



ROAD SAFETY MONITOR 2020: TRENDS IN MARIJUANA USE AMONG CANADIAN DRIVERS

Traffic Injury Research Foundation, November 2020

By: Heather Woods-Fry, Robyn D. Robertson & Ward G.M. Vanlaar

Introduction

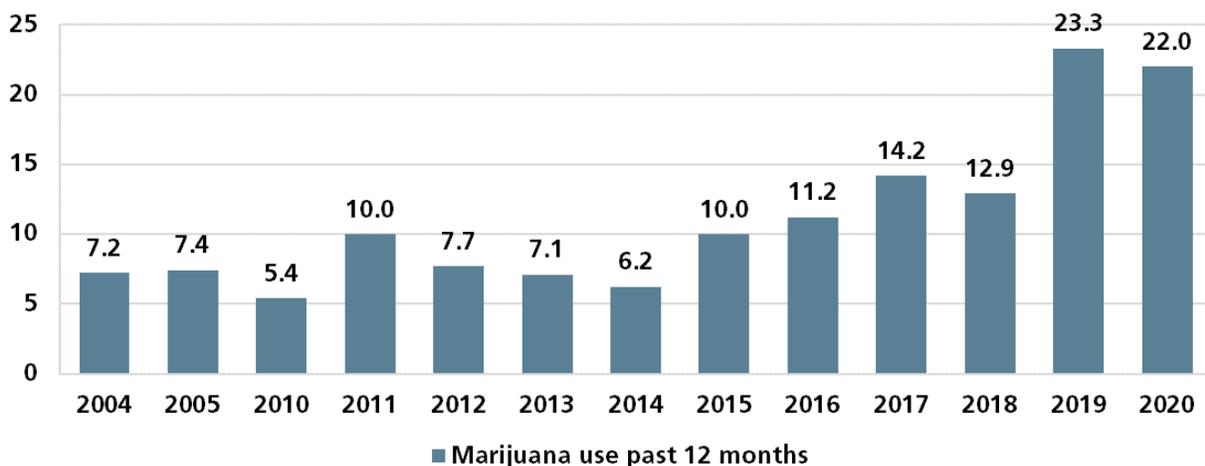
This fact sheet summarizes national trends from the Road Safety Monitor (RSM) regarding marijuana use among Canadian drivers. The RSM is an annual public opinion survey conducted by the Traffic Injury Research Foundation (TIRF) in partnership with Beer Canada and Desjardins. The survey takes the pulse of the nation on key road safety issues by means of an online survey of a random, representative sample of 1,500 Canadian drivers. This fact sheet includes two years of post-legalization RSM data.¹

Topics explored include the prevalence of marijuana use, driving within two hours of using marijuana, driving within two hours of using marijuana and alcohol, perceptions about the impairing effects of marijuana, and concern about drugged driving.

Prevalence of marijuana use

Canadians were asked if they had used marijuana within the past 12 months in 2004, 2005, and every year since 2010. It is important to note these data refer to marijuana use only, and not

Figure 1: Trends in the percentage of Canadians using marijuana in the last 12 months, 2004-2020



¹ "Pre-legalization RSM data" is defined as data collected since 2000 up until September 2018. "Post-legalization data" is defined as RSM data collected in September 2019 and 2020.



the prevalence of self-reported marijuana use and driving, which is discussed in the following section.

There has been a noticeable increase in the percentage of Canadian drivers reporting using marijuana (Figure 1). In 2020, just over 1 in 5 Canadians (22%) reported they had used marijuana within the last 12 months. When compared to the 12.9% who reported this in 2018, just prior to the legalization of recreational marijuana, there was a significant increase of 70.5% ($z=6.13$, $p=0.000$). Comparing 2019 (23.3% of Canadians reported usage) to 2018, a significant 80.6% increase was observed ($z=6.63$, $p=0.000$). The decrease post-legalization from 2019 (23.3%) to 2020 (22%) was not significant ($z=-0.82$, $p=0.42$).

Further evidence is obtained when examining trends in this self-reported behaviour. There was an overall significantly increasing trend in the percentage of Canadians who reported using marijuana in the past 12 months from 7.2% in 2004 to 22% in 2020 (coef.=0.85, $p=0.004$). Based on more detailed modelling, a significantly increasing trend from 2014 to 2018 was observed (coef.=1.8, $p=0.006$). After the legalization, the increasing trend from 2018 to 2019 was steeper (coef.=8.86, $p=0.003$).

Marijuana use and driving

Canadians were asked how many times they had driven a motor vehicle within two hours of using marijuana in the past 12 months.² In 2020, results showed 4.5% of drivers reported this behaviour (Figure 2). When compared to 2018, just prior to the legalization of recreational marijuana, the percentage of Canadians admitting this increased by 36.4% (3.3% in 2018 to 4.5% in 2020; $z=1.58$, $p=0.12$). This increase is less pronounced than the increase immediately following legalization (112% increase from 3.3% in 2018 to 7% in 2019; $z=4.09$, $p=0.000$). Following the peak in 2019, the percentage decreased significantly in 2020 ($z=-2.80$, $p=0.005$), however the percentage of drivers reporting this behaviour in 2020 is still larger than the percentage of drivers reporting this behaviour pre-legalization. Moreover, 2020 represents the second-largest percentage since data on this indicator were first collected.

² Data represent the self-reported driving within two hours of using marijuana and does not necessarily indicate impairment while driving. While actual impairment depends on a variety of factors (in particular how regularly marijuana is consumed), the two-hour window is used as a proxy measure given the high likelihood of impairment during this time period following usage.

³ The estimates are based on the number of licensed drivers in Canada, or 26,583,000 licensed drivers (source: Transport Canada; Licensed Drivers and Motor Vehicle Registrations by Type of Vehicle 1999-2018 (in thousands); <https://www.tc.gc.ca/eng/motorvehiclesafety/canadian-motor-vehicle-traffic-collision-statistics-2018.html>).

Longer-term trends in self-reported driving within two hours of using marijuana were also analyzed. There has been an overall significantly increasing trend (coef.=0.16, $p=0.02$) since 2002 when 1.5% reported this behaviour. More detailed modeling revealed a significantly increasing trend between 2002 and 2010 (coef.=0.15, $p=0.001$), before reversing to a decreasing trend until 2013 (coef.= -0.38, $p=0.001$), and increasing again until 2018 just prior to legalization (coef.=0.30, $p=0.000$). After legalization, there was a much steeper significant increase in this behaviour from 2018 to 2019 (coef.= 3.79, $p=0.000$), followed by a significant decrease between 2019 and 2020 (coef.= -2.5, $p=0.000$). In other words, the percentage of Canadians admitting to driving within two hours of using marijuana has been on the rise, at least since 2014, and demonstrated a pronounced increase after legalization, followed by a levelling off two-years post-legalization.

Since 2015, Canadians were also asked how many times they had driven a motor vehicle within two hours of using marijuana and alcohol within the past 12 months. In 2020, 2.1% of Canadians reported this behaviour (Figure 2). This corresponds to approximately 558,243 licensed drivers driving within two hours of using marijuana and alcohol.³ When comparing 2020 to the percentage of Canadians reporting this behaviour in 2018 (1.7%), there was an increase of 24% ($z=0.85$, $p=0.39$). This increase is less pronounced than the increase immediately following legalization (1.7% in 2018 to 3% in 2019; $z=2.2$, $p=0.03$).

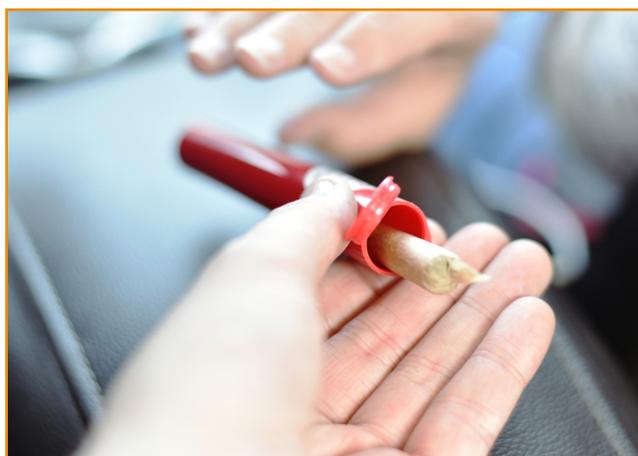
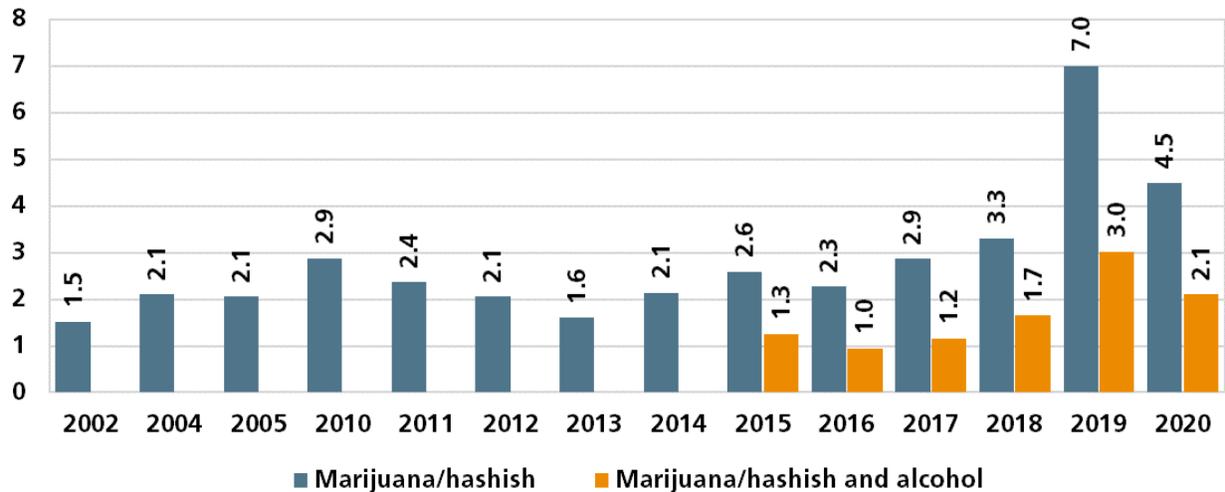


Figure 2: Trends in the percentage of drugged drivers in Canada, 2002-2020



There were no significant trends associated with this self-reported behaviour, however a pattern similar to other indicators was observed. Specifically, there was an increase in the percentage of Canadians reporting driving within two hours of using marijuana and alcohol since 2016. This was followed by a steeper increase in the year following legalization and a levelling off in the second year of monitoring post-legalization. Despite this apparent levelling off, the 2020 result is nevertheless the second-largest percentage since collecting data on this indicator and remains higher than the 2018 percentage.

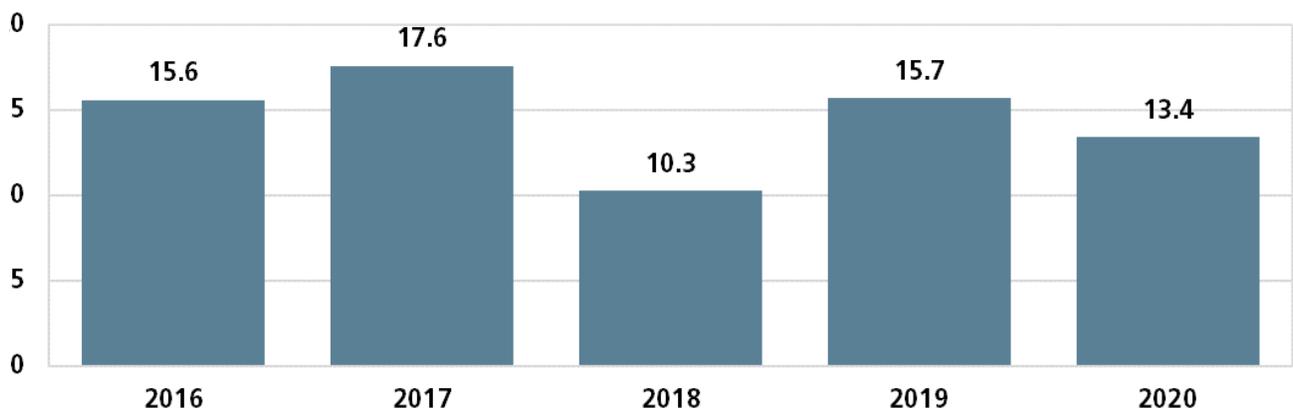
Impairing effects of marijuana

For the first time in 2016, Canadians were asked the extent to which they agreed or disagreed with the statement “marijuana does not affect one’s driving as much as alcohol”. Respondents

rated their agreement on a scale ranging from one (strongly disagree) to six (strongly agree). For scoring purposes, respondents were coded as in agreement if they indicated a value of five or six.

There were no significant trends associated with agreement to this statement (Figure 3). However, results showed the percentage of drivers who agreed increased significantly from 10.3% in 2018 to 13.4% in 2020 ($z=2.46, p=0.01$) representing a 30% increase from pre- to two years post-legalization. Similarly, the percentage increased by 52% from 2018 to one-year post-legalization in 2019 (10.3% in 2018 to 15.7% in 2019; $z=-3.94, p=0.000$). Positively, this peak in 2019 was followed by a decrease of 14.7% between 2019 and 2020 ($z=-1.69, p=0.09$). Although this decrease is promising, a significant proportion of the population still agrees marijuana is not

Figure 3: Percentage of Canadians who agree that marijuana does not impair their driving as much as alcohol, 2016-2020



as impairing as alcohol. This suggests continued public education and awareness efforts are needed to describe the impairing effects of marijuana on driving and the risks associated with this behaviour.

Concern about drugged driving

Canadians have been asked about their concern related to drugged driving since 2008. Respondents rated their concern on a scale ranging from one (not a problem at all) to six (an extremely serious problem). For scoring purposes, respondents were coded as being concerned about drugged driving if they indicated a value of five or six.

In 2020, 68.8% of Canadians were concerned about drugged drivers, down slightly from 70.3% in 2018, right before recreational marijuana was legalized (Figure 4). Prior to this, concern about this issue peaked in 2019 (71.3%), one year post-legalization, before decreasing in 2020. Additional modelling was used to examine the trends in public concern about drugged drivers. Although there was no significant overall trend, a decreasing trend was observed from 2008 until 2014 (coef.=-2.5, p=0.000), followed by an increasing trend from 63.3% in 2015 to 71.3% in 2019 (coef.=2.28, p=0.000). These trends suggest concern about drugged drivers steadily increased beginning in 2014 leading up to legalization. It is hypothesized that more and continued conversations about marijuana and legalization focused attention on this issue in the years prior to the change in legislation, and this contributed to greater concern which reached a peak one-year post-legalization. Although this was followed by a non-significant

decrease to 68.8% in 2020 and is lower than the level of pre-legalization concern in 2018, more data are needed to determine if this decrease in public concern persists.

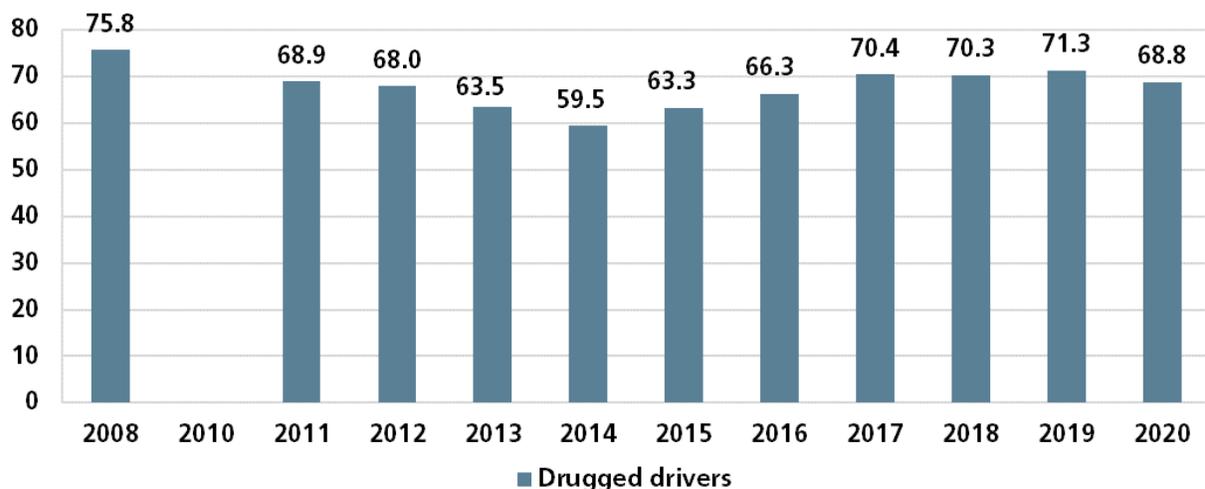
Conclusion

This analysis of RSM data represents the second post-legalization assessment of self-reported driving after using marijuana in Canada.

The increasing trend in self-reported use of marijuana leading up to legalization suggests conversations surrounding the possible change in legislation may have impacted Canadians' attitudes and behaviour towards usage. Once legislation was enacted, a steeper increase in self-reported use was observed in 2019, before decreasing slightly in 2020. The years following legalization correspond to the two largest percentages since data on this indicator were first collected. When compared to pre-legalization in 2018, self-reported usage rates increased by 80.6% in 2019 and by 70.5% in 2020. More data are needed to determine if this net increase post-legalization continues to reveal increased self-reported use of marijuana. The National Cannabis Survey in the 4th quarter of 2019 also showed an increase in cannabis use post-legalization (Statistics Canada 2019).

A similar pattern was observed in trends among Canadians who admitted driving within two hours of using marijuana. There was a significantly increasing trend from 2013 until 2018; this trend may indicate a more relaxed attitude among Canadians as a result of the discussion and attention focused on

Figure 4: Trends in the percentage of Canadians who are very or extremely concerned about drugged drivers, 2008-2020



legalizing marijuana. Once legalized, a pronounced increase was observed in 2019, before levelling off in 2020. These post-legalization percentages represent the two largest percentages since data were first collected. When compared to pre-legalization in 2018, self-reported driving within two hours of using marijuana increased by 112% in 2019 and by 36.4% in 2020. However, more data points are needed to draw definitive conclusions about trends post-legalization. In particular, additional data will help determine if the levelling off observed in 2020 persists or whether there continues to be a net increase.

In line with the other two indicators, a similarly increasing trend leading up to legalization was observed in the proportion of Canadians self-reporting driving within two hours of using marijuana and alcohol. This was followed by a steeper increase immediately after legalization (3% in 2019), and a decrease two years post-legalization (2.1% in 2020). Despite this decrease in the second year following legalization, the percentage of Canadians reporting this behaviour in 2020 also remains higher than prior to legalization. When compared to pre-legalization in 2018, this self-reported behaviour has increased by 76% in 2019 and by 24% in 2020. Moreover, 2019 and 2020 represent the two largest percentages since data on this indicator were first collected.

Fewer Canadians agreed with the statement that marijuana does not affect one's driving as much as alcohol in 2020 (13.4%), as compared to 2019 (15.7%). However, there remains a significant proportion of the population that holds this problematic belief. Therefore, continued public education and awareness efforts are necessary to target misperceptions about the impairing effects of marijuana.

In conclusion, discussions about legalizing recreational marijuana in Canada appears to have been accompanied by an increase in self-reported usage of this substance as well as an increase in self-reported driving within two hours of using this substance. This increase began as early as 2014. Immediately following legalization in 2018, both behaviours increased more steeply by 80.6% and 112% respectively. Our latest findings suggest there may be a levelling off, although more data points are needed to confirm this. Regardless, in 2020 the levels of usage and driving after using remain higher than in 2018 before legalization.

About the poll

These results are based on the RSM, an annual public opinion poll developed and conducted by TIRF. A total of 1,500 Canadians completed the poll in September 2020. Results can be considered accurate within plus or minus 2.5%, 19 times out of 20. The majority of the questions were answered using a scale from one to six where six indicated high agreement, concern, or support and one indicated low agreement, concern or support.

References

Statistics Canada (2019) National Cannabis Survey, fourth quarter 2019. Retrieved from: <https://www150.statcan.gc.ca/n1/pub/13-610-x/13-610-x2018001-eng.htm>

Traffic Injury Research Foundation

The mission of the Traffic Injury Research Foundation (TIRF) is to reduce traffic-related deaths and injuries. TIRF is a national, independent, charitable road safety institute. Since its inception in 1964, TIRF has become internationally recognized for its accomplishments in a wide range of subject areas related to identifying the causes of road crashes and developing programs and policies to address them effectively.

Traffic Injury Research Foundation (TIRF)
171 Nepean Street, Suite 200
Ottawa, Ontario K2P 0B4
Phone: (877) 238-5235
Fax: (613) 238-5292

Email: tirf@tirf.ca

Website: tirf.ca

© Traffic Injury Research Foundation 2020

ISBN: 978-1-989766-30-9

Financial support provided by:

