ***choosing a healthier way forward*** highlights, education may be a powerful tool to reduce the stigma that is an associated ongoing struggle with medical cannabis use. Hence in NZ, ***something must change*** to ensure that NZ can ***choose a healthier way forward*** with medical cannabis practice in NZ. Using real-world evidence may also serve as a helpful tool to increase the available research that the health professionals have emphasised in ***ongoing struggles***. To overcome the stigma highlighted in ***ongoing struggles*** and ***something must change*** needs consideration to move the conversation of using medical cannabis forward in NZ. As highlighted by ***choosing a healthier way forward,*** an open relationship with health professionals based on trust may be essential to progress the future of medical cannabis in NZ and assess the currently expressed ***ongoing struggles***. Implementing education programs that use real-world evidence may be a helpful way to open dialogue and normalise medical cannabis use between health professionals and patients.

Education may also raise awareness among the public regarding the use of medical cannabis. Therefore, it may aid in accessing medical cannabis treatment for patients in NZ. Educating health professionals regarding the use of medical cannabis using real-world evidence may also play an important role in educating the public to reduce the stigma associated with persons biased towards medical cannabis use. Additionally, reducing the stigma among health professionals is equally important as it may ensure that they have reduced judgement and more willingness to prescribe medical cannabis confidently, increasing the quality of healthcare provided to patients in NZ.

Ethics, Autonomy and Te Whare Tapa Whā

Choosing a healthier way forward highlights importantly the vital public health principles of ethics and autonomy (Zimmerman, 2017). The hesitancy of health professionals to prescribe medical cannabis highlights their ethical values and principles for their practice (Baum et al., 2007). Health professionals currently take a humanistic approach in recognising patient rights to medical cannabis. Health professionals value having open and transparent communication with their patients regarding their treatment options to show respect to their duty of care. To mitigate the risks of treatment, health professionals guide patients through treatment options with strong evidence before considering medical cannabis (Gunning et al., 2022). The ethical values that health professionals hold affect clinical decision-making about medical cannabis and reflect the importance of evidence-based treatment decisions, risk-benefit calculus, doctor-patient relationships, autonomy, and informed choice of their patients and themselves (Gunning et al., 2022). The ethical dilemma that health professionals face highlights the research gaps that need consideration, emphasising that education interventions for health professionals and medical cannabis users may be a successful technique to navigate the current

challenges with medical cannabis practice in NZ. Therefore, removing barriers to performing research and using presently available real word evidence to guide future policy reformation may be suitable for ***choosing a healthier way forward*** with medical cannabis in NZ.

Furthermore, ***choosing a healthier way forward*** highlights the importance of the future healthcare practice in NZ to have a more open-minded and holistic approach to patient health. ***Choosing a healthier way forward*** recommends integrating Te Whare Tapa Whā, the Māori model of health (Figure 7), developed by Mason Durie, resembling the four cornerstones that make the health of an individual whole into healthcare practice in NZ. The Te Whare Tapa Whā (Figure 7) model is illustrated using a Wharenui (Ministry of Health, 2017b). The four walls resemble the health and well-being of Māori, which can be applied to all people. The four dimensions that represent health and well-being as depicted by the model are Taha Tinana (physical health), required for optimal development. Taha Wairua (spiritual health), health that is related to the unseen and the unspoken and a person's life force. Taha Whānau (family health), the significance of belonging through caring for, sharing with and belonging to a wider social system and the last pillar of Taha Hinengaro (mental health), which encompasses thoughts, feelings and emotions as an integral element of a person as inseparable from the body (Ministry of Health, 2017b; Purdy, 2020).

Figure 7: *The Māori model of health Te Whare Tapa Whā represented by the Wharenui.*

Note: The image of the Wharenui developed for the Te Whare Tapa Whā model by Mason Durie. From the Ministry of Health (Ministry of Health, 2017b)

Integrating Te Whare Tapa Whā into healthcare practice to respond to patients when patients consider the choice of using medical cannabis may be a way to show respect towards the patients autonomy. Showing respect for personal choice may provide better health outcomes for the patient (Leech et al., 2020; McCorkle et al., 2011). Respecting the patient's choice to use medical cannabis respects their autonomy, an essential public health principle. Choosing a treatment regime they desire to use shows they are actively involved in bettering their health (Gunning et al., 2022). Medical cannabis treatment may additionally aid in achieving health and well-being for the patient, as suggested by the model of Te Whare Tapa Whā.

Approaching health holistically also addresses physical health (Taha Tinana), as patients may feel respected. Their choice of treatment ***gives hope*** for them to have reduced symptoms of their condition, e.g., chronic pain. The feeling of hope and a better quality of life achieve another element of Te Whare Tapa Whā of family health (Taha Whānau). Family health in this

aspect may improve for the patients as they value getting involved in their wider social system. Therefore, having hope for a better quality of life, accomplishing their daily activities, and being involved in their wider social society may improve the overall health and well-being of the patients and of others around them.

Moreover, exploring treatment options and choosing medical cannabis as the suitable regime addresses a person's spirituality as living a better quality of life can be connected to their life force (Taha Wairua). Receiving the treatment that patients have chosen to use, which in this case may be medical cannabis, respects their choice when receiving the medication on prescription from a health professional. Receiving treatment may also help achieve better mental health (Taha Hinengaro) for the person as they may feel emotional satisfaction from receiving the treatment they chose. This may also lead to the feeling of reduced judgement or stigma that is commonly associated with medical cannabis use. Furthermore, making people feel confident in their choices of treatment decisions will empower patients to make decisions regarding their medical treatments for the future (Leech et al., 2020; McCorkle et al., 2011). Creating a safe space for patients to access medical cannabis without stigma and judgement through a health professional may also encourage more patients to access medical cannabis treatment through the NZ health system. Thus, accessing medical cannabis using the NZ health system may reduce the consumption of black market substances as medical cannabis users may avoid other means of access, e.g., green fairies, which is currently the case in NZ, thus eventually ***choosing a healthier way forward*** with medical cannabis in NZ that is safe and can be monitored.

Limitations

This study has not developed a complete theory as normally expected when using grounded theory. However, as this study used grounded theory as an analysis method, it is acceptable to achieve conceptual clarity rather than develop an entire theory as emphasized by scholars (Timonen et al., 2018; Wu & Beaunae, 2014). This is because there were time constraints to consider, i.e., the time to carry out this study, limited funding to support carrying out this study and the small sample sizes. The participant group of this study was small (n=10) and, therefore, is suggestive of the challenges experienced by health professionals and medical cannabis users for medical cannabis treatment in NZ. Studying a larger group from a wider geographical area and areas of health practice that were not able to participate in this study due to no known networks, e.g., nurses, psychologists, pharmacists, policymakers and politicians, would provide data to enhance further the findings, analysis and implications of this study. Therefore, this study suggests further research at a larger scale to explore the perspectives of health professionals and medical cannabis users in NZ. Research at a larger scale may ensure inclusivity of perspectives that were excluded from this research, e.g., politicians and policymakers, that may aid in developing further recommendations for chronic pain treatment with medical cannabis in NZ.

Conclusions

This thesis provides evidence that medical cannabis is a widely pursued medical treatment for chronic pain in NZ. However, there are significant barriers and challenges to medical cannabis treatment for both health professionals and medical cannabis users.

Gives hope

Gives hope highlighted that although participants report relief from mental health related symptoms and chronic pain, research to validate these claims is low and indicates a reason to further research in this aspect to ensure patients can use medical cannabis for their treatments. Additionally, this study notes that hope is essential to bettering quality of life in patients living with chronic pain in NZ. Therefore, researching the importance of hope will also add to the body of literature that is currently limited on the significance of hope in healthcare settings in NZ. Researching hope and its importance in healthcare settings may additionally aid in integrating new treatments in NZ to provide a wider choice to patients living with chronic pain. Furthermore, giving hope to patients in NZ to live a better quality of life is important to health professionals. Therefore, education is needed to increase the confidence of health professionals to prescribe medical cannabis and contribute to further better patient health outcomes.

Ongoing struggles

Furthermore, lacking research is a significant barrier to prescribing medical cannabis for chronic pain in NZ. Removing these challenges associated with medical cannabis research may improve medical cannabis practice in NZ. Furthering research into the long-term effects of CBD use, adverse effects, the safety profile of CBD, dosing, dependence and the trends of CBD use in youth are research gaps that require attention before implementing law changes to extend medical cannabis treatment to other conditions, e.g., anxiety and depression. Furthermore, achieving unity among key groups is essential to better the future of medical cannabis practice in NZ. However, to achieve unity in key groups involved will firstly require addressing the challenges that health professionals encounter for prescribing medical cannabis and the challenges that medical cannabis users experience to access medical cannabis.

The solutions proposed to aid the challenges for both key groups include easier access to medical cannabis by considering lowering its associated costs, access to a broader range of products in the market and managing the unwillingness of medical professionals to prescribe medical cannabis for chronic pain. In addition, for health professionals, it is important to address the lack of research to grow the knowledge among health professionals. It is equally important to standardise the information given to patients and the products available to patients on prescription. Additionally, ensuring clear guidelines for prescription criteria are in place to ensure that health professionals can recommend and guide the use of medical cannabis for patients may increase access to medical cannabis through the NZ health system. These will ensure that NZ is mitigating concerns of health professionals that are prevalent for medical cannabis in NZ currently of black market substance consumption and no to minimal treatment follow-up protocols.

Something must change

This study highlights the inconsistencies present in the law of medical cannabis in NZ, which may be a proposed reason for hesitancy to prescribe medical cannabis in health professionals as there is a lack of clear guidelines from the MOH. The lack of clinical guidance to prescribe medical cannabis results in patients seeking to use medical cannabis to access treatment through other means, the most popular one being green fairies. Amendments to the current legislation and the MCS may ensure clear guidelines are in place to guide medical cannabis access in NZ. Additionally, introducing competition into the consumer market, e.g., increasing products available to consumers, may contribute to reducing the costs associated with medical cannabis treatment, making it more accessible and affordable to patients through the NZ health system.

Choosing a healthier way forward

Moreover, in NZ, patients seeking treatment with medical cannabis show favourable attitudes towards accessing treatments through the NZ health system. Patients have reported feeling confident in the product and value the limited information of use provided by health professionals. However, the challenges that currently exist discourage patients to approach their healthcare providers to access medical cannabis. Therefore, addressing other elements associated with medical cannabis use, e.g., lack of education among health professionals to prescribe medical cannabis confidently, associated treatment costs and stigma through education interventions that educate and raise awareness may encourage more patients to seek medical cannabis treatment via the health system, avoiding black market substance consumption mitigating a significant concern expressed by NZ health professionals.

This study, therefore, suggests increasing education for medical cannabis in NZ for health professionals and medical cannabis users. Additionally, this study indicates the usefulness and importance of having a holistic approach to health and wellbeing in NZ. Therefore, it suggests using models such as Te Whare Tapa Whā in healthcare practices as a valuable intervention to integrate medical cannabis practice into NZ safely that may contribute to bettering the health outcomes overall for patients that seek to use medical cannabis for chronic pain treatment in NZ.

References

Ablin, J. N., Elkayam, O., & Fitzcharles, M.-A. (2016). Attitudes of Israeli rheumatologists to the use of medical cannabis as therapy for rheumatic disorders. *Rambam Maimonides medical journal, 7*(2).

Abrams, D. I. (2018). The therapeutic effects of Cannabis and cannabinoids: An update from the National Academies of Sciences, Engineering and Medicine report. *European journal of internal medicine, 49*, 7-11.

Abrams, D. I., Jay, C., Shade, S., Vizoso, H., Reda, H., Press, S., Kelly, M., Rowbotham, M., & Petersen, K. (2007). Cannabis in painful HIV-associated sensory neuropathy: a randomized placebo-controlled trial. *Neurology, 68*(7), 515-521.

Adams, P. J., Rychert, M., & Wilkins, C. (2021). Policy influence and the legalized cannabis industry: learnings from other addictive consumption industries. *Addiction, 116*(11), 2939-2946.

Alharbi, Y. N. (2020). Current legal status of medical marijuana and cannabidiol in the United States. *Epilepsy & Behavior, 112*, 107452.

Ammerman, S., Ryan, S., Adelman, W. P., & Abuse, C. o. S. (2015). The impact of marijuana policies on youth: clinical, research, and legal update. *Pediatrics, 135*(3), e769-e785.

Anderson, S., Allen, P., Peckham, S., & Goodwin, N. (2008). Asking the right questions: scoping studies in the commissioning of research on the organisation and delivery of health services. *Health research policy and systems, 6*(1), 1-12.

Andreae, M. H., Carter, G. M., Shaparin, N., Suslov, K., Ellis, R. J., Ware, M. A., Abrams, D. I., Prasad, H., Wilsey, B., & Indyk, D. (2015). Inhaled cannabis for chronic neuropathic pain: a meta-analysis of individual patient data. *The Journal of Pain, 16*(12), 1221-1232.

Appleton, K., Whittaker, E., Cohen, Z., Rhodes, H. M., Dunn, C., Murphy, S., Gaastra, M., Galletly, A., Dougherty, S., Haren, A., Sukumaran, N., Aluzaite, K., Dockerty, J. D., Turner, R. M., & Schultz, M. (2021, 19 February 2021). Attitudes towards and use of cannabis in New Zealand patients with inflammatory bowel disease: an exploratory study. *The New Zealand medical journal, 134*(1530).

Aranda, A. M., Conti, R., & Wezel, F. C. (2021). Distinct but not apart? Stigma reduction and cross-industry evaluative spillovers: The case of medical marijuana legalization. *Academy of Management Journal, 64*(6), 1901-1926.

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International journal of social research methodology, 8*(1), 19-32.

Arnfinsen, J. L., & Kisa, A. (2021). Assessment of Norwegian physicians' knowledge, experience and attitudes towards medical cannabis. *Drugs: education, prevention and policy, 28*(2), 165-171.

Auckland University of Technology. (2021). *Systematic Review*. Auckland University of Technology. Retrieved 7 november 2021 from https://aut.ac.nz.libguides.com/systematic_reviews

Aviram, J., & Samuelly-Leichtag, G. (2017). Efficacy of cannabis-based medicines for pain management: a systematic review and meta-analysis of randomized controlled trials. *Pain physician, 20*(6), E755.

Babineau, J. (2014). Product review: covidence (systematic review software). *Journal of the Canadian Health Libraries Association/Journal de l'Association des bibliothèques de la santé du Canada, 35*(2), 68-71.

Bagnasco, A., Ghirotto, L., & Sasso, L. (2014). Theoretical sampling. *Journal of Advanced Nursing, 70*(11), e6-e7.

Ball, J., Gurram, N., & Martin, G. (2020). Adolescent cannabis use continues its downward trend, New Zealand 2012-2018. *New Zealand medical journal, 133*(1510), 91-93.

Banfield, M., Randall, R., O'Brien, M., Hope, S., Gulliver, A., Forbes, O., Morse, A. R., & Griffiths, K. (2018). Lived experience researchers partnering with consumers and carers to improve mental health research: Reflections from an Australian initiative. *International journal of mental health nursing, 27*(4), 1219-1229.

Bannigan, P., Evans, J. C., & Allen, C. (2022). Shifting the paradigm on cannabis safety. *Cannabis and cannabinoid research, 7*(1), 3-10.

Baum, N. M., Gollust, S. E., Goold, S. D., & Jacobson, P. D. (2007). Looking ahead: addressing ethical challenges in public health practice. *Journal of Law, Medicine & Ethics, 35*(4), 657-667.

Bauman, A. (2015). Qualitative online interviews: Strategies, design, and skills. *Qualitative Research in Organizations and Management: An International Journal*.

Baumfeld Andre, E., Reynolds, R., Caubel, P., Azoulay, L., & Dreyer, N. A. (2020). Trial designs using real‐world data: the changing landscape of the regulatory approval process. *Pharmacoepidemiology and drug safety, 29*(10), 1201-1212.

Benson, M. J., Abelev, S. V., Connor, S. J., Corte, C. J., Martin, L. J., Gold, L. K., Suraev, A. S., & McGregor, I. S. (2020). Medicinal cannabis for inflammatory bowel disease: a survey of perspectives, experiences, and current use in Australian patients. *Crohn's & Colitis 360, 2*(2), otaa015.

Benzein, E., Norberg, A., & Saveman, B.-I. (2001). The meaning of the lived experience of hope in patients with cancer in palliative home care. *Palliative Medicine, 15*(2), 117-126.

Black, N., Stockings, E., Campbell, G., Tran, L. T., Zagic, D., Hall, W. D., Farrell, M., & Degenhardt, L. (2019). Cannabinoids for the treatment of mental disorders and symptoms of mental disorders: a systematic review and meta-analysis. *The Lancet Psychiatry, 6*(12), 995-1010.

Blaszczak, B. (2014). Marijuana's History: How One Plant Spread Through the World. *LiveScience. October, 17*.

Boden, J. M. (2019). Cannabis in New Zealand: a conundrum, and some good news. *NZ Med J (Online), 132*(1500), 9-11.

Boehnke, K. F., Litinas, E., & Clauw, D. J. (2016). Medical cannabis use is associated with decreased opiate medication use in a retrospective cross-sectional survey of patients with chronic pain. *The Journal of Pain, 17*(6), 739-744.

Bostwick, J. M. (2012). Blurred boundaries: the therapeutics and politics of medical marijuana. Mayo Clinic Proceedings,

Bourke, J. A., Catherwood, V. J., Nunnerley, J. L., Martin, R. A., Levack, W. M. M., Thompson, B. L., & Acland, R. H. (2019). Using cannabis for pain management after spinal cord injury: a qualitative study. *Spinal Cord Ser Cases, 5*, 82. https://doi.org/10.1038/s41394-019-0227-3

Boychuk, D. G., Goddard, G., Mauro, G., & Orellana, M. F. (2015). The effectiveness of cannabinoids in the management of chronic nonmalignant neuropathic pain: a systematic review. *J Oral Facial Pain Headache, 29*(1), 7-14.

Bruce, D., Foster, E., & Shattell, M. (2021). Perceived efficacy of medical cannabis in the treatment of co-occurring health-related quality of life symptoms. *Behavioral Medicine, 47*(2), 170-174.

Buchanan, E. A., & Zimmer, M. (2012). Internet research ethics.

Burnett, M., & Reiman, A. (2014). How did marijuana become illegal in the first place? *Drug Policy Alliance. October, 9*.

Cabaroglu, N., Basaran, S., & Roberts, J. (2010). A comparison between the occurrence of pauses, repetitions and recasts under conditions of face-to-face and computer-mediated communication: A preliminary study. *Turkish Online Journal of Educational Technology-TOJET, 9*(2), 14-23.

Castañeda, J. (2020). User perspectives on cannabis and SSRIs as treatment for depression. *Drugs and Alcohol Today*.

Cater, J. K. (2011). Skype a cost-effective method for qualitative research. *Rehabilitation Counselors & Educators Journal, 4*(2), 3.

Celentano, D. (2020). The worldwide opioid pandemic: epidemiologic perspectives. *Epidemiologic Reviews, 42*(1), 1-3.

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. sage.

Charmaz, K., & Belgrave, L. (2012). Qualitative interviewing and grounded theory analysis. *The SAGE handbook of interview research: The complexity of the craft, 2*, 347-365.

Choi, B. C., Pang, T., Lin, V., Puska, P., Sherman, G., Goddard, M., Ackland, M. J., Sainsbury, P., Stachenko, S., & Morrison, H. (2005). Can scientists and policy makers work together? *Journal of Epidemiology & Community Health, 59*(8), 632-637.

Choo, E. K., Benz, M., Zaller, N., Warren, O., Rising, K. L., & McConnell, K. J. (2014). The impact of state medical marijuana legislation on adolescent marijuana use. *Journal of Adolescent Health, 55*(2), 160-166.

Chow, E., Wolt, A., Slaven, M., & Shaw, E. (2017). Efficacy of different varieties of medical cannabis in relieving symptoms. *Journal of Pain Management, 10*(4), 375-383.

Cohen, S. P., Vase, L., & Hooten, W. M. (2021). Chronic pain: an update on burden, best practices, and new advances. *The Lancet, 397*(10289), 2082-2097.

Colizzi, M., & Murray, R. (2018). Cannabis and psychosis: what do we know and what should we do? *The British Journal of Psychiatry, 212*(4), 195-196.

Corbin, J., & Strauss, A. (2014). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage publications.

Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative sociology, 13*(1), 3-21.

Crippa, J. A., Zuardi, A. W., Martín‐Santos, R., Bhattacharyya, S., Atakan, Z., McGuire, P., & Fusar‐Poli, P. (2009). Cannabis and anxiety: a critical review of the evidence. *Human Psychopharmacology: Clinical and Experimental, 24*(7), 515-523.

Currie, R. (2001). Spasticity: a common symptom of multiple sclerosis. *Nursing Standard (through 2013), 15*(33), 47.

Deakin, H., & Wakefield, K. (2014). Mixed-interview methods: Reflections of two PhD researchers using Skype. *Qualitative Research, 14*(5), 603-616.

Degenhardt, L., Glantz, M., Evans‐Lacko, S., Sadikova, E., Sampson, N., Thornicroft, G., Aguilar‐Gaxiola, S., Al‐Hamzawi, A., Alonso, J., & Helena Andrade, L. (2017). Estimating treatment coverage for people with substance use disorders: an analysis of data from the World Mental Health Surveys. *World Psychiatry, 16*(3), 299-307.

Degenhardt, L., Hall, W., & Lynskey, M. (2003). Exploring the association between cannabis use and depression. *Addiction, 98*(11), 1493-1504. London with first-episode psychosis attributable to use of high potency cannabis: a case-control study. *The Lancet Psychiatry, 2*(3), 233-238.

Dew, K., & Armstrong, L. (2021). Can the subaltern heal? Medical marijuana in Aotearoa New Zealand. *Journal of Sociology, 57*(2), 429-442.

Di Forti, M., Marconi, A., Carra, E., Fraietta, S., Trotta, A., Bonomo, M., Bianconi, F., Gardner-Sood, P., O'Connor, J., & Russo, M. (2015). Proportion of patients in south

London with first-episode psychosis attributable to use of high potency cannabis: a case-control study. *The Lancet Psychiatry, 2*(3), 233-238.

Drug Science. (2022). *Access Medical Cannabis with Project Twenty21*. Retrieved 17 MAY from

Duncan, G., Liu, J. H., & Choi, S. Y. (2021). The Mood of the Nation in 2020: The Stuff/Massey pre-election online survey. *Aotearoa New Zealand Journal of Social Issues, 1*.

Dunne, E. M., Rosen, R. K., McTigue, G. L., Jamison, R. N., Yeh, G. Y., Rich, J. D., & Carey, M. P. (2022). The Lived Experience of Managing HIV and Chronic Pain: Qualitative Interviews with Patients and Healthcare Providers. *AIDS and Behavior, 26*(2), 496-511.

Dworkin, R. H., Turk, D. C., Wyrwich, K. W., Beaton, D., Cleeland, C. S., Farrar, J. T., Haythornthwaite, J. A., Jensen, M. P., Kerns, R. D., & Ader, D. N. (2008). Interpreting the clinical importance of treatment outcomes in chronic pain clinical trials: IMMPACT recommendations. *The Journal of Pain, 9*(2), 105-121.

Ehrenstein, V., Hernandez, R., Ulrichsen, S., Rungby, J., Lash, T., Riis, A., Li, L., Sørensen, H., & Jick, S. (2013). Rosiglitazone use and post-discontinuation glycaemic control in two European countries, 2000–2010. *BMJ Open, 3*(9), e003424.

Electoral Commission. (2020). *Jump in youth voting*. Electoral Commission, . Retrieved 1 December 2020 from https://elections.nz/media-and-news/2020/jump-in-youth-voting/

Ellis, R. J., Toperoff, W., Vaida, F., Van Den Brande, G., Gonzales, J., Gouaux, B., Bentley, H., & Atkinson, J. H. (2009). Smoked medicinal cannabis for neuropathic pain in HIV: a randomized, crossover clinical trial. *Neuropsychopharmacology, 34*(3), 672-680.

Emma Russell. (2022, 1 March 2022). Cannabis: Auckland grandma becomes first NZer to legally use dried cannabis flower to relieve her pain. *New Zealand Herald*. https://www.nzherald.co.nz/nz/cannabis-auckland-grandma-becomes-first-nzer-to-legally-use-dried-cannabis-flower-to-relieve-her-pain/WV4IRX3EFUHKMIYQMGDTE4UNFA/

Englund, A., Morrison, P. D., Nottage, J., Hague, D., Kane, F., Bonaccorso, S., Stone, J. M., Reichenberg, A., Brenneisen, R., & Holt, D. (2013). Cannabidiol inhibits THC-elicited paranoid symptoms and hippocampal-dependent memory impairment. *Journal of Psychopharmacology, 27*(1), 19-27.

