

MEDICAL CANNABIS PACKAGING AND LABELLING CONCERNS FOR MIDDLE
AGED AND OLDER MANITOBANS

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Vanessa Tatyana Christiuk

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By

Vanessa Tatyana Christiuk

The Supervisory Committee certifies that this *disquisition* complies with North Dakota State
University's regulations and meets the accepted standards for the degree of

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SUPERVISORY COMMITTEE:

Dr. Melissa O'Connor

Chair

Dr. Heather Fuller

Dr. Andrea Huseth-Zosel

Approved:

June 4, 2021

Date

Dr. Joel Hektner

Department Chair

ABSTRACT

Middle-aged and older adults make up the largest growing proportion of medical cannabis users in Canada, as well as the largest proportion of the population to vote in the last federal election (Elections Canada, 2020; Statistics Canada, 2019). Middle-aged, and older adults may encounter problems with the way their medical cannabis is packaged and labelled. The present study investigated how a sample of Manitobans aged 45 and older experienced their medical cannabis packaging, including the manipulation of medical cannabis packaging and readability of the labelling. Most participants reported having difficulty opening child-safe lids and the inability to clearly read the information on the label. In addition, most participants favored the use of a standardized symbol indicating the type of medical cannabis in the container, as well as receiving a large-font printout of the packaging label. Implications for policy makers and future research potentials are discussed.

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DEDICATION

I would like to dedicate this disquisition to Gigi. Though you are gone, you continue to be my inspiration everyday.

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LIST OF ABBREVIATIONS

CBD.....Cannabidiol

THC.....Delta-9-tetrahydrocannabinol

INTRODUCTION

The use of cannabis for therapeutic purposes has steadily increased in popularity over the past two decades in many countries including Canada. Cannabis for therapeutic purposes, also known as “medical marijuana” or “medical cannabis”, has been used to treat a variety of conditions, including chronic pain, eating disorders, seizures, nausea, and mental health conditions such as anxiety, depression, and post-traumatic stress disorder (Abuhasira, Schleider, Mechoula, & Novack, 2018; van den Elsen, et al., 2014). Even though the use of medical cannabis is growing, research in the safety and efficacy of medical cannabis is lagging. As medical cannabis use is increasing, it is important to understand public opinions and attitudes about medical cannabis, as well as existing legislation related to medical cannabis. Public support and opinion can influence national policy formation, modification, and support (Sznitman & Bretteville-Jensen, 2015).

Middle-aged adults, those aged 45 to 64, and older adults, those aged 65 and older, are the population of medical cannabis users who may have the largest influence on research trends and policy formation for medical cannabis. Generation X, currently between 41 and 55 years old, and Baby Boomers, currently 55 to 74 years old, are expected to have the greatest impact. Firstly, these two groups make up the largest number of Canadian voters (Elections Canada, 2020). Secondly, older adults make up an increasing proportion of the individuals using medical cannabis in Canada (Statistics Canada, 2019). The National Cannabis Survey found that 7% of Canadians aged 65 and older consumed cannabis. This is increased from 1% in 2010 (Statistics Canada, 2019). Approximately 10% of Canadians aged 45 to 64 use cannabis (Statistics Canada, 2019). The National Cannabis Survey also found that Canadians older than 65 are the fastest growing group of medical cannabis users (Statistics Canada, 2019). The older adult population is

expected to grow immensely in the upcoming years. The youngest of Baby Boomers in Canada will reach the age of 65 by the year 2031 (Statistics Canada, 2019). Based on the trends of medical cannabis users outlined by the National Cannabis Survey, and the aging trend identified in Canadian population demographics, it is expected that the use of medical cannabis will become more prevalent among older adults.

Canada began to allow legal access to cannabis for therapeutic purposes in 2001 under the *Marihuana Medical Access Regulations* (Belle-Isle, et al., 2014) which were later rewritten into *The Cannabis Act* (Minister of Justice, 2020). Under *The Cannabis Act*, medical cannabis is treated the same as recreational cannabis in most regards. About one third (34.7%) of Canadians between the ages of 45 and 64 use cannabis for medical purposes and a majority (52%) of older adults aged 65 and older reported using cannabis exclusively for medical reasons while 24% also reported using cannabis for both medical and non-medical purposes (Statistics Canada, 2019). Given these statistics, and the Baby Boomers reaching the age of 65 by 2039 (Statistics Canada, 2019), legislation related to medical cannabis has a disproportionate impact on middle-aged and older adults in Canada. Medical cannabis packaging and labelling regulations are aimed to keep children safe, but what about making medical cannabis accessible and safe for older adults? This study surveys medical cannabis users over the age of 45 in Manitoba regarding their experiences with their medical cannabis packaging and labelling.

