

Changes in cannabis use during the COVID-19 pandemic: a comparison between Poland and Canada

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The COVID-19 pandemic significantly impacted global mental health, leading to increased anxiety, depression, and insomnia. The disruption of daily life and uncertainty contributed to shifts in substance use behaviors, including cannabis consumption. This study examines changes in cannabis use during the COVID-19 pandemic among individuals in Poland and Canada, focusing on consumption patterns, motivations, and frequencies [1, 2].

Public health measures such as lockdowns, social distancing, and travel restrictions disrupted daily life. Millions faced job losses, financial insecurity, and isolation from family and friends. These stressors heightened mental health disorders, as individuals grappled with anxiety and depression [3].

Exposure to pandemic-related information, termed an “infodemic”, further exacerbated mental health challenges. Continuous updates about infection rates and death tolls created fear and uncertainty. Many individuals sought coping mechanisms, with cannabis emerging as a means to manage stress or alleviate anxiety [4].

Cannabis use patterns varied across countries, influenced by legal frameworks, cultural attitudes, and access to the substance. In Canada, where cannabis is legal and widely available, use increased substantially. In Poland, where cannabis remains tightly regulated, access barriers influenced consumption behaviors [5, 6].

The dual role of cannabis as both a recreational drug and therapeutic agent became more pronounced during the pandemic. For some, cannabis provided relaxation and pleasure. For others, it served as self-medication, offering relief from pain, insomnia, or psychological distress. This highlights the importance of examining cannabis use within specific cultural and legal contexts during public health crises [6].

Demographic factors shaped cannabis consumption patterns. Younger individuals were more likely to use it recreationally, while older adults with pre-existing conditions were drawn to its therapeutic properties. These distinctions highlight the complexity of cannabis use and the need for tailored public health interventions [5–7].

By comparing Poland and Canada, this study explores how regulatory environments and societal attitudes shaped cannabis use during a global crisis. These insights illuminate the relationship between public health emergencies, substance use, and mental health.

Methods. This cross-sectional study was conducted in 2022 using a bespoke online survey. Ethics approval was granted by the Research and Ethics Board at the Children's Hospital of Eastern Ontario (REB Protocol No: 20/63X). The survey included sociodemographic data, the impact of COVID-19 on employment and education, sleep patterns, perceptions of pandemic-related information, and cannabis use. Cannabis-related questions addressed types (medical, recreational, or both), sources, consumption methods, reasons for use, and frequency. Data collection involved medical marijuana user associations and patient organizations.

Respondents provided information on their sleep habits, including the quality and duration of sleep on both weekdays and weekends. Questions on pandemic-related stress assessed the psychological burden caused by media coverage and personal experiences. Cannabis-specific inquiries covered the type of cannabis consumed, procurement methods, and patterns of use. The study also explored whether the pandemic altered respondents' motivations for cannabis consumption, such as using it for stress relief, recreational purposes, or medical conditions.

Statistical analysis. Statistical analyses were performed using Statistica 13.0 software. Pearson's χ^2 test and Cramér's V test were employed to analyze relationships between variables, with the significance threshold set at $p \leq 0.05$. These tests helped identify associations between cannabis use and demographic factors such as age, gender, and employment status.

Results. Poland. A total of 173 respondents participated (80.5% male; mean age 29.05 ± 8.47 years). The majority resided in urban areas (80.26%) and reported no significant changes to employment or education due to the pandemic (63.64%). Sleep quality was predominantly rated as good (44%) or very good (38.67%).

Cannabis use was reported by 50.62%, with 38.67% using it for both recreational and therapeutic purposes. The primary sources of cannabis were acquaintances or self-cultivation (41.33% and 26.67%, respectively). Inhalation was the most common method (38.15%), followed by vaping (10.98%) and edibles (9.25%). Women were more likely to use cannabis in topical form than men ($p < 0.01$). Recreational use was the most frequent motivation (32.95%), with insomnia (16.76%) and anxiety (15.03%) also reported.

Most participants consumed cannabis more than once daily (30.26%).

Sleep patterns revealed that Polish respondents tended to retire later than Canadians. Weekday sleep onset occurred predominantly between 10 p.m. and 1 a.m., with waking times between 7 a.m. and 9 a.m. Weekend schedules shifted further, with later sleep and wake times. Despite these variations, respondents rated their sleep quality favorably, suggesting that the pandemic's psychological effects were less pronounced in this group.

Canada. The study surveyed 541 participants (55.24% female; mean age: 40.54 ± 13.52 years). Most resided in urban areas (74.22%) and reported no significant pandemic-related changes to employment or education (63.4%). Sleep quality was rated positively by 54.89% but negatively by 27.45%.

Cannabis use was reported by 79.29%, with 33.17% using it for both recreational and therapeutic purposes. Licensed producers (41.87%) and authorized retail outlets (31.1%) were the primary sources. Inhalation (47.87%) was the most common method, followed by vaping (33.09%), oils (31.6%), and edibles (28.47%). Anxiety relief (45.47%) and chronic pain management (34.94%) were the primary motivations for use. Retired individuals were more likely to use cannabis for therapeutic reasons ($p < 0.01$). Nearly half of respondents (48.2%) used cannabis more than once daily.

Sleep patterns in Canada differed from Poland, with earlier bedtimes and waking hours on both weekdays and weekends. Respondents reported slightly poorer sleep quality than their Polish counterparts, potentially reflecting greater pandemic-related stress. Despite these challenges, Canadians cited a broader range of motivations for cannabis use, particularly for therapeutic reasons such as managing chronic pain and anxiety.

Comparison. Polish respondents were generally younger, predominantly male, and reported less cannabis use than their Canadian counterparts. In Canada, cannabis acquisition relied on legal sources, reflecting its legalization in 2018, while Polish users sourced it informally. Recreational use was more prevalent in Poland, while Canadians reported therapeutic use more frequently, including for anxiety, depression, and chronic pain. Canadians exhibited a higher frequency of daily cannabis use and a greater diversity of consumption methods.

The legal landscape played a significant role in shaping these behaviors. Canada's legalization of cannabis allowed for easier access to regulated products, fostering higher rates of use. In contrast, Poland's restrictive policies limited availability, encouraging informal procurement and predominantly recreational use. These findings highlight

the influence of policy on consumption patterns and motivations.

Discussion. The findings highlight demographic, cultural, and legal differences influencing cannabis consumption in Poland and Canada during the pandemic. The greater prevalence of cannabis use in Canada aligns with its legalization and broader acceptance. Conversely, informal acquisition in Poland underscores the impact of restrictive legal frameworks.

The pandemic's role in altering cannabis use patterns reflects its broader impact on mental health. Increased anxiety, stress, and reduced access to healthcare may have driven therapeutic cannabis use, particularly in Canada. Notably, Canadian respondents cited chronic pain and PTSD as key motivations, consistent with existing research. In Poland, recreational use dominated, with anxiety and insomnia as secondary motivations [8–11].

Global studies report similar trends. Research in the Netherlands and Belgium noted heightened cannabis consumption amid lockdowns, driven by elevated stress and disrupted routines. A U.S. study revealed increased cannabis use among individuals with chronic health conditions during the pandemic, including mental health issues. These findings suggest that cannabis served as a coping mechanism during periods of heightened stress and limited access to traditional healthcare services [9–13].

Cultural factors also influenced cannabis use. In Poland, younger respondents favored recreational use, reflecting shifting social attitudes toward cannabis among urban youth. In Canada, therapeutic use was more prevalent among older respondents, particularly retirees managing chronic conditions. This demographic distinction underscores the varied roles cannabis played in addressing the pandemic's physical and psychological challenges [14, 15].

Moreover, access to cannabis and its perception within society were shaped by long-standing cultural and legal norms. Canada's legalized framework facilitated normalized therapeutic use, while in Poland, strict regulations and societal stigma limited cannabis's integration into healthcare. These differences underscore the intersection of policy, culture, and public health [14, 15].

In conclusion, this study underscores the need for ongoing research to monitor post-pandemic cannabis consumption patterns, with an emphasis on populations at higher risk of substance misuse. Policymakers should consider the long-term implications of increased cannabis use, including potential public health interventions. Comparative studies across diverse legal and cultural contexts can provide valuable insights into cannabis's role in mental health management during global crises.

Future research should explore the sustainability of these patterns and their broader implications for public health. Understanding how cannabis use evolves in response to legal and societal changes can inform targeted interventions and support mechanisms. Additionally, examining the long-term effects of pandemic-driven cannabis use on mental health outcomes will be crucial in guiding public health policy.

Expanding the focus to include diverse demographic subgroups, such as adolescents or the elderly, may provide further insights into tailored interventions. Investigating the role of public education in relation to cannabis and mental health could also inform strategies to mitigate potential harms while maximizing therapeutic benefits. Collaborative international research efforts could yield a deeper understanding of how varying regulatory frameworks impact consumption patterns and health outcomes.

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The authors declare no conflict of interest.

Ethical approval

Ethics approval for this study was obtained from the Research and Ethics board at the Children's Hospital of Eastern Ontario (CHEO). We confirm that all methods in the study were carried out in accordance with relevant guidelines and regulations.

Conflict of interest

The authors declare no conflict of interest.

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