Farber, N. K. (2006). Conducting qualitative research: A practical guide for school counselors. *Professional school counseling*, 367-375.

Farrar, J. T., Young Jr, J. P., LaMoreaux, L., Werth, J. L., & Poole, R. M. (2001). Clinical importance of changes in chronic pain intensity measured on an 11-point numerical pain rating scale. *Pain, 94*(2), 149-158.

Finnerup, N. B., Attal, N., Haroutounian, S., McNicol, E., Baron, R., Dworkin, R. H., Gilron, I., Haanpää, M., Hansson, P., & Jensen, T. S. (2015). Pharmacotherapy for neuropathic pain in adults: a systematic review and meta-analysis. *The Lancet Neurology, 14*(2), 162-173.

Fischer, B., Daldegan-Bueno, D., Bell, R., Boden, J. M., Bullen, C., Farrell, M., Hall, W., & Newcombe, D. (2020). The Lower-Risk Cannabis Use Guidelines (LRCUG): a ready-made targeted prevention tool for cannabis in New Zealand. *Public Health in Practice, 1*, 100046.

Fitzcharles, M.-A., Baerwald, C., Ablin, J., & Häuser, W. (2016). Efficacy, tolerability and safety of cannabinoids in chronic pain associated with rheumatic diseases (fibromyalgia syndrome, back pain, osteoarthritis, rheumatoid arthritis). *Der Schmerz, 30*(1), 47-61.

Fitzcharles, M.-A., Ste-Marie, P. A., Clauw, D. J., Jamal, S., Karsh, J., LeClercq, S., McDougall, J. J., Shir, Y., Shojania, K., & Walsh, Z. (2014). Rheumatologists lack confidence in their knowledge of cannabinoids pertaining to the management of rheumatic complaints. *BMC musculoskeletal disorders, 15*(1), 1-6.

Fossey, E., Harvey, C., McDermott, F., & Davidson, L. (2002). Understanding and evaluating qualitative research. *Australian & New Zealand journal of psychiatry, 36*(6), 717-732.

Freeman, T. P., Groshkova, T., Cunningham, A., Sedefov, R., Griffiths, P., & Lynskey, M. T. (2019). Increasing potency and price of cannabis in Europe, 2006–16. *Addiction, 114*(6), 1015-1023.

Friese, B., & Grube, J. W. (2013). Legalization of medical marijuana and marijuana use among youths. *Drugs: education, prevention and policy, 20*(1), 33-39.

Glaser, B. G. (1978). *Advances in the methodology of grounded theory: Theoretical sensitivity*. University of California.

Glaser, B. G., & Strauss, A. L. (2017). *The discovery of grounded theory: Strategies for qualitative research*. Routledge.

Glaser, B. G., Strauss, A. L., & Strutzel, E. (1968). The discovery of grounded theory; strategies for qualitative research. *Nursing research, 17*(4), 364.

Glass, M., & Ashton, J. C. (2019). What is medicinal cannabis. *NZ Med. J, 132*, 49-56.

Gornall, J. (2020). Big cannabis in the UK: is industry support for wider patient access motivated by promises of recreational market worth billions? *bmj, 368*.

Gough, M. (2006). *Video conferencing over IP: Configure, secure, and troubleshoot.* Elsevier.

Grant, B. M., & Giddings, L. S. (2002). Making sense of methodologies: A paradigm framework for the novice researcher. *Contemporary nurse, 13*(1), 10-28.

Gray, L. M., Wong-Wylie, G., Rempel, G. R., & Cook, K. (2020). Expanding qualitative research interviewing strategies: Zoom video communications. *The Qualitative Report, 25*(5), 1292-1301.

Gulbransen, G., Xu, W., & Arroll, B. (2020). Cannabidiol prescription in clinical practice: an audit on the first 400 patients in New Zealand. *BJGP open, 4*(1).

Gunning, M., Rotenberg, A. D., Kelly, L. E., Crooks, B., Oberoi, S., Rapoport, A. L., Rassekh, S. R., & Illes, J. (2022). Clinician views on and ethics priorities for authorizing medical cannabis in the care of children and youth in Canada: a qualitative study. *Canadian Medical Association Open Access Journal, 10*(1), E196-E202.

Hall, W., & Degenhardt, L. (2009). Adverse health effects of non-medical cannabis use. *The Lancet, 374*(9698), 1383-1391.

Hall, W., Stjepanović, D., Caulkins, J., Lynskey, M., Leung, J., Campbell, G., & Degenhardt, L. (2019). Public health implications of legalising the production and sale of cannabis for medicinal and recreational use. *The Lancet, 394*(10208), 1580-1590.

Hallinan, C. M., Gunn, J. M., & Bonomo, Y. A. (2021, Oct 22). Implementation of medicinal cannabis in Australia: innovation or upheaval? Perspectives from physicians as key informants, a qualitative analysis. *BMJ Open, 11*(10), e054044. https://doi.org/10.1136/bmjopen-2021-054044

Hammond, C. J., Chaney, A., Hendrickson, B., & Sharma, P. (2020). Cannabis use among US adolescents in the era of marijuana legalization: a review of changing use patterns, comorbidity, and health correlates. *International review of psychiatry, 32*(3), 221-234.

Hammond, D., Goodman, S., Wadsworth, E., Rynard, V., Boudreau, C., & Hall, W. (2020). Evaluating the impacts of cannabis legalization: the International Cannabis Policy Study. *International Journal of Drug Policy, 77*, 102698.

Hannes, K., & Bennett, S. (2017). Understanding evidence from qualitative research.

Hannes, K., & Macaitis, K. (2012). A move to more systematic and transparent approaches in qualitative evidence synthesis: update on a review of published papers. *Qualitative Research, 12*(4), 402-442.

Häuser, W., Petzke, F., & Fitzcharles, M. (2018). Efficacy, tolerability and safety of cannabis‐based medicines for chronic pain management–An overview of systematic reviews. *European Journal of Pain, 22*(3), 455-470.

Heckathorn, D. D. (2011). Comment: Snowball versus respondent-driven sampling. *Sociological methodology, 41*(1), 355-366.

Hill, K. P. (2014). Medical marijuana: more questions than answers. *Journal of psychiatric practice, 20*(5), 389.

Hill, K. P. (2015). Medical marijuana for treatment of chronic pain and other medical and psychiatric problems: a clinical review. *Jama, 313*(24), 2474-2483.

Hoch, E., Niemann, D., von Keller, R., Schneider, M., Friemel, C. M., Preuss, U. W., Hasan, A., & Pogarell, O. (2019). How effective and safe is medical cannabis as a treatment of mental disorders? A systematic review. *European archives of psychiatry and clinical neuroscience*, *269*(1), 87-105.

Hundal, H., Lister, R., Evans, N., Antley, A., Englund, A., Murray, R. M., Freeman, D., & Morrison, P. D. (2018). The effects of cannabidiol on persecutory ideation and anxiety in a high trait paranoid group. *Journal of Psychopharmacology*, *32*(3), 276-282.

Isaac, S., Saini, B., & Chaar, B. B. (2016). The role of medicinal cannabis in clinical therapy: Pharmacists' perspectives. *PLoS ONE, 11*(5). https://doi.org/10.1371/journal.pone.0155113

Jaye, C., Lomax-Sawyers, I., Young, J., & Egan, R. (2021). The people speak: social media on euthanasia/assisted dying. *Medical humanities*, *47*(1), 47-55.

Jaye, C., Young, J., Lomax-Sawyers, I., & Egan, R. (2021). Assisted dying in New Zealand: what is known about the values underpinning citizens' positions? *Mortality*, *26*(1), 66-82.

Joffe, A., & Yancy, W. S. (2004). Legalization of marijuana: potential impact on youth. *Pediatrics, 113*(6), e632-e638.

Kankam, P. K. (2019). The use of paradigms in information research. *Library & Information Science Research, 41*(2), 85-92.

Karanges, E. A., Suraev, A., Elias, N., Manocha, R., & McGregor, I. S. (2018). Knowledge and attitudes of Australian general practitioners towards medicinal cannabis: A cross-sectional survey. *BMJ Open, 8*(7). https://doi.org/10.1136/bmjopen-2018-022101

Keall, C. (2020, 31 July 2020). Health professionals tune in, turn on to AUT medicinal cannabis paper- sending numbers through the roof. *New Zealand Herald*. https://www.nzherald.co.nz/business/health-professionals-tune-in-turn-on-to-aut-medicinal-cannabis-paper-sending-numbers-through-roof/IMIN7WPR53RIZWAHYUHUY7DXRI/

Kilmer, B., & Burgdorf, J. (2013). 6. Insights about cannabis production and distribution costs in the EU. *Further insights into aspects of the EU illicit drugs market*, 33.

Kite, J., & Phongsavan, P. (2017). Insights for conducting real-time focus groups online using a web conferencing service. *F1000Research, 6*.

Klonoff, D. C. (2020). The new FDA real-world evidence program to support development of drugs and biologics. *Journal of diabetes science and technology, 14*(2), 345-349.

Kumar, P., Mpofu, C., & Wepa, D. (2022). Analysing the perspectives of health professionals and legal cannabis users on the treatment of chronic pain with cannabidiol (CBD): A scoping review. *JMIR Research Protocols* JMIR Preprints. 03/03/2022:37697

Kvamme, S. L., Pedersen, M. M., Alagem-Iversen, S., & Thylstrup, B. (2021). Beyond the high: Mapping patterns of use and motives for use of cannabis as medicine. *Nordic Studies on Alcohol and Drugs, 38*(3), 270-292.

Ladegard, K., Thurstone, C., & Rylander, M. (2020). Marijuana legalization and youth. *Pediatrics, 145*(Supplement 2), S165-S174.

Lee, T. (2019). *Cannabis Metabolomics: Comparison of Cannabis Products and Effect of Vaporization* Université d'Ottawa/University of Ottawa].

Leech, M., Katz, M. S., Kazmierska, J., McCrossin, J., & Turner, S. (2020). Empowering patients in decision—making in radiation oncology–can we do better? *Molecular oncology, 14*(7), 1442-1460.

Leung, J., Chiu, V., Chan, G. C., Stjepanović, D., & Hall, W. D. (2019). What have been the public health impacts of cannabis legalisation in the USA? A review of evidence on adverse and beneficial effects. *Current Addiction Reports, 6*(4), 418-428.

Levine, A., Clemenza, K., Rynn, M., & Lieberman, J. (2017). Evidence for the risks and consequences of adolescent cannabis exposure. *Journal of the American Academy of Child & Adolescent Psychiatry, 56*(3), 214-225.

Lichtman, A. H., Lux, E. A., McQuade, R., Rossetti, S., Sanchez, R., Sun, W., Wright, S., Kornyeyeva, E., & Fallon, M. T. (2018). Results of a double-blind, randomized, placebo-controlled study of nabiximols oromucosal spray as an adjunctive therapy in advanced cancer patients with chronic uncontrolled pain. *Journal of pain and symptom management, 55*(2), 179-188. e171.

Lintzeris, N., Mills, L., Suraev, A., Bravo, M., Arkell, T., Arnold, J. C., Benson, M. J., & McGregor, I. S. (2020). Medical cannabis use in the Australian community following introduction of legal access: the 2018–2019 Online Cross-Sectional Cannabis as Medicine Survey (CAMS-18). *Harm Reduction Journal, 17*(1), 1-12.

Ljungvall, H., Rhodin, A., Wagner, S., Zetterberg, H., & Åsenlöf, P. (2020). "My life is under control with these medications": an interpretative phenomenological analysis of managing chronic pain with opioids. *BMC musculoskeletal disorders, 21*(1), 1-14.

Lu, H.-C., & Mackie, K. (2021). Review of the endocannabinoid system. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 6*(6), 607-615.

Lynch, M. E., & Campbell, F. (2011). Cannabinoids for treatment of chronic non—cancer pain; a systematic review of randomized trials. *British journal of clinical pharmacology, 72*(5), 735-744.

Mabragana, M., Carballo-Diéguez, A., & Giguere, R. (2013). Young women's experience with using videoconferencing for the assessment of sexual behavior and microbicide use. *Telemedicine and e-Health, 19*(11), 866-871.

Maher, C., Hadfield, M., Hutchings, M., & De Eyto, A. (2018). Ensuring rigor in qualitative data analysis: A design research approach to coding combining NVivo with traditional

material methods. *International journal of qualitative methods, 17*(1), 1609406918786362.

Maher, D. P., Carr, D. B., Hill, K., McGeeney, B., Weed, V., Jackson, W. C., DiBenedetto, D. J., Moriarty, E. M., & Kulich, R. J. (2019). Cannabis for the treatment of chronic pain in the era of an opioid epidemic: a symposium-based review of sociomedical science. *Pain Medicine, 20*(11), 2311-2323.

Maida, V., & Biasi, S. A. (2021). "Less pain with more gain"—Managing wound–related pain with cannabis–based medicines. *Wound Repair and Regeneration, 29*(2), 338-341.

Makdessi, C., Day, C., & Chaar, B. (2019). Challenges faced with opioid prescriptions in the community setting - Australian pharmacists' perspectives. *15*(8), 966-973. https://doi.org/10.1016/j.sapharm.2019.01.017

Malpas, P. J., Wilson, M. K., Rae, N., & Johnson, M. (2014). Why do older people oppose physician-assisted dying? A qualitative study. *Palliative Medicine, 28*(4), 353-359.

McCorkle, R., Ercolano, E., Lazenby, M., Schulman–Green, D., Schilling, L. S., Lorig, K., & Wagner, E. H. (2011). Self–management: Enabling and empowering patients living with cancer as a chronic illness. *CA: a cancer journal for clinicians, 61*(1), 50-62.

McPartland, J. M. MS & Ethan B. Russo MD (2001) Cannabis and Cannabis Extracts. *Journal of Cannabis Therapeutics, 1*, 3-4.

Meier, M. H., Caspi, A., Ambler, A., Harrington, H., Houts, R., Keefe, R. S., McDonald, K., Ward, A., Poulton, R., & Moffitt, T. E. (2012). Persistent cannabis users show neuropsychological decline from childhood to midlife. *Proceedings of the National Academy of Sciences, 109*(40), E2657-E2664.

Michalec, B., Rapp, L., & Whittle, T. (2015). Assessing physicians' perspectives and knowledge of medical marijuana and the Delaware Medical Marijuana Act. *The Journal of Global Drug Policy and Practice, 9*(3), 1-24.

Mills, J., Bonner, A., & Francis, K. (2006). The development of constructivist grounded theory. *International journal of qualitative methods, 5*(1), 25-35.

Ministry of Health. (20 December 2021). *History of Smokefree Aotearoa 2025*. Retrieved 14 July 2022 from https://www.health.govt.nz/our-work/preventative-health-wellness/tobacco-control/smokefree-aotearoa-2025-action-plan/history-smokefree-aotearoa-2025

Ministry of Health. (2015). *Cannabis Use 2012/13: New Zealand Health Survey*.

Ministry of Health. (2017a). *Access to cannabis for therapeutic use*. Ministry of Health. https://www.health.govt.nz/system/files/documents/pages/access_to_cannabis_for_therapeutic_use.pdf

Ministry of Health. (2017b, 18 May 2017). *Māori health models- Te Whare Tapa Whā*. Ministry of Health. Retrieved 8 August from https://www.health.govt.nz/our-work/populations/maori-health/maori-health-models/maori-health-models-te-whare-tapa-wha

Ministry of Health. (2020, 14 September 2020). *Mental Health 2016/17: New Zealand Health Survey*. Ministry of Health. Retrieved 5 August from https://www.health.govt.nz/publication/mental-health-2016-17-new-zealand-health-survey

Morgan, C. J., Freeman, T. P., Hindocha, C., Schafer, G., Gardner, C., & Curran, H. V. (2018). Individual and combined effects of acute delta-9-tetrahydrocannabinol and cannabidiol on psychotomimetic symptoms and memory function. *Translational psychiatry, 8*(1), 1-10.

Mücke, M., Phillips, T., Radbruch, L., Petzke, F., & Häuser, W. (2018). Cannabis‐based medicines for chronic neuropathic pain in adults. *Cochrane Database of Systematic Reviews*(3).

Munn, Z., Peters, M. D., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC medical research methodology, 18*(1), 1-7.

Navarrete, F., García-Gutiérrez, M. S., Gasparyan, A., Austrich-Olivares, A., & Manzanares, J. (2021). Role of cannabidiol in the therapeutic intervention for substance use disorders. *Frontiers in Pharmacology, 12*.

Newshub. (2021, 6 March 2021). Sick Kiwis forced onto black market by Govt's restrictive new medicinal cannabis regime. *Newshub Nation*. https://www.newshub.co.nz/home/politics/2021/03/sick-kiwis-forced-onto-black-market-by-govt-s-restrictive-new-medicinal-cannabis-regime.html

Ng, J. Y., Gilotra, K., Usman, S., Chang, Y., & Busse, J. W. (2021). Attitudes toward medical cannabis among family physicians practising in Ontario, Canada: a qualitative research study. *CMAJ open, 9*(2), E342.

Niesink, R. J., Rigter, S., Koeter, M. W., & Brunt, T. M. (2015). Potency trends of Δ9‐tetrahydrocannabinol, cannabidiol and cannabinol in cannabis in the Netherlands: 2005–15. *Addiction, 110*(12), 1941-1950.

Nutt, D. J., King, L. A., & Phillips, L. D. (2010). Drug harms in the UK: a multicriteria decision analysis. *The Lancet, 376*(9752), 1558-1565.

Oldfield, K., Braithwaite, I., Beasley, R., Eathorne, A., Newton-Howes, G., & Semprini, A. (2020a, 17 January 2020). Medical cannabis: knowledge and expectations in a cohort of North Island New Zealand general practitioners. *The New Zealand medical journal, 133*(1508).

Oldfield, K., Braithwaite, I., Beasley, R., Eathorne, A., Newton-Howes, G., & Semprini, A. (2020b). Medical cannabis: knowledge and expectations in a cohort of North Island New Zealand general practitioners. *NZ Med J, 133*(1508), 12-28.

Oldfield, K., Eathorne, A., Maijers, I., Beasley, R., Semprini, A., & Braithwaite, I. (2020). 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. *The New Zealand Medical Journal (Online), 133*(1522), 96-111.

Pacula, R. L., & Lundberg, R. (2013). Why changes in price matter when thinking about marijuana policy: A review of the literature on the elasticity of demand. *Public Health Reviews, 35*(2), 1-18.

Palmer, S. (2019, 12/09/2019). The 'green fairies' illegaly supplying weed to Kiwis with health problems. *Newshub*. https://www.newshub.co.nz/home/new-zealand/2019/09/the-green-fairies-illegally-supplying-weed-to-kiwis-with-health-problems.html

Petzke, F., Enax-Krumova, E., & Häuser, W. (2016). Efficacy, tolerability and safety of cannabinoids for chronic neuropathic pain: A systematic review of randomized controlled studies. *Schmerz (Berlin, Germany), 30*(1), 62-88.

Piper, B. J., Beals, M. L., Abess, A. T., Nichols, S. D., Martin, M., Cobb, C. M., & DeKeuster, R. M. (2017). Chronic pain patients' perspectives of medical cannabis. *Pain, 158*(7), 1373.

Pisanti, S., & Bifulco, M. (2019). Medical Cannabis: A plurimillennial history of an evergreen. *Journal of cellular physiology, 234*(6), 8342-8351.

Polkinghorne, D. E. (2005). Language and meaning: Data collection in qualitative research. *Journal of counseling psychology, 52*(2), 137.

Prosk, E., Arboleda, M. F., Rapin, L., El Hage, C., & Dworkind, M. (2021). The model of care at a leading medical cannabis clinic in Canada. *Complementary therapies in medicine*, 102740.

Prud'homme, M., Cata, R., & Jutras-Aswad, D. (2015). Cannabidiol as an intervention for addictive behaviors: a systematic review of the evidence. *Substance abuse: research and treatment, 9*, SART. S25081.

Purdy, S. C. (2020). Communication research in the context of te whare tapa whā model of health. *International Journal of Speech-Language Pathology, 22*(3), 281-289.

Rehm, J., Elton-Marshall, T., Sornpaisarn, B., & Manthey, J. (2019). Medical marijuana. What can we learn from the experiences in Canada, Germany and Thailand? *International Journal of Drug Policy, 74*, 47-51.

Resko, S., Ellis, J., Early, T. J., Szechy, K. A., Rodriguez, B., & Agius, E. (2019). Understanding public attitudes toward cannabis legalization: qualitative findings from a statewide survey. *Substance use & misuse, 54*(8), 1247-1259.

Rimmer, M. (2021). Proposals for a Smokefree Aotearoa 2025 Action Plan: A Submission to the New Zealand Ministry of Health.

Riva, N., Mora, G., Sorarù, G., Lunetta, C., Ferraro, O. E., Falzone, Y., Leocani, L., Fazio, R., Comola, M., & Comi, G. (2019). Safety and efficacy of nabiximols on spasticity symptoms in patients with motor neuron disease (CANALS): a multicentre, double-blind, randomised, placebo-controlled, phase 2 trial. *The Lancet Neurology, 18*(2), 155-164.

Rogers, A. H., Bakhshaie, J., Buckner, J. D., Orr, M. F., Paulus, D. J., Ditre, J. W., & Zvolensky, M. J. (2019). Opioid and cannabis co-use among adults with chronic pain: Relations to substance misuse, mental health, and pain experience. *Journal of Addiction Medicine, 13*(4), 287-294.

Ruggeri, D. (2013). Marijuana price estimates and the price elasticity of demand. *International Journal of Trends in Economics Management & Technology (IJTEMT), 2*(3).

Ryan, J., & Sharts-Hopko, N. (2017). The experiences of medical marijuana patients: A scoping review of the qualitative literature. *Journal of Neuroscience Nursing, 49*(3), 185-190.

Rychert, M., Wilkins, C., Parker, K., & Graydon-Guy, T. (2020). Exploring medicinal use of cannabis in a time of policy change in New Zealand. *NZ Med J, 133*(1515), 54-69.

Rychert, M., Wilkins, C., Parker, K., & Graydon-Guy, T. (2021). Predictors of medical cannabis users' willingness to utilise a new prescription Medical Sannabis Scheme in New Zealand. *The New Zealand medical journal, 134*(1534).

Schatzman, L., & Strauss, A. L. (1973). *Field research: Strategies for a natural sociology*. Prentice Hall.

Schurman, B. (2019). The framework for FDA's real-world evidence program.

Sedgwick, M., & Spiers, J. (2009). The use of videoconferencing as a medium for the qualitative interview. *International journal of qualitative methods, 8*(1), 1-11.

Shanahan, M., & Cyrenne, P. (2021). Cannabis policies in Canada: How will we know which is best? *International Journal of Drug Policy, 91*, 102556.

Sinclair, J., Toufaili, Y., Gock, S., Pegorer, A. G., Wattle, J., Franke, M., Alzwayid, M. A., Abbott, J., Pate, D. W., & Sarris, J. (2021). Cannabis Use for Endometriosis: Clinical and Legal Challenges in Australia and New Zealand. *Cannabis and cannabinoid research*.

Skelley, J. W., Deas, C. M., Curren, Z., & Ennis, J. (2020). Use of cannabidiol in anxiety and anxiety-related disorders. *Journal of the American Pharmacists Association, 60*(1), 253-261.

Smart, R., Caulkins, J. P., Kilmer, B., Davenport, S., & Midgette, G. (2017). Variation in cannabis potency and prices in a newly legal market: evidence from 30 million cannabis sales in Washington state. *Addiction, 112*(12), 2167-2177.

Smart, R., & Pacula, R. L. (2019). Early evidence of the impact of cannabis legalization on cannabis use, cannabis use disorder, and the use of other substances: findings from state policy evaluations. *The American journal of drug and alcohol abuse, 45*(6), 644-663.

Sznitman, S. R., & Bretteville-Jensen, A. L. (2015). Public opinion and medical cannabis policies: examining the role of underlying beliefs and national medical cannabis policies. *Harm Reduction Journal, 12*(1), 1-10.

Te Kāwanatanga O Aotearoa. (2022). *History of the Covid-19 Alert System*. Retrieved 9 August 2022 from https://covid19.govt.nz/about-our-covid-19-response/history-of-the-covid-19-alert-system/

Theodore, R., Ratima, M., Potiki, T., Boden, J., & Poulton, R. (2021). Cannabis, the cannabis referendum and Māori youth: a review from a lifecourse perspective. *Kōtuitui: New Zealand Journal of Social Sciences Online, 16*(1), 1-17.

Timonen, V., Foley, G., & Conlon, C. (2018). Challenges when using grounded theory: A pragmatic introduction to doing GT research. *International journal of qualitative methods, 17*(1), 1609406918758086.

Troutt, W. D., & DiDonato, M. D. (2015). Medical cannabis in Arizona: patient characteristics, perceptions, and impressions of medical cannabis legalization. *Journal of psychoactive drugs, 47*(4), 259-266.

Van den Berg, M., John, M., Black, M., Semprini, A., Oldfield, K., Glass, M., & Braithwaite, I. (2020, 22 May 2020). Cannabis-based medicinal products in arthritis, a painful conundrum. *The New Zealand medical journal, 133*(1515).

Venuto, D. (2019, 4 December 2019). 'Not a lolly scramble': Why running a cannabis business won't be easy. *New Zealand Herald*.

Volkow, N. D., Baler, R. D., Compton, W. M., & Weiss, S. R. (2014). Adverse health effects of marijuana use. *New England Journal of Medicine, 370*(23), 2219-2227.

Warden, G., Mazmanian, P., & Leach, D. (2010). Redesigning continuing education in the health professions. *Committee on Planning a Continuing Health Professional Education Institute and Institute of Medicine, Ed.). Natl Academy Pr*, 276-297.

Weingand, D. E. (1993). Grounded theory and qualitative methodology. *IFLA journal, 19*(1), 17-26.

Weinkle, L., Domen, C. H., Shelton, I., Sillau, S., Nair, K., & Alvarez, E. (2019). Exploring cannabis use by patients with multiple sclerosis in a state where cannabis is legal. *Multiple sclerosis and related disorders, 27*, 383-390.

Wepa, D. (2016). *Struggling to be involved: A grounded theory of Māori whānau engagement with healthcare* Auckland University of Technology].

Whiting, P. F., Wolff, R. F., Deshpande, S., Di Nisio, M., Duffy, S., Hernandez, A. V., Keurentjes, J. C., Lang, S., Misso, K., & Ryder, S. (2015). Cannabinoids for medical use: a systematic review and meta-analysis. *Jama, 313*(24), 2456-2473.

Wilkins, C., & Rychert, M. (2020). The Government's proposal to legalise cannabis in New Zealand: 10 key questions. *New Zealand medical journal, 133*(1515), 9-15.

Wilson, A., & Davis, C. Attitudes of Cancer Patients to Medicinal Cannabis Use: A Qualitative Study. *AUSTRALIAN SOCIAL WORK*. https://doi.org/10.1080/0312407X.2021.1904264

Winiarska, A. (2017). Qualitative longitudinal research: Application, potentials and challenges in the context of migration research.

World Health Organization. (2021, 4 August 2021). *Opioid overdose*. World Health Organization. Retrieved 13 July from https://www.who.int/news-room/fact-sheets/detail/opioid-overdose

Wright Jr, M. J. (2015). CPDD News and Views. *Drug and Alcohol Dependence, 149*, 298-303.

Wu, C.-H. V., & Beaunae, C. (2014). Personal reflections on cautions and considerations for navigating the path of grounded theory doctoral theses and dissertations: a long walk through a dark forest. *International journal of social research methodology, 17*(3), 249-265.

Yong, R. J., Mullins, P. M., & Bhattacharyya, N. (2022). Prevalence of chronic pain among adults in the United States. *Pain, 163*(2), e328-e332.

Ziemianski, D., Capler, R., Tekanoff, R., Lacasse, A., Luconi, F., & Ware, M. A. (2015). Cannabis in medicine: a national educational needs assessment among Canadian physicians. *BMC Medical Education, 15*(1), 1-7.

Zimmerman, F. J. (2017). Public health autonomy: a critical reappraisal. *Hastings Center Report, 47*(6), 38-45.

Appendix One: AUTEC Application Approval

Auckland University of Technology Ethics Committee (AUTEC)
Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316 E: ethics@aut.ac.nz www.aut.ac.nz/researchethics

21 September 2021
Charles Mpofu
Faculty of Health and Environmental Sciences

Dear Charles

Re Ethics Application: 21/244 Medically Prescribed Cannabidiol based intervention use in New Zealand: A qualitative case study of the perspectives of health professionals and legal cannabis users

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).
Your ethics application has been approved for three years until 21 September 2024.

Non-Standard Conditions of Approval

Non Standard Conditions

1. A separate Facebook post/invitation needs to be tailored for the friends and family.
2. Send through a consent protocol that replaces the Consent Form.
3. In the Information Sheet(s) remove claims around the evidence of efficacy of the medical cannabis.

1.
Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be submitted to or reviewed by AUTEC before commencing your study. **Standard Conditions of Approval**

The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.

1. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
3. Any amendments to the project must be approved by AUTEC prior to being implemented.
4. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.

8. AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through http://www.aut.ac.nz/research/researchethics

(This is a computer-generated letter for which no signature is required)
The AUTEC Secretariat
Auckland University of Technology Ethics Committee
Cc: , priyankakumar24@gmail.com

Appendix Two: Information Sheet

Participant Information Sheet
Date Information Sheet Produced:
16 September 2021
Project Title
Medically Prescribed Cannabidiol based intervention use in New Zealand: A qualitative case study of the perspectives of health professionals and legal cannabis users.

An Invitation
Bula Vinaka and hello!
I am Priyanka, I was born in the islands of Fiji and moved to NZ when I was a baby, so I consider myself very much kiwi although my roots are from Fiji. I completed my educational years in NZ from primary to university. Currently I am in my second year of my master's qualification at the Auckland University of Technology. My chosen area of research is public health and the evolving field of alternative medicine. I have particularly chosen to focus on the area of medicinal cannabis, for my postgraduate academic journey.

I would like to invite you to participate in my research study that will contribute towards the achievement of my qualification. This is a qualitative study and involves interviews, and it is different from an intervention study therefore, there is no physical association of research with the participant, thus your choice to participate will neither advantage nor disadvantage you.

What is the purpose of this research?
The purpose of my research project is to understand the most common reasons for using medicinal cannabis. The project will involve answering questions relevant to the research aims such as, is there robust evidence that exists currently for effective use of medicinal cannabis in the treatment and management of medical conditions? What are the opinions of health professionals towards medicinal cannabis use, the medicinal cannabis scheme in NZ and access to cannabis products for personal medical use?

This research project will also attempt to identify and analyse the currently held views and underlying reasons for cannabis use for health professionals and cannabis users. The findings from this research project may be used for an academic publication and presentations at the university.

How was I identified and why am I being invited to participate in this research?
You have been identified to participate in this research after viewing an advertisement to participate in this research study, and therefore have expressed your interest to participate.

You may have expressed interest to participate in this study due to your personal association with medicinal cannabis and by being involved in one of the key groups that this research is interested in of health professionals (e.g., mental health counsellors, physicians), or professional personnel working closely with medicinal cannabis (e.g., researcher).

How do I agree to participate in this research?

Your participation in this research is voluntary (it is your choice) and whether you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is yours removed or continue to have it be used. However, once the findings have been produced, removal of your data may not be possible. To participate in this research project your consent is required, this will be taken in the format of an audio recording prior to starting your interview. You have been provided with the consent form detailing the conditions that require your consent prior to taking part in this research alongside all the relevant information needed to gain your fully informed consent. The consent will be taken in the form of an audio recording where the researcher will read out the conditions where you will either agree or disagree. Please remember to read and understand this information sheet, should you have any questions please contact us with your questions to ensure you are able to give your fully informed consent.

Please be aware that the researcher has an obligation to report illegal activity that she may be made aware of in the interview process.
If you would like to participate, please contact me (the researcher), Priyanka to arrange a time to conduct an interview.

What will happen in this research?
This research project is adopting an exploratory descriptive qualitative research study design to effectively conceptualise the varying perceptions of the participants that are involved in this study. A qualitative study design collects data that is in a form other than numbers, therefore this can include personal opinions, experiences and feelings. In a qualitative research it is important to ensure that there is a presence of focus, interpretive and critical thinking from the researchers so data can be analysed effectively. In this research project it is necessary to understand the perspectives of the participants to create an understanding of the issue, from the lived experiences and opinions that are shared to myself in the interview.

Additionally, this research project will treat the participants involved in this research as individual case studies, this will ensure that there is focus and engaging participation between the researcher Priyanka and the participant, yourself. This will ensure that there is effective data collection occurring to be able to answer the aims of this research at a later stage effectively.

The interview protocol:
The interview will be organised when you contact me, the researcher to arrange a time that suits you. A time to conduct the interview will be reached between you and myself, at a time and date that is convenient to both of us will be agreed upon. The interview process will be conducted via zoom, or another web-based communication platform that is convenient to you.

Interview process:
The interview process will include answering questions related to the wider aim of this research project, the interview process will be a one-on-one session and will be for a duration of a minimum of 45 or 90 mins maximum with allocated additional time if needed. The duration of the interview is dependant of the number of questions that are answered, and how quickly they are answered. The interview will come to an end once the end of the

questionnaire has been reached, however if you are to experience any discomfort during the interview, please make the researcher aware to ensure that the interview ends immediately. It is important to answer all the questions being asked for thorough data collection, however it is important for you to note that it is important that you share with the researcher only what you are comfortable with sharing to avoid feeling any discomfort during the duration of the interview, making it a pleasurable research experience. Additionally, the questions that will be asked will encourage you to engage in a detailed conversation expressing your opinions/feelings/experiences and perspectives on the issue of medicinal cannabis. You will not need to prepare any material before the interview process although you will be given the interview questions to ensure fully informed consent.

Post interview process:
Transcripts of the interview will be analysed using a method of thematic analysis to form an understanding of the issues under investigation. The resulting analysis will be used for a writeup of a thesis to achieve an academic qualification and other research publications.

What are the discomforts and risks?
During this research project you may feel anxiety, or uncomfortable sharing information about your patients. Please be advised that the researcher encourages you to only share what you feel comfortable sharing to eliminate feelings of discomfort during the interview process. Please remember to share what you feel is relevant, while being honest, however please refrain from giving out identifiable information that can be used to identify a person as well as adhering to any external professional practice guidelines that may be relevant to you.
If you feel uncomfortable at any stage during the interview, please make the researcher aware so the interview session can end immediately.
Additionally, please be aware that there is help available if you experience feeling discomfort after the interview has ended. The following free services can be used if you feel the need to talk to someone immediately. Additionally, help through our institution of AUT university is also available, and information about this service is provided in the section 'how will these discomforts and risks be alleviated?'.
To speak with a trained counsellor for free, at any hour of the day or night (24/7). 7 days a week please call or text 1737.
If you identify as part of the pacific community, and would like tailored mental health support please call 0800 652 535.

How will these discomforts and risks be alleviated?
AUT Health Counselling and Wellbeing can offer three free sessions of confidential counselling support for adult participants in an AUT research project. These sessions are only available for issues that have arisen directly as a result of participation in the research and are not for other general counselling needs. To access these services, you will need to:
drop into our centres at WB219 or AS104 or phone 921 9992 City Campus or 921 9998 North Shore campus to make an appointment. Appointments for South Campus can be made by calling 921 9992
let the receptionist know that you are a research participant, and provide the title of my research and my name and contact details as given in this Information Sheet
You can find out more information about AUT counsellors and counselling on http://www.aut.ac.nz/being-astudent/current-postgraduates/your-health-and-wellbeing/counselling.

What are the benefits?

For the researcher Priyanka the benefit of completing this research project is being awarded her qualification of the Master of Public Health, additionally, the completion of this research project may also arise in an academic journal article publication or other academic publications.

For the participants of this research, such as yourself there are no direct benefits, however, participating in this research project is an opportunity to voice your opinions regarding the issue of medicinal cannabis that is under investigation in this research project. Additionally, I am hopeful that the impact of this research may be to inform future policy makers to better the healthcare system of NZ, taking into considerations the findings of this research upon completion.

What are the costs of participating in this research?
There is no monetary cost that is associated for participating in this research project, to acknowledge your participation in this research project you will be given a small koha (gift) as a token of appreciation for your time taken to participate in this research project.

What opportunity do I have to consider this invitation?
To consider participating in this research project, you will be given 14 days to ensure that you are able to make an informed decision. You are welcome to indicate your decision to participate in this project before the time lapses of 14 days via email or phone if you wish. If there is no answer from you in these given 14 days, and the time lapses the request to participate will be forfeited. Additionally, you are most welcome to contact the researcher Priyanka or the primary supervisor of this research project Dr Charles Mpofu at any time with any questions regarding this research project. We will be happy to help answer any questions or clarify anything for you regarding this research project, the contact details are given at the end of this information sheet.

Will I receive feedback on the results of this research?
If you would like to receive a summary of the findings of this research project, please indicate this to the researcher at the time of consenting to participate in the research project.

What do I do if I have concerns about this research?
Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor,

Dr Charles Mpofu
Email address: charlesmpofu@aut.ac.nz

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, *ethics@aut.ac.nz*, (+649) 921 9999 ext. 6038.
Whom do I contact for further information about this research?
Please keep this Information Sheet for your future reference. You are also able to contact the research team as follows:
Researcher Contact Details: Priyanka Kumar
Email: rgz5670@autuni.ac.nz
Project Supervisor Contact Details: Dr Charles Mpofu
Email address: charlesmpofu@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on 21 September 2021 AUTEC Reference number 21/244

Appendix Three: Consent Form

Consent Protocol
Project title: Medically Prescribed Cannabidiol based intervention use in New Zealand: A qualitative case study of the perspectives of health professionals and legal cannabis users.

Project Supervisor: **Dr Charles Mpofu**
Researcher: **Priyanka Kumar**

○ I have read and understood the information provided about this research project in the Information Sheet dated 16/09/2021.
○ I have had an opportunity to ask questions and to have them answered.
○ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
○ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.
○ I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.
○ I understand that the researcher has an obligation to make officials aware of illegal activity that is made aware to the researcher.
○ I agree to take part in this research.

I wish to receive a summary of the research findings (please tick one):
Yes○ No○

Participant signature :
.....
…

Participant name :
.....
…
Participant contact details (if appropriate) :
……..
……..
……..
……..

Date : 14/07/2021

Approved by the Auckland University of Technology Ethics Committee on 21 September
AUTEC Reference number 21/244
Note: The Participant should retain a copy of this form.

The invitation email below will be the invitation email that is sent to known networks of the supervisor and researcher to circulate to their known networks.

Kia ora!

This is an invitation email inviting you to participate in an interesting research study about medically prescribed cannabis.

You have been identified as an ideal candidate in the population group we are interested in researching of medical professionals or professionals of the medicinal cannabis industry.

The research study is in the field of public health research, more specifically alternative medicine, investigating the very popular topic of medicinal cannabis. This research hopes to reform future policy making for the betterment of the NZ healthcare system.

This is a qualitative study, and does not involve an intervention of any sort and there is no cost to get involved, or monetary benefit to be gained for participating.

However, your time and contribution to the study will be appreciated and you will receive a small koha on behalf of our academic institution and home of this research study, the Auckland University of Technology.

I would like to thank you for taking the time to read this email. If you would like to know more about the study, and how you can participate please refer to the attached documents in this email for detailed information.

Ngā mihi
Priyanka Kumar

Below is the Facebook advert that will be posted to Facebook groups.

Kia ora!

Interested to participate in an interesting research study on legally prescribed medicinal cannabis?

Are you a medical professional? Or do you work in the medicinal cannabis industry? Or perhaps you are a medicinal cannabis user? Or know someone that uses medicinal cannabis? We want to hear from you!

This research is in the field of public health, more specifically alternative medicine, investigating the very popular topic of medicinal cannabis. This research hopes to reform future policy making for the betterment of the NZ healthcare system.

This is a qualitative study, and does not involve an intervention of any sort and there is no cost to get involved, or monetary benefit to be gained for participating.

Your time and contribution to the study will be appreciated and you will receive a small koha on behalf of our academic institution and home of this research study, the Auckland University of Technology.

Thank you for taking the time to read this little post, if you would like more information or would like to get in touch about participating, please private message me directly!

Ngā mihi
Priyanka Kumar