LITERATURE REVIEW

In Canada, medical cannabis is regulated under *The Cannabis Act*, the same legislation that regulates recreational cannabis (Minister of Justice, 2020). The most striking differences between medical and recreational cannabis include how cannabis can be accessed, where cannabis can be purchased, and the way in which the cannabis is cultivated and processed for sale (Minister of Justice, 2020). To access recreational cannabis, an individual must be of legal age in the province or territory they are purchasing. Medical cannabis, however, can be accessed by an individual of any age but requires an authorization from a physician or nurse practitioner to be purchased online or by phone directly from a Health Canada approved License Holder (Minister of Justice, 2020). Recreational cannabis vendors are prohibited from promoting any cannabis products due to medical benefits (Minister of Justice, 2020). Health Canada approved License Holders cultivate cannabis and produce medical cannabis products such as oils, dry flowers, and edibles in an environment with stricter production regulations, thereby ensuring higher quality products than recreational cannabis manufacturers (Minister of Justice, 2020).

The Government of Canada last updated the packaging and labelling regulations for all cannabis products in December 2019. The packaging and labelling regulations apply to cannabis products that are both for recreational as well as medical purposes in all provinces and territories. The requirements are intended to reduce the risks of accidental overconsumption, and not advertise in a way that makes them appealing to children (Government of Canada, 2019). These are justifiable objectives meant to keep children and adult consumer safe. However, some requirements may make the use of medical cannabis confusing, difficult, and dangerous for some older adults in unintended ways.

Under *the Cannabis Act* 113 120 123.1(1) (c) packaging and labelling must be a single uniform color, with no fluorescent colors, and must contrast with the bright yellow and red of the health warning and standardized cannabis symbol and have no other symbols present aside from the logo of the manufacturer (Government of Canada, 2019). There are six different bright yellow and red health warnings to communicate the risks of: use during pregnancy, addiction, impaired driving, harmful chemicals in cannabis smoke, use among adolescents, and psychosis and schizophrenia (Goodman, Leos-Toro, & Hammond, 2019). A manufacturer can choose which health warning they put on their cannabis label and one warning must be present (Government of Canada, 2019). There has only been one study related to cannabis packaging in Canada that examined the effects of cannabis packaging and health warning labels. This study found that those packages without health warnings were more appealing to children and young adults (Goodman, Leos-Toro, & Hammond, 2019).

For people who take more than one type of medical cannabis with differing ratios of cannabidiol (CBD), the non-psychoactive component of cannabis (Ko, Bober, Mindra, & Moreau, 2016) and delta-9-tetrahydrocannabinol (THC), the psychoactive component of cannabis (Ko, Bober, Mindra, & Moreau, 2016), this regulation restricting the use of multiple colors and the addition of symbols to cannabis packaging labelling can be problematic and lead to look-alike labels, especially when people are ordering products from the same License Holder and share similar product branding. There is currently no research on medical cannabis packaging and labelling concerns but comparison can be made from pharmaceutical medication packaging and labelling.

When labels on different medications look similar, there is an increased risk of confusion for the patient and a higher probability of medication mix-ups (Pons, Moraes, Falavingna,

Sirtori, & da Cruz, 2019). A large study of medication label comprehensibility and readability found that 82.5% (n=5154) of participants were dissatisfied with their look-alike medication labels, likely because the similarities led to participant confusion and medication mix-ups (Pons, Moraes, Falavingna, Sirtori, & da Cruz, 2019). Studies have found that participants aged 65 and older who are taking multiple medications, prefer symbols and color coding on their prescription labels because it makes it easier for them to understand medication labels and identify and differentiate between them, thus reducing potential medication errors (Cardarelli, et al., 2011; Samaranayake, Bandara, & Manchanayake, 2018; Merks, et al., 2018; King, et al., 2012).

One of the most straightforward ways to avoid look-alike packaging, and help patients with lower literacy understand their medication, may be to place a colored band or symbol on medical cannabis packaging to indicate the type of cannabis contained inside. Just under half of all Canadians (48%) have low literacy, making it difficult for them to obtain, process, and understand health information (Grindrod, et al., 2014). Patients with low literacy have a higher rate of taking inappropriate medication, dosing, and taking their medications at the wrong time (King, et al., 2012) Symbols, icons, and pictograms are useful to those with low literacy (Samaranayake, Bandara, & Manchanayake, 2018; King, et al., 2012).

There are many pieces of information that Health Canada deems critical and that must be incorporated in medical cannabis labelling. These are:

- concentration of the CBD and THC;
- in the upper left 25% of the package include the standardized cannabis symbol measuring 1.27cm by 1.27cm with a two-point white border on all sides;
- chosen health warning in both English and French;

- contact information of the Licence Holder that manufactured the product including name, telephone number and email address;
- class of cannabis;
- a lot number;
- recommended storage condition;
- packing date;
- net weight of cannabis;
- number of discrete units;
- net weight per discrete unit;
- cannabis possession statement;
- and the warning “KEEP OUT OF REACH OF CHILDREN/TENIR HORS DE LA PORTEE DES ENFANTS" (Government of Canada, 2019; Goodman, Leos-Toro, & Hammond, 2019).

All the above information must fit on packaging that cannot contain more than the equivalent of 30 grams of dried cannabis, or more than 90 millilitres of liquid cannabis (Government of Canada, 2019).

These regulations cause the required information to be printed on small packages. For those with compromised vision, reading a small label with a large amount of information can be difficult. Adults aged 65 and older exhibit lower levels of visual acuity than younger adults (Caitlin & Brass, 2018). Many of the leading causes of visual impairment are age-related and may compound difficulties reading prescription drug labels and managing medication (Connors, et al., 2020). Aspects of medication labels that reduce readability include a too small font and inadequate white space (Cardarelli, et al., 2011; Connors, et al., 2020).

Health Canada cannabis labelling regulations state the font size on cannabis products must be a minimum 6-point, where one point is equal to 0.35 millimeters, making the font 2.12 millimeters tall (Government of Canada, 2019). In contrast, Health Canada requires a minimum 10-point font on pharmaceutical labels and 12-point font required for tobacco labels (Grindrod, et al., 2014; Orenstein & Glantz, 2018). Font size can significantly impact the readability of a medication label. Those with mild to moderate vision loss find fonts smaller than 8- to 14-point illegible (Grindrod, et al., 2014). A study of medication label comprehension found older adults preferred and performed better in a label comprehension test when the font sizes were larger, typically 10-point (Caitlin & Brass, 2018). Larger font sizes are preferred by older adults and enhance the readability and comprehension of medication labels (Leat, Krishnamoorthy, Carbonara, Gold, & Rojs-Fernandez, 2016; Pons, Moraes, Falavingna, Sirtori, & da Cruz, 2019; Connors, et al., 2020).

Inadequate white space on medical cannabis labels is another concern. Reasons for inadequate white space include too much information on the label, not enough line spacing between information, and large pharmacy or brand logos (Cadarelli, et al., 2011; Leat, Ahrens, Krishnamoorthy, Gold, & Rojas-Fernandez, 2014; Connors, et al., 2020). The required standardized cannabis symbol occupies a minimum of 25% on the medical cannabis label and must measure 1.27cm by 1.27cm (Government of Canada, 2019). Some of the other required pieces of information may not be useful for older patients. With medication labels, most older adults only search for the name, strength, frequency, duration, route of administration, and important cautionary information on their medications (Samaranayake, Bandara, & Manchanayake, 2018). Less important information, typically seen as taking up space on the

medication label, include pharmacy logo, address, and contact information (Leat, Ahrens, Krishnamoorthy, Gold, & Rojas-Fernandez, 2014).

Other difficulties related to medical cannabis packaging and labelling are caused by the packaging itself. One way to increase the readability of medical cannabis labelling is by redesigning the products packaging. Labels that adhere to flat and box-shaped containers rather than cylinders are significantly easier to read (Connors, et al., 2020). A flat surface for a label increases the amount of surface area the label can adhere to. This increases the amount of white space and allows more room for hierarchical organization of information that many older adults find easier to read and understand (Connors, et al., 2020; Samaranayake, Bandara, & Manchanayake, 2018). Larger, box-shaped packaging is also easier to hold and store for older adults (Connors, et al., 2020). Health Canada regulations aim to keep children safe, therefore regulating larger, box-shaped medical cannabis containers that are easier to store is important. Most pediatric poisonings have been linked to the ingestion of their grandparent's improperly stored medications (Jo, Ambs, Dresler, & Backinger, 2017).

Cannabis packaging must also be child-resistant (Government of Canada, 2019). Older adults may find opening child-resistant packaging difficult and frustrating (Liu, et al., 2016). In a study following three different focus groups with older adults, including one group with advanced vision loss, all three groups had difficulties opening containers, especially those with child-resistant packaging and small caps (Connors, et al., 2020). Older adults may have problems handling and opening their immediate medication packaging, with some participants stating they use knives and other sharp objects to help them open their packages (Notemboom, et al., 2014). Not only does the difficulty with opening child-resistant packaging become dangerous for older adults using sharp objects to open their packaging, it also can become a danger to children

because older adults tend to leave their child-resistant packaging open, or transfer the contents to other containers that are easier for them to open, which increases the likelihood of pediatric poisoning (Jo, Ambs, Dresler, & Backinger, 2017). Taken together the above studies highlight issues older adults may have with the packaging and labelling of medications in general. There is very limited research on how older adults interact specifically with medical cannabis packaging and labelling.

Therefore, the current descriptive study looked at how a sample of middle-aged and older adults from Manitoba experienced the packaging and labelling of their medical cannabis products. This study focused particularly on the readability of labelling and ease in opening medical cannabis packaging. This study also investigated the frequency of dosing mistakes among adults taking more than one type of medical cannabis and some potential policy changes.

METHOD

Participants

A survey was created with the input from the research supervisory committee, physicians who prescribe medical cannabis, a focus group of five older adult patients who had been prescribed medical cannabis, pharmacists, and clinical medical cannabis educators. To align with Statistics Canada and the National Cannabis Survey, adults aged 45 years old and older were targeted. To participate in the study, participants had to be Canadian citizens or permanent residents aged 45 years or older who were ordering medical cannabis from a Health Canada approved License Holder. The study took place in a medical center in Winnipeg, Manitoba Canada that has a physician who prescribes medical cannabis, with additional support from two other medical cannabis centers in Winnipeg who advertised the study to medical cannabis users registered with their centers.

Materials and Procedure

The informed consent procedure, survey, and recruitment protocols were reviewed and approved by both the advisory committee of the researcher and the North Dakota State University Institutional Review Board. Qualtrics software was used to create an informed consent page and survey (Appendix). The informed consent page described the study, with the option for participants to ‘agree’ or ‘end participation’. Those participants who chose ‘agree’ were then directed to the survey questions. Those participants who chose ‘end participation’ were directed to the end of the survey page and no other responses were collected. The survey itself did not contain any identifying information and was designed to protect participants’ privacy as much as possible; age was specified as 5-year ranges only.

To recruit participants, the survey link was emailed to patients who met the inclusion criteria and had an appointment booked for medical cannabis purposes. The email included a confidentiality statement, information about the participants upcoming appointment, including the physician's name, whether the appointment was in-person or by telephone due to the COVID-19 pandemic, date and time of appointment, clinic address, phone number, and parking information. The email closed with a statement inviting patients over the age of 45 and ordering medical cannabis from a Health Canada approved License Holder to participate. This statement, and a link to the survey was also available on the web site of another medical cannabis center, as well as emailed to individuals who met the inclusion criteria at a third medical center. Data collection took place between January 15th and April 30th, 2021.

RESULTS

Demographics

During the study period, 217 patients were invited to participate through the means described above. Of these, 40 patients completed the survey. Most participants were between the ages of 50 and 59 (55%). Nearly three-quarters (72.5%) of participants were male, and most (67.5%) had completed at least some college. All participants were from Manitoba, Canada.

Participant demographics are shown in Table 1.

Table 1. Participant Demographics.

Variable	Frequency
Age Range	
45-49	3
50-54	11
55-59	11
60-64	5
70-74	7
75 and Up	3
Ethnicity	
White/Caucasian	36
First Nations/Indigenous	4
Education	
Less Than High School	2
Graduated High School	11
Some College	10
Associates Degree or Higher	17
Sex	
Male	11
Female	29
Other	0

Questions About Cannabis

When asked if they are taking more than one type of medical cannabis, 90% of participants answered “yes”. These participants were then asked about differentiating between types of medical cannabis and the frequency of mixing up different types of medical cannabis. Results are shown in Table 2. Overall, 88.9% of participants taking more than one type of medical cannabis would find a standardized symbol indicating the type of medical cannabis to be helpful and 52.8% of participants taking different types of medical cannabis have mixed up their different types of medical cannabis. However, one participant commented that they mix their medical cannabis together when earing the end of a bottle; this person may have misunderstood the question.

Table 2. Participant Responses About Types of Medical Cannabis.

Survey Question	Frequency
Do you take more than one type of medical cannabis?	
Yes	36
No	4
Have you ever mixed up the types of medical cannabis you take?	
Yes	19 (52.8%)
No	17 (47.2%)
How often do you mix up the different types of medical cannabis?	
Daily	5 (26.3%)
Weekly	1 (5.3%)
Monthly	6 (31.6%)
Other	7 (36.8%)
Comments from those who responded “other” above	
M, 50-54: <i>Rarely now because my License Holder has colour codes that I understand</i>	
M, 55-59: <i>Once in awhile, not too often</i>	
M, 65-69: <i>When getting close to the end of the container, mix together left overs</i>	
F, 70-74: <i>In poor lighting</i>	
M, 70-74: <i>RARELY</i>	
A standardized symbol on my medical cannabis container indicating the type of medical cannabis would be helpful to me	
Strongly or somewhat agree	32 (88.9%)
Neutral	4 (10%)
Strongly or somewhat disagree	0
Declined to answer	4 (10%)

Participants then responded to questions relating to the accessibility and user-friendliness of their medical cannabis packaging and labelling. Results are shown in Table 3. Half of the participants (50%) felt they had a hard time opening their medical cannabis container. A majority (60%) thought having an easy-open lid would be helpful. Most participants (77.5%) reported experiencing difficulties reading the label on their container, and 75% thought it would be helpful to have a printout of the label in a larger font. Finally, a majority of participants (67.5%) agreed

that medical cannabis should have the same packaging and labelling regulations as medications dispensed from a pharmacy.

Table 3. Participant Responses About Packaging and Labelling of Medical Cannabis.

Survey Question	Frequency
I have a hard time opening my medical cannabis container	
Strongly or somewhat agree	20 (50%)
Neutral	8 (20%)
Strongly or somewhat disagree	12 (30%)
A printout containing the information on my medical cannabis container would be helpful to me	
Strongly or somewhat agree	30 (75%)
Neutral	7 (17.5%)
Strongly or somewhat disagree	3 (7.5%)
I have a hard time reading the label on my medical cannabis container	
Strongly or somewhat agree	31 (77.5%)
Neutral	4 (10%)
Strongly or somewhat disagree	5 (12.5%)
Having an easy-open lid rather than a child-safe lid on my medical cannabis container would be helpful to me	
Strongly or Somewhat Agree	24 (60%)
Neutral	7 (17.5%)
Strongly or Somewhat Disagree	9 (22.5%)
Medical cannabis should be sold in accordance with the same packaging and labeling regulations as medications that are dispensed from a pharmacy	
Strongly or Somewhat Agree	27 (67.5%)
Neutral	11 (27.5%)
Strongly or Somewhat Disagree	2 (5%)

Participants were also asked what, if anything, made it difficult for them to read the label on their medical cannabis container. This was an open-ended question, and 30 participants responded. Their comments are shown in Table 4. Of these participants, 63.3% stated the size of the font was too small and 13.3% of participants reported needed glasses or having poor eyesight. Some of these comments included “*Font size is small*”, “*Incredibly small print*”, and

“*The writing is too small*”. Other reasons included the amount of information on the label and how the information is organized (20.0%) as well as glossy paper, with participants leaving comments such as “*it is hard to read all the information crammed onto the package*” and “*...how the information is displayed*”. 13.3% of participants noted difficulties with differentiating between different types of medical cannabis products based on their labels, with some participants adding their own labels or having others assist them.

Table 4. Responses Participants Had Difficulty Reading the Label on Their Medical Cannabis Container.

Participant	Comment
45-49, Male	Hard to differentiate the THC from the CBD when just looking at the labels.
45-49, Male	All but strain and CBD and THC should be much bigger.
45-49, Male	Poor eyesight.
50-54, Female	Small print, too much info.
50-54, Male	Font size is small.
50-54, Female	Incredibly small print.
50-54, Male	Mostly lettering size and placement.
50-54, Male	Nothing
50-54, Male	Size of printing.
50-54, Male	As the packaging is usually small anyways it is hard to read all the information crammed onto the package.
55-59, Female	Labels from spectrum where I get my order is no problem reading and understanding as they have VIP rep who will assist.
55-59, Female	Some of the clasp hard to open i.e., Tokyo go pre rolls. Some containers are too large for my hand to twist the cap off. Print is too small. Indica should be one colour and sativa another and CBD and blends and so on.
55-59, Male	Not wearing my glasses.
55-59, Female	The font is too small; some of it is confusing (how much THC and CBD are in each 1mL); the warning is THE largest information which is ridiculous!
55-59, Female	Small print
55-59, Male	Need glasses to read.
55-59, Male	Font could be larger.
60-64, Male	Very small print for the most part. Also, % ingredients as well as mg/g is confusing and not very helpful as it is difficult to compare to a standard.

Table 4. Responses Participants Had Difficulty Reading the Label On Their Medical Cannabis Container (continued).

Participant	Comment
60-64, Male	Type of font, size of font, and how the information is displayed.
60-64, Female	The writing is too small.
65-69, Male	Small print and the difference is miniscule showing the different types. Both bottles are identical, and both have THC symbol. Very confusing. The only way I can tell the difference is one has a duty paid stamp.
65-69, Female	Small print. Terpenes not listed so I have to add info...not a lot of space. My CBD bud still comes labelled THC though <4%. I need to add a label to distinguish from other bud.
65-69, Male	Too small of writing material
65-69, Male	It works
65-69, Male	Sadly, I've never read the label. Only the pamphlet with instructions.
65-69, Male	Very small prints, shiny paper makes lots of reflection also.
70-74, Male	Small letters in the important places. i.e., There should be a place where the CBD and THC contents are easily readable.
80+, Female	Because on some containers from Spectrum are yellow soft gels cannabis oil 30x20mg...on another container it will say Spectrum blue cannabis oil soft gels 30x10mg... 10 THC so at times.... I have to read the label a few times to determine which container contains whatever.

Finally, participants were asked to leave any other comments they had related to their medical cannabis packaging and labelling. Their responses are outlined in Table 5. In general, these comments referred to wanting additional information on the containers, lids that were easier to open, and labels that were easier to read.

Table 5. Participants' Additional Comments Regarding Medical Cannabis Packaging and Labelling.

Participant	Comment
50-54, Female	Different colours might be helpful.
50-54, Male	I believe strongly that -medical- cannabis should come in simple and larger packaging. There is no need to so called child proof it, as people should take responsibility for ANY medication they take. A printout should be included with all prescriptions. Respectfully...

Table 5. Participants' Additional Comments Regarding Medical Cannabis Packaging and Labelling. (continued)

Participant	Comment
55-59, Female	How much to take and when to take it would be helpful...just like my other meds.
55-59, Female	Some of the plastic containers are impossible to open.
55-59, Male	I find it confusing on the amount of THC of CBD when broken down from a bottle. I.e., how much is in a drop.
55-59, Male	I find the packaging too large for the little that's in the package. It's a huge waste of plastic.
60-64, Male	The label should also include something to indicate what the product is said to help with, i.e. sleep, happy, relaxing...
60-64, Female	I do not like the caps because they are too hard to open. I have to use scissors to open them.
60-64, Male	I am asthmatic and can only consume cannabis oil or gummy bears and I find the labelling on the containers are printed very small as to the amount of CBD versus THC in the product. Larger labelling would definitely be a benefit to me.
65-69, Female	I do have to double check and keep the bottles separated. Would be great to have easier to read labelling.
65-69, Male	The difference between my oils is one is red and one is yellow (from Spectrum). There should be a red bottle or red stripe instead of small dinky font.
65-69, Female	Medical cannabis label should have terpene information. The warning label is so big that it can be reduced to add a pie chart for terpenes. Packaging is inconsistent...I've had plastic bottles with both sealed and unsealed tops.
65-69, Male	For something that is legal, it seems like somewhat of a hassle to get my CBD oil.
65-69, Male	Why don't the suppliers use biodegradable containers, plastic is very bad land filling.
70-74, Female	I find the labels unclear with bad eye vision at night hard to read right drop amount. THE BOTTLE FEELS HEAVY EVEN EMPTY. This makes it hard to judge when to order more stock. So if I run out I would have to wait for it to be mailed which could be up to one week.

DISCUSSION

This descriptive study was among the first to examine how middle-aged and older Canadians perceive the packaging and labelling of their medical cannabis products. Legislation in Canada mandates that medical cannabis be packaged in plain-looking containers with small labels, childproof caps, and required health warnings. This is meant to standardize the way cannabis products are distributed, as well as protect children from accidental ingestion. However, the current study shows that these regulations are not user-friendly for middle-aged and older people. Since that population is most likely to use and benefit from medical cannabis, their needs should be taken into consideration.

Most respondents taking more than one type of medical cannabis reported mixing-up their different types of medical cannabis. Mixing-up types of medical cannabis can have serious consequences and can impact daily activities, because one compound, THC, has psychoactive properties, while the other, CBD, does not (Ko, Bober, Mindra, & Moreau, 2016). More research should be conducted to determine why medical cannabis users are mixing-up different types of medical cannabis. One reason this may be is look-alike labeling, as studies with medication labels have found that people more often mix-up medications with labels that look very similar (Pons, Moraes, Falavingna, Sirtori, & da Cruz, 2019). One study participant even noted it is *“hard to differentiate the THC from the CBD when just looking at the labels”*, and another stated *“I need to add a label to distinguish from other bud”*. This study did not address look-alike labelling with medical cannabis products specifically, and future research should be conducted to determine if look-alike labelling plays a factor in mixing-up different types of medical cannabis products. Some participants made remarks suggesting look-alike labels could be a problem,

stating *“Both bottles are identical, and both have THC symbol. Very confusing.”* and *“There should be a place where the CBD and THC contents are easily readable.”*

One way to combat look-alike labelling is the addition of a standardized symbol that would indicate the type of medical cannabis based on the concentrations and ratios of CBD and THC. The majority of the study participants taking more than one type of medical cannabis agreed that a standardized symbol indicating the type of medical cannabis would be helpful to them. This is consistent with prior studies on prescription medication labelling using symbols and color labels to differentiate between medications (Cadarelli, et al., 2011; Pons, Moraes, Falavingna, Sirtori, & da Cruz, 2019; King, et al., 2012).

Some participants spoke positively of one License Holder in particular, Spectrum Therapeutics, that has a color-coding system in place for naming their products based on the ratios of CBD and THC in the product. A study participant who reported to previously mixing-up their different types of medical cannabis commented they *“rarely do now because my License Holder has color codes that I understand”*. Products from Spectrum Therapeutics have the color name printed beneath the Spectrum Therapeutics logo in the corresponding color. Due to the cannabis packaging and labelling regulations, the logo must be smaller than the warning symbol, making the color-coding information small. Some study participants also commented on developing a standardized symbol that would indicate the type of cannabis could be implemented, stating *“Indica should be one color and sativa another and CBD and blends and so on”* and *“different colors might be helpful”*.

Previous research has shown that color-coding medication labels has increased the accuracy of identifying medication correctly and that older adults prefer color to differentiate between different concentrations of the same medication (Pons, Moraes, Falavingna, Sirtori, &

da Cruz, 2019; Cardarelli, et al., 2011). It is suggested that the colors used for labelling be bright and placed as a stripe either near the top or the bottom of the medication container (Cadarelli, et al., 2011). One participant in this study even mentioned *“There should be a red bottle or red stripe instead of small dinky font”*. Based on the results of this study, and the comparison to prior research with medication labelling, developing a standardized symbol and color-coding scheme could help reduce the frequency of medical cannabis dosing errors and increase the accessibility of medical cannabis among those with lower literacy levels, such as older adults.

Developing a standardized symbol and color-coding scheme that indicates the type of medical cannabis would need input from patients, most importantly, as well as from medical cannabis physicians, clinical educators, License Holders, and Health Canada. One system of standardized symbols which would allow License Holders to continue to produce their products in the same way, would be to base the symbols on the ratio of CBD and THC in the product. Symbol A could indicate a high CBD concentration with a very minimal THC concentration, while Symbol B could indicate an even-to-near-even ratio of CBD and THC, while Symbol C could indicate a low concentration of CBD and a high concentration of THC, and so on. These symbols could also be color-coded.

A more complicated system based on the total milligrams of CBD or THC in the product could also be possible but may be confusing for patients. Some participants in this study stated, *“I find it confusing on the amount of THC of CBD when broken down from a bottle”* and *“Also, % ingredients as well as mg/g is confusing and not very helpful as it is difficult to compare to a standard”*. Using this system to develop a standardized symbol would likely cause stricter regulations for License Holders in terms of growing and processing cannabis plants and manufacturing their medical cannabis products. The appropriate research could be achieved by a

visual survey in either an online or paper format to medical cannabis users across Canada, as well as through focus groups of medical cannabis users in various age ranges.

Another piece of the packaging and labelling regulations that could be examined is the need for a child-proof lid. This study found many participants have a hard time opening their medical cannabis container and agreed that an easy-open lid would be helpful for them. While Health Canada packaging and labelling regulations state medical cannabis must be in child-resistant packaging, this is not always true with other controlled pharmaceutical substances (College of Pharmacists of Manitoba, 2016). While legislation has a goal of keeping children safe, some options could be explored on how to make medical cannabis packaging more accessible and easier to use for older adults. One participant wrote *“I strongly believe that - medical- cannabis should come in simple and larger packaging. There is no need to so called child-proof it, as people should take responsibility for ANY medication they take”*. This is consistent with previous research that has shown many older adults have difficulty with child-resistant lids and closures (Connors, et al., 2020; Jovanov, Talukder, Schwebel, & Evans, 2018; Jo, Ambs, Dresler, & Backinger, 2017).

Prescriptions of controlled substances such as narcotics, including Sativex and Nabilone, which are a synthetic form of cannabis, are not required to be in child-resistant packaging. These medications can be dispensed from a pharmacy in ways without child-resistant closures including compliance packaging (bubble packs) (College of Pharmacists of Manitoba, 2016). For a medication to be dispensed in a non-child resistant package, written permission from the patient, caregiver, and in some cases the prescribing physician, must be obtained and kept on file. The pharmacy must inform the patient or caregiver that the packaging is not child resistant and an auxiliary label noting this fact should be placed on the package (College of Pharmacists

of Manitoba, 2016). One suggestion to allow for non-child resistant packaging with medical cannabis products may be to have the patient and their health care provider authorizing medical cannabis, sign a formal waiver and submit to the License Holder from which the patient purchases their medical cannabis. This process would mirror that used with other prescribed controlled substances.

This study found that 84.6% of participants agreed that a print-out of the information on their medical cannabis label in a larger font would be helpful. This might be one of the easiest changes to implement in medical cannabis packaging and labelling legislation, because currently the packaging requirements prohibit the addition of any leaflets, aside from a document entitled *Consumer Information - Cannabis*, which does not contain any product-specific information, only general information on the risks associated with cannabis (Government of Canada, 2019). Study participants left comments including “*Small print*”, “*not wearing my glasses*”, “*as the packaging is usually small anyways it is hard to read all the information crammed onto the package*” when asked what makes it hard to read the labels on their medical cannabis containers. These comments and concerns could be addressed with a large-font printout of the information on the medical cannabis label. One participant said “*Sadly, I’ve never read the label. Only the pamphlet*”. Health Canada produces plain language handouts for prescription medications to increase the accessibility to information for patients (Grindrod, et al., 2014), so a similar approach could be taken with medical cannabis. Alternatively, License Holders may seek to redesign their medical cannabis packaging to include a large, flat surface which increases the surface area of a label, allowing for more white space and better organization of information (Connors, et al., 2020).

Some suggestions to improve accessibility to middle-aged and older Canadians, include increasing the font size, rearranging how information is displayed on medical cannabis labels, allowing the option for easy-open packaging rather than child-resistant packaging, and providing handouts of medical cannabis label information in a larger font. Some of these suggestions align with legislation for packaging and labelling with other prescription pharmaceuticals, such as a minimum 10-point font, optional easy-open packaging, and large-font handouts of label information. These suggestions are supported by the finding that most participants felt medical cannabis packaging and labelling regulations should be the same as other pharmaceuticals.

Limitations

The current study had several noteworthy limitations. First, very few participants fit into the “oldest-old” age group of 85 and up. This may be due in part to the oldest-old being wary of using medical cannabis, and the online format of the study (Lam, Lu, Shi, & Covinsky, 2020). The oldest-old may prefer other methods of data collection, including both telephone or in-person interviewing, and paper surveys. Paper surveys were not possible because of policies related to the COVID-19 pandemic. In addition, the response rate was just 18.4% (40 participants out of a potential 217), which limits the generalizability of the sample. The COVID-19 pandemic may have reduced the potential pool of respondents over typical levels, in that patients put off visiting a doctor to renew their medical cannabis prescriptions.

Future Directions and Policy Implications

To collect data from a larger and more representative sample, partnering with License Holders, medical cannabis clinics, and Statistics Canada’s National Cannabis Survey could be considered. Further studies are also needed across the country to determine if findings are specific to Manitoba or all middle-aged and older Canadians. If future findings can be

generalized across the country, Health Canada may be more inclined to review medical cannabis packaging and labelling regulations.

Middle-aged and older adults are a potential driving force for change of Canadian politics, as they represent the highest voter turnout in the 2019 federal election, with nearly 3.5 million more voters aged 45 and older compared to voters aged 18 to 44 (Elections Canada, 2020). As Canada's population continues aging, the proportion of adults over the age of 65 is expected to reach close to 25% of the population 2059, while the proportion of children aged 0 to 14 is expected to stay around 15% (Statistics Canada, 2020). Thus, provincial and federal governments should be concerned about how aging Canadians experience and interact with their environment.

Canadians aged 65 and older make up valuable members of the workforce, act as informal caregivers, and keep communities thriving through volunteering (Canadian Longitudinal Study on Aging, 2018). This population also utilizes federal and provincial support services such as health care and social programs to a greater extent than younger adults. Most older adults want to remain at home and age in place (Dupuis-Blanchard & Gould, 2018). Aging in place is enhanced when government policies support the needs of an aging population (Bacsu, et al., 2012). The current study suggests that changes to medical cannabis packaging and labelling requirements is one avenue the government could take to support older citizens.

Possible policy changes suggested by this study include increasing the font size, removing unnecessary information from product labelling, and instead including the information on a product pamphlet, implementing a standardized symbol indicating the ratio of CBD to THC in the medical cannabis product and the option for an easy-open rather than child-resistant packaging. These changes, identified by middle-aged and older adults using medical cannabis,

support older adults in their journey to maintain their independence and age in place in their own homes.

CONCLUSION

The National Cannabis Survey has found Canadians over the age of 45 to be the fastest and largest-growing group of medical cannabis users in the country (Statistics Canada, 2019). As such, their opinions may be beneficial to influence policy change. This paper focused on how medical cannabis is packaged and labelling in Canada, and how these practices may cause difficulties with readability and manipulation of packaging for older adults. A small sample of medical cannabis users in Manitoba completed a survey about their experiences with the packaging and labelling of their medical cannabis products. The survey results suggest that packaging and labelling could be improved by the addition of standardized symbols indicating the type of cannabis, increasing the font size used on labelling, including a printout of the label in a larger font, and having the option for an easy-open lid.

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APPENDIX. MEDICAL CANNABIS PACKAGING AND LABELLING SURVEY

QUESTIONS

1. With what gender do you identify?
 - Male
 - Female
 - Other: _____
 - Prefer not to answer

2. What province/territory do you live in?
 - Manitoba
 - Ontario
 - Other province or territory: _____
 - Prefer not to answer

3. Which age range do you fall into?
 - 45-49
 - 50-54
 - 55-59
 - 60-64
 - 65-69
 - 70-74
 - 75-79
 - 80-84
 - 85-89
 - 90 and older
 - Prefer not to answer

4. Do you take more than one type of medical cannabis? (Eg. High CBD, High THC, or blend of CBD and THC.)
 - Yes (If chosen, redirected to Question Set A)
 - No (If chosen go to question 8)

Question Set A:

5. What is your level of agreement to the following statement: A standardized symbol on my medical cannabis container indicating the type of medical cannabis would be helpful to me.
Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

6. Have you ever mixed up the types of your medical cannabis?
 - Yes (If chosen, redirected to question 7)
 - No (If chosen, redirected to Question Set B)

7. If yes redirected to this question: How often do you mix up the types of your medical cannabis?
Monthly, Weekly, Daily, Other:_____

Question Set B:

8. How much do you agree with the following statement? I have a hard time opening my medical cannabis container.

Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

9. How much do you agree with the following statement? I have a hard time reading the label on my medical cannabis container.

Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

10. What, if anything, makes it hard to read the label on your medical cannabis container?

11. How much do you agree with the following statement? A print-out containing the information on my medical cannabis label in a larger font would be helpful to me.

Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

12. How much do you agree with the following statement? Having an easy-open lid, rather than a child-safe lid on my medical cannabis would be helpful to me.

Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

13. How much do you agree with the following statement? Medical cannabis should be sold in accordance with the same packaging and labelling regulations as medications that are dispensed from a pharmacy.

Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

14. If you have any comments or other information to share, please enter it here: