

Review

Prevalence of Cannabis Use around the World: A Systematic Review and Meta-Analysis, 2000–2024

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ABSTRACT

This study aims to perform a systematic review and meta-analysis on the global prevalence of cannabis use to inform drug prevention strategies, policy-making, and resource allocation. This study initially screened 177,843 studies published between January 1, 2000, and January 15, 2024, using peer-reviewed databases including Web of Science, PubMed, Scopus, Embase, and Cochrane Library. Ultimately, 595 studies were identified for data extraction, and 39 of these were selected as country-representative studies. Heterogeneity among the selected studies was assessed using the chi-squared test and I^2 statistic, while sensitivity analysis was conducted to evaluate the robustness of the results. The prevalence of cannabis use varied between 0.42% and 43.90% across 33 European countries, 1.40% to 38.12% across 15 North and South American countries, 0.30% to 19.10% across 16 Asian countries, and 1.30% to 48.70% across 18 Oceania and African countries. The pooled prevalence of cannabis use was 12.0% [95% confidence interval (CI): 10.0, 14.3] in countries where cannabis is legalized, compared to 5.4% (95% CI: 4.3, 6.9) in non-legalized countries. Our findings indicate that the prevalence of cannabis use has disproportionately increased in most countries with the implementation of medical or recreational cannabis legalization policies and relevant geographic proximity. Increased efforts are needed to monitor newly cannabis-legalized countries and prevent initial use.

Cannabis is the most widely used drug globally, especially among adolescents, and previous research suggests that it may act as a gateway drug (1). In 2021, an estimated 219 million individuals used cannabis across nearly every country and territory (1), a 21% increase from approximately 180.6 million in 2011 (2). This rise in cannabis use raises concerns about potential adverse health effects, including impaired

motor coordination, cognitive impairment, cannabis use disorders, and chronic psychotic disorders such as schizophrenia (3–4). These health issues could significantly burden global health, safety, and economic development (5). One study indicated that the incremental inpatient costs associated with cannabis comorbidity in Florida hospitals increased by 7% to 19% (6).

Studies suggest that cannabis legalization policies have significantly impacted the prevalence of cannabis use worldwide (7–8). By January 2024, more than 40 countries had implemented policies affecting global cannabis and other drug use trends (9). For instance, in the United States, the prevalence of past-month cannabis use among adolescents increased by 4.0% from 2008 to 2019 following the legalization of recreational cannabis (10).

There is a lack of comprehensive reviews addressing the recent prevalence of cannabis use worldwide, particularly from the perspective of legalization. This study conducted a systematic review and meta-analysis to estimate global cannabis use prevalence following the implementation of legalization policies, with the aim of informing drug prevention, policy-making, and resource allocation.

METHODS

Search Strategies

A systematic review was conducted following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (11), and the protocol was registered on PROSPERO (CRD42024506616). Peer-reviewed literature databases — Web of Science, PubMed, Scopus, Embase, and the Cochrane Library — were searched using a comprehensive set of search terms developed in consultation with a specialist drug librarian (Supplementary Material, available at <https://weekly.chinacdc.cn/>). The review focused on studies reporting the country-level prevalence of cannabis use published between January 1, 2000, and January 15, 2024.

Screening and Quality Assessment

A library was created using Endnote (version X.8, Clarivate Analytics Philadelphia, PA, USA) to catalog studies and eliminate duplicates. Initial screening of titles and abstracts was independently conducted by two authors (QW and ZQ), followed by a full-text review of the selected studies. Studies were excluded if they met any of the specified exclusion criteria ([Supplementary Material](#)).

The risk of study bias was evaluated using the Joanna Briggs Institute (JBI) Checklist for Prevalence Studies (12) ([Supplementary Material](#)). Two authors (QW and ZQ) independently rated the risk scores, classifying studies into high-risk (marked by 0–3), moderate-risk (marked by 4–6), and low-risk (marked by 7–9) groups. Any discrepancies were resolved through discussion with a third author (HZ). Only studies with moderate or low risk of bias were selected for data extraction.

Data Extraction and Representative Study Selection

Data from eligible studies were extracted into a custom-built database using Microsoft Excel (version 2019, Microsoft Corporation, Redmond, WA, USA). To account for the prevalence of cannabis use reported in multiple studies using the same database and to enhance comparability among countries, we selected representative studies for each country based on predefined selection criteria ([Supplementary Material](#)). A comprehensive search initially identified 177,843 studies, of which 101,703 were removed as duplicates. An additional 75,132 were excluded based on specific exclusion criteria, and 413 were eliminated due to high-risk bias. Consequently, 595 studies underwent data extraction, and 39 were ultimately designated as representative studies for their respective countries ([Figure 1](#)).

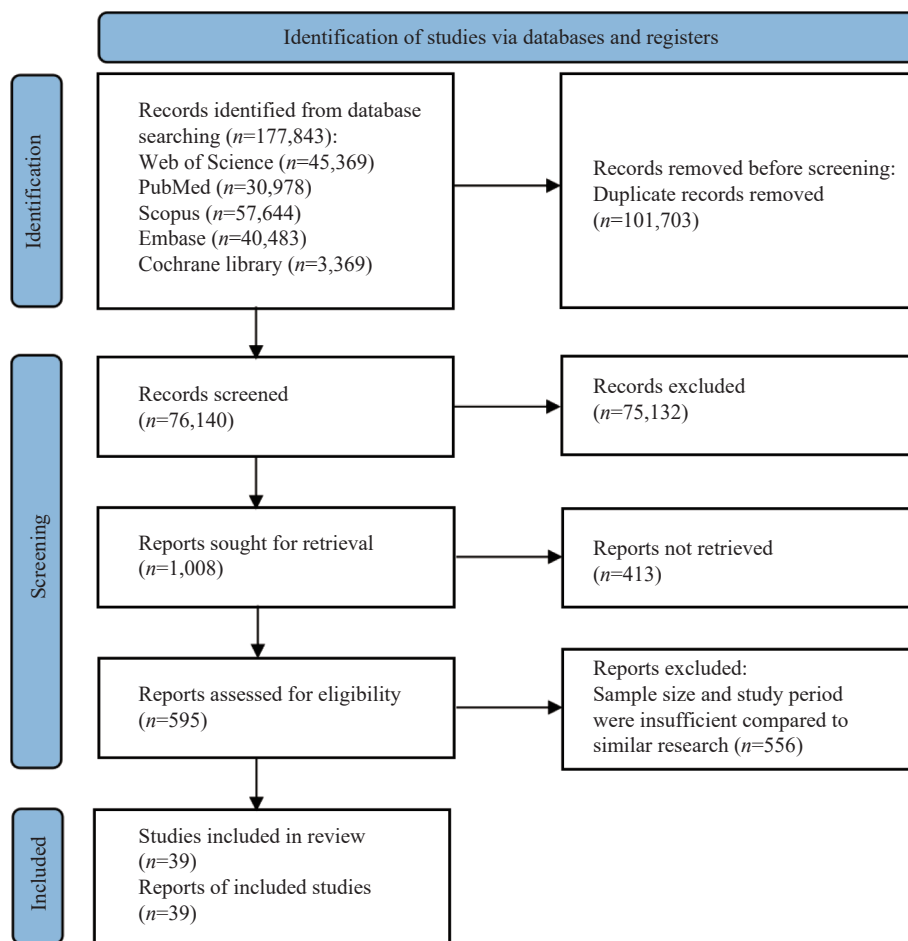


FIGURE 1. PRISMA flow diagram for the systematic review. Abbreviation: PRISMA=Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Statistical Analysis

The chi-squared test and I^2 statistic were used to assess the heterogeneity of the selected studies (13). Random-effects models (REM) were employed due to $P < 0.05$ or $I^2 > 50\%$, indicating potential heterogeneity among studies. Sensitivity analysis was conducted to evaluate the robustness of the results by systematically excluding studies with the most significant impact on the pooled outcomes. All analyses were performed using R software (version 4.3.0, R Foundation for Statistical Computing, Vienna, Austria).

RESULTS

Prevalence of Cannabis Use in Europe

Among the country-representative studies selected, the prevalence of cannabis use varied significantly, ranging from 0.42% to 43.90% across 33 European countries. The highest prevalence was observed in the Netherlands in 2013, while the lowest was reported in Sweden in 2016.

In examining the legalization of cannabis, data on prevalence has been documented by 19 countries where cannabis is legal. Typically, developed nations are among the first to relax restrictions on cannabis supply and usage penalties. For instance, in 2010, 28.14% of the Swiss population and 25.72% of the Spanish population reported using cannabis. Conversely, 14 countries reported relatively low prevalence rates of cannabis use during periods of illegality, with figures ranging from 2.76% to 30.50%. Specifically, in 2010, the prevalence was 2.76% in Macedonia, 4.31% in Romania, and in 2019, it was 6.60% in Estonia.

Prevalence of Cannabis Use in North and South America

The prevalence of cannabis use varied from 1.40% to 38.12% across 15 countries in North and South America. In the United States, an overall increasing trend was observed following the legalization of medical and recreational cannabis, with the highest prevalence of 38.12% recorded in 2021.

As in Europe, countries where cannabis is legalized often exhibit a higher prevalence rates. Data on cannabis use are available for eight countries with legalized cannabis. Both Brazil and Uruguay have shown increasing trends, with the highest prevalence reaching 23.10% in Brazil in 2019 and 20.78% in Uruguay in 2018. Additionally, eight countries

reported cannabis use prevalence during periods when it was illegal, ranging from 2.60% to 18.93%. Specifically, the prevalence in Bolivia was 2.60% in 2012, in Peru it was 2.90% in 2010, and in Suriname, it was 3.90% in 2017.

Prevalence of Cannabis Use in Oceania and Africa

The prevalence of cannabis use ranged from 1.30% to 48.70% across 18 countries in Oceania and Africa. Data from three countries where cannabis is legalized reveal varying prevalence rates. In Australia, the highest recorded prevalence was 48.70% in 2004, though this has since shown a declining trend. Similarly, New Zealand saw a peak prevalence of 19.00% in 2012, which has also decreased over time. In South Africa, the prevalence was 7.80% in 2017. In contrast, fifteen countries reported lower prevalence rates, ranging from 1.30% to 10.40%, during periods when cannabis was illegal. Specifically, in 2017, Benin had a prevalence of 1.30%, while Tanzania reported a prevalence of 2.30%.

Prevalence of Cannabis Use in Asia

The prevalence of cannabis use in 16 Asian countries ranged from 0.30% to 19.10%, which is relatively lower compared to European and American countries. Two countries specifically documented this data. In Israel, cannabis use prevalence increased from 5.43% in 2010 to 19.10% in 2017. In Lebanon, it was 1.60% in 2017. Fourteen countries reported cannabis use prevalence during periods when it was illegal, with rates ranging from 0.30% to 6.00%. In 2004, Japan had the lowest prevalence at 0.30%. The prevalence was 0.60% in Laos in 2015 and in Vietnam in 2013.

Meta-Analysis

In the meta-analysis, 33 studies reported the prevalence of cannabis use in 32 countries where cannabis is legalized, involving 17.12 million samples with 1.26 million cases. Conversely, 11 studies reported the prevalence in 51 countries where cannabis is illegal, involving 1.28 million samples with 205,630 cases. Overall, countries with legalized cannabis showed a higher pooled prevalence of use compared to those with illegal cannabis. The REM estimated the pooled prevalence of cannabis use to be 12.0% [95% confidence interval (CI): 10.0, 14.3] in legalized countries, compared to 5.4% (95% CI: 4.3, 6.9) in non-legalized countries (Figures 2 and 3). Sensitivity

Study	Event	Total	Prevalence (%)	95% CI	Forest plot
Europe					
Shi, Y. Y. 2015-Austria-2010	445	4,354	10.2	(9.3, 11.1)	
Shi, Y. Y. 2015-Belgium-2010	1,678	8,904	18.9	(18.1, 19.7)	
Shi, Y. Y. 2015-Croatia-2010	613	5,405	11.4	(10.5, 12.2)	
Glavak Tkalić, R. 2013-Croatia-2012	742	4,756	15.6	(14.6, 16.7)	
Shi, Y. Y. 2015-Denmark-2010	593	3,990	14.9	(13.8, 16.0)	
Shi, Y. Y. 2015-Finland-2010	382	5,327	7.2	(6.5, 7.9)	
Shi, Y. Y. 2015-France-2010	1,594	6,592	24.2	(23.2, 25.2)	
Shi, Y. Y. 2015-Germany-2010	711	5,681	12.5	(11.7, 13.4)	
Naegele, H. 2022-Germany-2017	3,880	9,350	41.5	(40.5, 42.5)	
Olderbak, S. 2024-Germany-2021	7,868	78,678	10.0	(8.9, 11.3)	
Shi, Y. Y. 2015-Iceland-2010	379	5,502	6.9	(6.3, 7.6)	
Arnarsson, A. 2018-Iceland-2015	54	2,336	2.3	(1.8, 3.0)	
Shi, Y. Y. 2015-Italy-2010	688	3,797	18.1	(16.9, 19.4)	
Amerio, A. 2023-Italy-2019	420	6,003	7.0	(6.4, 7.7)	
Amerio, A. 2023-Italy-2020	354	6,003	5.9	(5.3, 6.5)	
Amerio, A. 2023-Italy-2022	402	6,003	6.7	(6.1, 7.4)	
Shi, Y. Y. 2015-Luxembourg-2010	489	2,860	17.1	(15.8, 18.5)	
Shi, Y. Y. 2015-Netherlands-2010	785	4,070	19.3	(18.1, 20.5)	
Van Straaten, B. 2016-Netherlands-2013	151	344	43.9	(38.7, 49.2)	
Shi, Y. Y. 2015-Norway-2010	58	1,313	4.4	(3.4, 5.7)	
Heradstveit, O. 2021-Norway-2013	7,136	121,767	5.9	(5.7, 6.0)	
Heradstveit, O. 2021-Norway-2016	10,373	172,877	6.0	(5.9, 6.1)	
Heradstveit, O. 2021-Norway-2019	21,836	272,268	8.0	(7.9, 8.1)	
Shi, Y. Y. 2015-Portugal-2010	406	3,710	10.9	(10.0, 12.0)	
Shi, Y. Y. 2015-Slovenia-2010	765	4,336	17.6	(16.5, 18.8)	
Shi, Y. Y. 2015-Spain-2010	1572	6,111	25.7	(24.6, 26.8)	
Shi, Y. Y. 2015-Sweden-2010	57	1,212	4.7	(3.6, 6.0)	
Rabiee, R. 2023-Sweden-2016	13,893	3,307,759	0.4	(0.4, 0.4)	
Shi, Y. Y. 2015-Switzerland-2010	1,393	4,952	28.1	(26.9, 29.4)	
Kázmér, L. 2017-The Czech Republic-2010	464	1,522	30.5	(28.2, 32.9)	
Kázmér, L. 2017-The Czech Republic-2014	407	1,760	23.1	(21.2, 25.1)	
Shi, Y. Y. 2015-United Kingdom-2010	3,204	14,128	22.7	(22.0, 23.4)	
Hammond, D. 2021-United Kingdom-2017	708	3,914	18.1	(16.9, 19.3)	
Hammond, D. 2021-United Kingdom-2018	671	3,812	17.6	(16.4, 18.8)	
Hammond, D. 2021-United Kingdom-2019	600	3,392	17.7	(16.5, 19.0)	
Hindocha, C. 2021-United Kingdom-2020	909	12,809	7.1	(6.7, 7.6)	
North and South America					
Romano, E. 2023-Barbados-2011	140	1,504	9.3	(7.9, 10.9)	
Madruga, C. S. 2022-Brazil-2012	248	3,828	6.5	(5.1, 8.1)	
Vellozo, E. P. 2023-Brazil-2019	337	1,460	23.1	(21.0, 25.3)	
Lowry, D. E. 2020-Canada-2004	26,374	289,823	9.1	(9.0, 9.2)	
Leos-Toro, C. 2019-Canada-2005	2,472	16,705	14.8	(14.3, 15.3)	
Leos-Toro, C. 2019-Canada-2007	14,238	58,353	24.4	(24.1, 24.8)	
Leos-Toro, C. 2019-Canada-2009	12,401	45,425	27.3	(26.9, 27.7)	
Shi, Y. Y. 2015-Canada-2010	2,509	8,405	29.9	(28.9, 30.8)	
Leos-Toro, C. 2019-Canada-2011	9,509	44,852	21.2	(20.8, 21.6)	
Leos-Toro, C. 2019-Canada-2013	7,924	41,057	19.3	(18.9, 19.7)	
Leos-Toro, C. 2019-Canada-2015	6,050	36,665	16.5	(16.1, 16.9)	

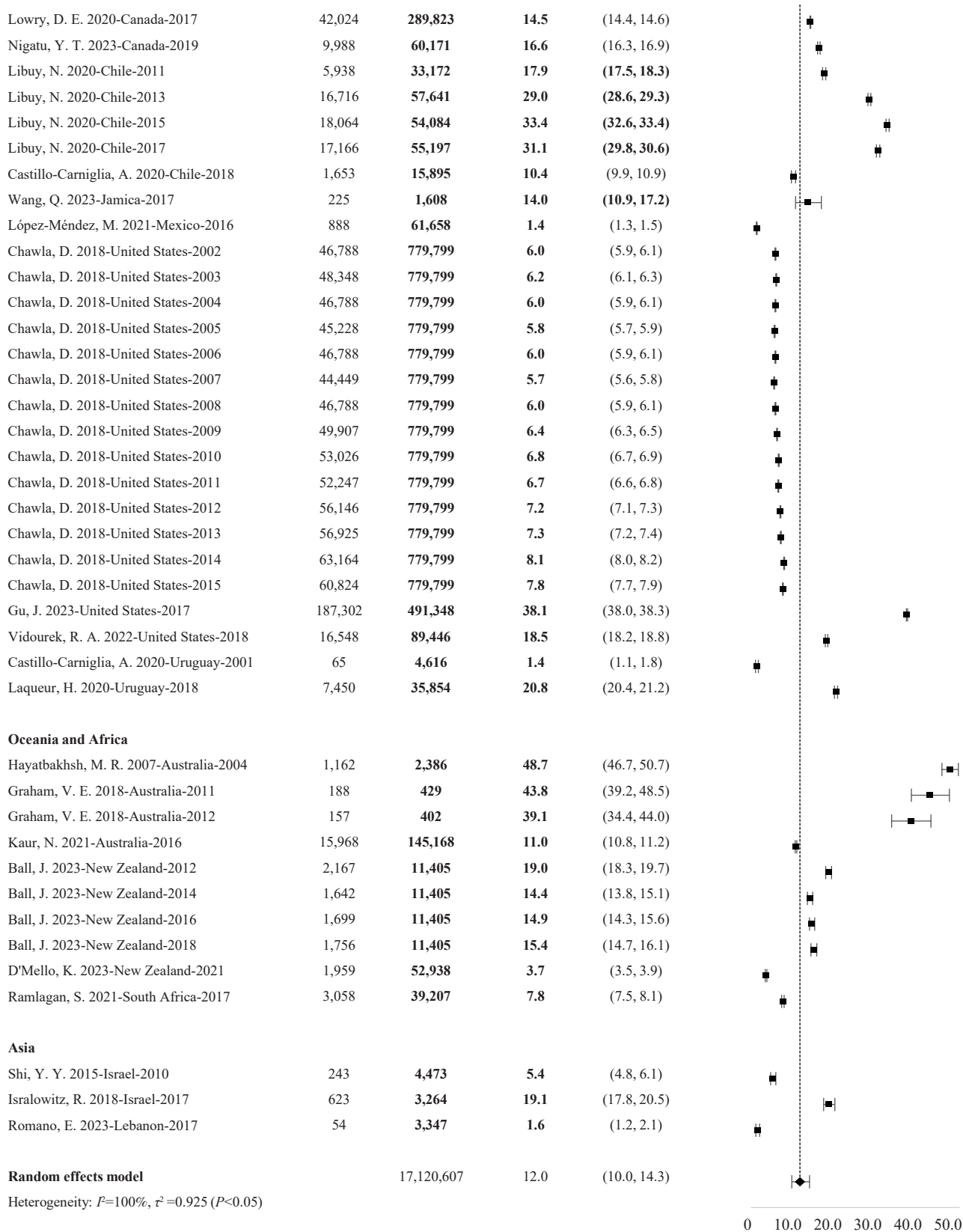


FIGURE 2. Pooled prevalence of cannabis use across legalized countries.

Note: Bold data were extracted from the literature, and the other data were calculated in this study. The dash line (12.0%) shows the pooled prevalence.

analysis revealed no significant variations, confirming the stability of the results. However, the high heterogeneity observed in the analysis and potential publication bias in some studies could be attributed to the diversity of countries and the varying periods from which data were sourced.

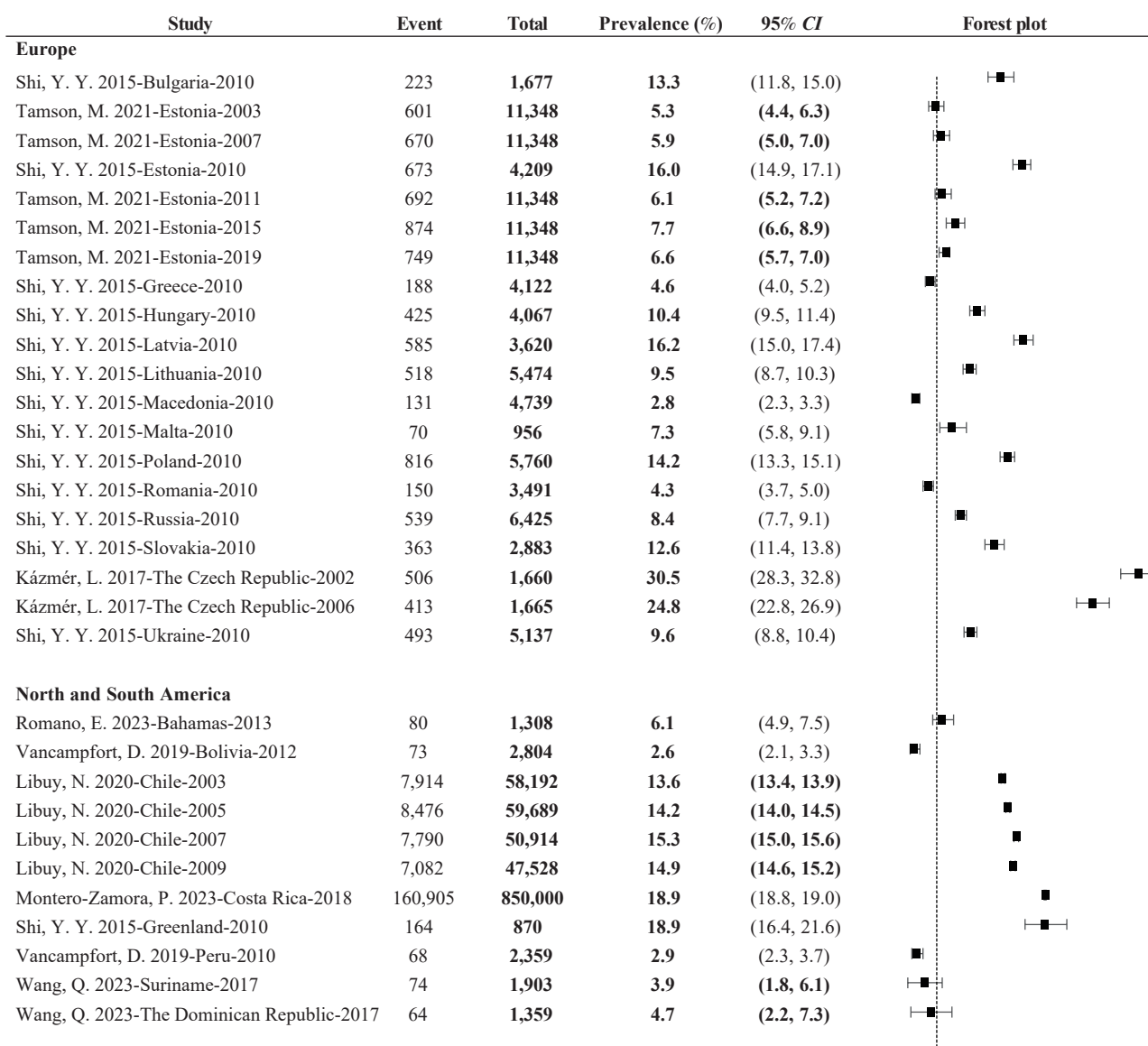
DISCUSSION

Our findings indicate a disproportionate global increase in cannabis use, with significant regional variations since 2000, consistent with previous studies. This rise may be attributed to increased access to cannabis, shifting cultural perceptions, and evolving legislation (14). Worldwide, more countries are decriminalizing cannabis, and in those with existing

legalization, regulations are becoming more permissive (e.g., recreational use and possession limits) (15). The acceleration of economic globalization presents additional challenges to decreasing the prevalence of cannabis use.

Notably, countries with medical or recreational cannabis legalization policies have shown an increasing trend and higher prevalence of cannabis use. In Japan, where cannabis control is relatively strict, the prevalence remains low (16). In contrast, in the United States, cannabis use has increased following the legalization of recreational cannabis in Colorado and Washington in 2012 (17).

The prevalence of cannabis use demonstrated regional consistency, with neighboring countries or continents exhibiting similar levels of use. For example, in Europe, countries like the Netherlands and Spain



Oceani and Africa

Wang, Q. 2023-Benin-2017	21	1,584	1.3	(0.4, 2.2)
Naguib, Y. M. 2021-Egypt-2020	117	2,380	4.9	(4.1, 5.8)
Wang, Q. 2023-Fiji-2017	226	3,054	7.4	(3.9, 11.0)
Romano, E. 2023-French Polynesia-2015	198	1,902	10.4	(9.1, 11.9)
Vancampfort, D. 2019-Ghana-2012	82	1,110	7.4	(6.0, 9.1)
Vancampfort, D. 2019-Kiribati-2011	62	1,340	4.6	(3.6, 5.9)
Wang, Q. 2023-Liberia-2017	96	1,261	7.6	(5.0, 10.3)
Wang, Q. 2023-Mauritius-2017	211	2,970	7.1	(5.3, 8.9)
Wang, Q. 2023-Mozambique-2017	26	1,320	2.0	(0.8, 3.1)
Wang, Q. 2023-Namibia-2017	184	3,347	5.5	(3.9, 7.1)
Romano, E. 2023-Seychelles-2015	165	2,061	8.0	(6.9, 9.3)
Wang, Q. 2023-Tanzania-2017	79	3,434	2.3	(1.4, 3.2)
Vancampfort, D. 2019-Tonga-2010	115	1,946	5.9	(4.9, 7.0)
Wang, Q. 2023-Vanuatu-2017	100	2,042	4.9	(3.6, 6.2)
Wang, Q. 2023-Wallis and Futuna-2017	32	1,035	3.1	(2.0, 4.3)

Asia

Shi, Y. Y. 2015-Armenia-2010	30	814	3.6	(2.5, 5.2)
Vancampfort, D. 2019-Bangladesh-2014	44	2,753	1.6	(1.2, 2.1)
Vancampfort, D. 2019-Indonesia-2015	106	8,806	1.2	(1.0, 1.5)
Peltzer, K. 2017-Iraq-2013	49	2,038	2.4	(1.8, 3.2)
Tominaga, M. 2009-Japan-2004	3	887	0.3	(0.1, 1.0)
Peltzer, K. 2017-Kuwait-2011	86	2,672	3.2	(2.6, 3.9)
Vancampfort, D. 2019-Laos-2015	10	1,644	0.6	(0.3, 1.1)
Vancampfort, D. 2019-Malaysia-2012	163	16,273	1.0	(0.9, 1.2)
Vancampfort, D. 2019-Mongolia-2013	41	3,707	1.1	(0.8, 1.5)
Wang, Q. 2023-Nepal-2017	193	6,240	3.1	(2.0, 4.2)
Vancampfort, D. 2019-Philippines-2015	327	6,162	5.3	(4.8, 5.9)
Wang, Q. 2023-Thailand-2017	327	5,630	5.8	(4.1, 7.6)
Wang, Q. 2023-Timor-Leste-2017	180	3,006	6.0	(4.6, 7.4)
Peltzer, K. 2017-Vienam-2013	20	3,331	0.6	(0.4, 0.9)

Random effects model

1,284,300 5.4 (4.3, 6.9)

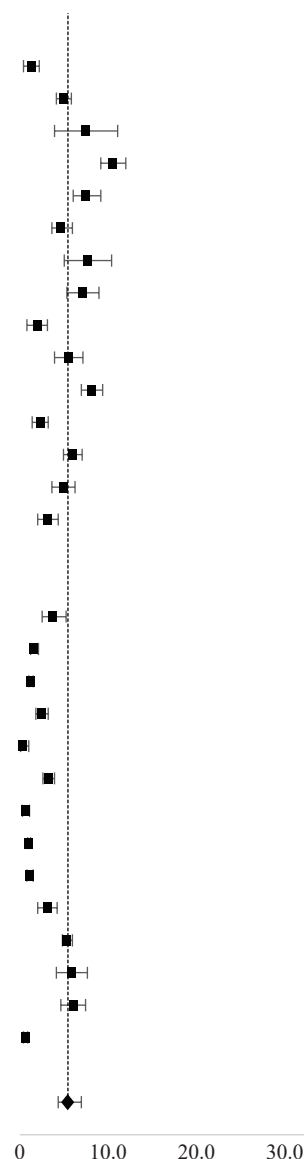
Heterogeneity: $I^2=100\%$, $\tau^2=0.946$ ($P<0.05$)

FIGURE 3. Pooled prevalence of cannabis use across non-legalized countries.

Note: Bold data were extracted from the literature, and the other data were calculated in this study. The dash line (5.4%) shows the pooled prevalence.

showed relatively high cannabis use prevalence (18). This trend also extended to nearby countries, such as France and Germany, where cannabis use was similarly common (19).

The study is subject to some limitations. First, the study utilizes peer-reviewed literature databases, which include many studies with non-continuous data. Second, it is restricted to studies published in English, potentially excluding valuable research in other languages. Third, publication bias regarding cannabis use was not accounted for due to variations across countries. Lastly, the analysis did not examine detailed regulations of cannabis legalization; future studies should investigate the effects of various cannabis

legalization measures.

Our findings indicated that the prevalence of cannabis use has disproportionately increased in many countries following the implementation of medical or recreational cannabis legalization policies, particularly in regions geographically close to these areas. As a gateway drug, this trend may lead to an increase in both cannabis use and overall drug use. Therefore, enhanced monitoring of newly cannabis-legalized countries and efforts to prevent initial use are necessary.

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REFERENCES

- United Nations Office on Drugs and Crime. World drug report 2023. https://www.unodc.org/res/WDR-2023/WDR23_Exsum_fin_DP.pdf. [2024-04-15].
- United Nations Office on Drugs and Crime. World drug report 2013. https://www.unodc.org/unodc/secured/wdr/wdr2013/World_Drug_Report_2013.pdf. [2024-04-15].
- Volkow ND, Baler RD, Compton WM, Weiss SRB. Adverse health effects of marijuana use. *N Engl J Med* 2014;370(23):2219 – 27. <https://doi.org/10.1056/NEJMra1402309>.
- Zhu H, Wu LT. Trends and correlates of cannabis-involved emergency department visits: 2004 to 2011. *J Addict Med*, 2016;10(6):429 – 36. <https://doi.org/10.1097/ADM.0000000000000256>.
- World Health Organization. The health and social effects of nonmedical cannabis use. <https://www.who.int/publications-detail-redirect/9789241510240>. [2024-04-15].
- Pacula RL, Ringel J, Dobkin C, Truong K. The incremental inpatient costs associated with marijuana comorbidity. *Drug Alcohol Depend*, 2008;92(1-3):248 – 57. <https://doi.org/10.1016/j.drugalcdep.2007.08.011>.
- Samples H, Levy NS, Bruzelius E, Segura LE, Mauro PM, Boustead AE, et al. Association between legal access to medical cannabis and frequency of non-medical prescription opioid use among U.S. adults. *Int J Ment Health Addict*, 2023;1 – 14. <http://dx.doi.org/10.1007/s11469-023-01191-y>.
- Mennis J, Stahler GJ. Adolescent treatment admissions for marijuana following recreational legalization in Colorado and Washington. *Drug Alcohol Depend*, 2020;210:107960. <https://doi.org/10.1016/j.drugalcdep.2020.107960>.
- Maciver B. Cannabis legalization world map: UPDATED. <https://www.cannabisbusinessstimes.com/article/cannabis-legalization-world-map/>. [2024-04-15].
- Kilmer JR, Rhew IC, Guttmanova K, Fleming CB, Hultgren BA, Gilson MS, et al. Cannabis use among young adults in Washington State after legalization of nonmedical cannabis. *Am J Public Health* 2022;112(4):638 – 45. <https://doi.org/10.2105/AJPH.2021.306641>.
- Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*, 2021;372:n71. <https://doi.org/10.1136/bmj.n71>.
- JBI. Checklist for prevalence studies. https://jbi.global/sites/default/files/2020-08/Checklist_for_Prevalence_Studies.pdf. [2024-04-15].
- Thorlund K, Imberger G, Johnston BC, Walsh M, Awad T, Thabane L, et al. Evolution of heterogeneity (I²) estimates and their 95% confidence intervals in large meta-analyses. *PLoS One*, 2012;7(7):e39471. <https://doi.org/10.1371/journal.pone.0039471>.
- Compton WM, Han B, Hughes A, Jones CM, Blanco C. Use of marijuana for medical purposes among adults in the United States. *JAMA*, 2017;317(2):209 – 11. <https://doi.org/10.1001/jama.2016.18900>.
- Yu B, Chen XG, Chen XF, Yan H. Marijuana legalization and historical trends in marijuana use among US residents aged 12-25: results from the 1979-2016 national survey on drug use and health. *BMC Public Health*, 2020;20(1):156. <https://doi.org/10.1186/s12889-020-8253-4>.
- Tominaga M, Kawakami N, Ono Y, Nakane Y, Nakamura Y, Tachimori H, et al. Prevalence and correlates of illicit and non-medical use of psychotropic drugs in Japan. *Soc Psychiatry Psychiatr Epidemiol* 2009;44(9):777 – 83. <https://doi.org/10.1007/s00127-009-0499-1>.
- Chawla D, Yang YC, Desrosiers TA, Westreich DJ, Olshan AF, Daniels JL. Past-month cannabis use among U.S. individuals from 2002-2015: an age-period-cohort analysis. *Drug Alcohol Depend*, 2018;193:177-82. <http://dx.doi.org/10.1016/j.drugalcdep.2018.05.035>.
- Tkalić RG, Miletić GM, Sakoman S. Prevalence of substance use among the general population: situation in Croatia and comparison with other European countries. *Društvena Istraživanja* 2013;22(4):557-8. <http://dx.doi.org/10.5559/di.22.4.01>.
- Shi YY, Lenzi M, An RP. Cannabis liberalization and adolescent cannabis use: a cross-national study in 38 countries. *PLoS One*, 2015;10(11):e0143562. <https://doi.org/10.1371/journal.pone.0143562>.

SUPPLEMENTARY MATERIAL

PEER-REVIEWED LITERATURE SEARCH

The search strategies were as follows: results included Search 1 and Search 2 (combined using ‘AND’), with publications dated between January 1, 2000, and January 15, 2024.

Searches were conducted on January 15, 2024.

Search Strategy on Web of Science

Search 1: Cannabis Use

TS= (marijuana OR marihuana OR cannabis OR cannabinoid)

Search 2: Prevalence

TS= (prevalen* OR epidemi* OR consum* OR use* OR “use disorder”)

Search Strategy on PubMed

Search 1: Cannabis Use

(marijuana[Title/Abstract]) OR (marihuana[Title/Abstract]) OR (cannabis[Title/Abstract]) OR (cannabinoid[Title/Abstract]) OR (marijuana use[MeSH Terms]) OR (cannabis[MeSH Terms])

Search 2: Prevalence

(prevalen*[Title/Abstract]) OR (epidemi*[Title/Abstract]) OR (consum*[Title/Abstract]) OR (use*[Title/Abstract]) OR (“use disorder”[Title/Abstract]) OR (prevalence[MeSH Terms]) OR (epidemics[MeSH Terms]) OR (epidemiology[MeSH Terms])

Search Strategy on Scopus

Search 1: Cannabis Use

TITLE-ABS-KEY(marijuana) OR TITLE-ABS-KEY(marihuana) OR TITLE-ABS-KEY(cannabis) OR TITLE-ABS-KEY(cannabinoid)

Search 2: Prevalence

TITLE-ABS-KEY(prevalen*) OR TITLE-ABS-KEY(epidemi*) OR TITLE-ABS-KEY(consum*) OR TITLE-ABS-KEY(use*) OR TITLE-ABS-KEY(“use disorder”)

Search Strategy on Embase

Search 1: Cannabis Use

marijuana:ti,ab,kw OR marihuana:ti,ab,kw OR cannabis:ti,ab,kw OR cannabinoid:ti,ab,kw

Search 2: Prevalence

prevalent:ti,ab,kw OR prevalence:ti,ab,kw OR prevalency:ti,ab,kw OR prevalently:ti,ab,kw OR epidemic:ti,ab,kw OR epidemics:ti,ab,kw OR epidemiology:ti,ab,kw OR epidemiological:ti,ab,kw OR consume:ti,ab,kw OR consumer:ti,ab,kw OR consumption:ti,ab,kw OR use:ti,ab,kw OR user:ti,ab,kw OR usage:ti,ab,kw OR “use disorder”:ti,ab,kw

Search Strategy on Cochrane Library

Search 1: Cannabis Use

(marijuana):ti,ab,kw OR (marihuana):ti,ab,kw OR (cannabis):ti,ab,kw OR (cannabinoid):ti,ab,kw

Search 2: Prevalence

(prevalent):ti,ab,kw OR (prevalence):ti,ab,kw OR (prevalency):ti,ab,kw OR (prevalently):ti,ab,kw OR (epidemic):ti,ab,kw OR (epidemics):ti,ab,kw OR (epidemiology):ti,ab,kw OR (epidemiological):ti,ab,kw OR (consume):ti,ab,kw OR (consumer):ti,ab,kw OR (consumption):ti,ab,kw OR (use):ti,ab,kw OR (user):ti,ab,kw OR (usage):ti,ab,kw OR (use disorder):ti,ab,kw

EXCLUSION CRITERIA

Studies were excluded if they met any of the following criteria: lack of data on the prevalence of cannabis use; non-population-based studies (e.g., chemical or animal experiments); non-original studies (e.g., reviews or editorials); non-English studies; and studies without full-text access.

JOANNA BRIGGS INSTITUTE (JBI) CHECKLIST FOR PREVALENCE STUDIES

The checklists include the following criteria: an appropriate sampling frame for addressing the target population; adequately sampled study participants; sufficient sample size; detailed descriptions of study subjects and settings; comprehensive data analysis covering the identified sample; valid methods for condition identification; standardized and reliable condition measurement for all participants; appropriate statistical analysis; and adequate response rate management, including appropriate handling of low response rates.

SELECTION CRITERIA

The representative study selection criteria were the following: prioritizing geographic coverage, prioritizing studies with participants who had used cannabis in the past month, and prioritizing studies with longer durations and larger sample sizes when multiple studies reported the prevalence of cannabis use within a country.