

Supplementary Table S1 Detailed search strategies

Database	Search strategy
PubMed	((abuse) OR (depend*) OR (use) OR ("Substance-Related Disorders"[MeSH Terms]) OR (disord*)) AND ((marijuana) OR (cannabis) OR (hashish)) AND ((Clinical student*) OR (Education, medical [MeSH]) OR (Education, medical, undergraduate [MeSH]) OR (Med student*) OR (Medical student*) OR (Medical trainee*) OR (Preclinical student*) OR (Student doctor*) OR (Student physician*) OR (Undergraduate medic*)) AND ((prevalence) OR (risk) OR (frequency) OR (Cohort design) OR (Cohort studies [MeSH]) OR (Cross-sectional stud*) OR (Cross-sectional studies [MeSH]) OR (Epidemiologic studies [MeSH]) OR (Incidence) OR (Longitudinal design) OR (Longitudinal stud*) OR (Observational stud*) OR (Population stud*) OR (Prevalence) OR (Prospective stud*) OR (Prospective studies [MeSH]) OR (Retrospective stud*) OR (Retrospective studies [MeSH]))
LILACS and PsycNET	((abuse) OR (depend*) OR (use) OR ("Substance-Related Disorders") OR (disord*)) AND ((marijuana) OR (cannabis) OR (hashish)) AND ((Clinical student*) OR (Education, medical) OR (Education, medical, undergraduate) OR (Med student*) OR (Medical student*) OR (Medical trainee*) OR (Preclinical student*) OR (Student doctor*) OR (Student physician*) OR (Undergraduate medic*)) AND ((prevalence) OR (risk) OR (frequency) OR (Cohort design) OR (Cohort studies) OR (Cross-sectional stud*) OR (Cross-sectional studies) OR (Epidemiologic studies) OR (Incidence) OR (Longitudinal design) OR (Longitudinal stud*) OR (Observational stud*) OR (Population stud*) OR (Prevalence) OR (Prospective stud*) OR (Prospective studies) OR (Retrospective stud*) OR (Retrospective studies))
Embase	(abuse OR depend* OR use OR "Substance-Related Disorders" OR disord*) AND (marijuana OR cannabis OR hashish) AND ("Clinical student*" OR "Education, medical" OR "Education, medical, undergraduate" OR "Med student*" OR "Medical student*" OR "Medical trainee*" OR "Preclinical student*" OR "Student doctor*" OR "Student physician*" OR "Undergraduate medic*")
SciELO	((abuse) OR (depend*) OR (use) OR (Substance-Related Disorders) OR (disord*)) AND ((marijuana) OR (cannabis) OR (hashish)) AND ((Clinical student*) OR (Education, medical) OR (Education, medical, undergraduate) OR (Med student*) OR (Medical student*) OR (Medical trainee*) OR (Preclinical student*) OR (Student doctor*) OR (Student physician*) OR (Undergraduate medic*)) AND ((prevalence) OR (risk) OR (frequency) OR (Cohort design) OR (Cohort studies) OR (Cross-sectional stud*) OR (Cross-sectional studies) OR (Epidemiologic studies) OR (Incidence) OR (Longitudinal design) OR (Longitudinal stud*) OR (Observational stud*) OR (Population stud*) OR (Prevalence) OR (Prospective stud*) OR (Prospective studies) OR (Retrospective stud*) OR (Retrospective studies))

Supplementary Table S2 Critical appraisal of individual studies according to the Joanna Briggs Institute Critical Appraisal Checklist for Studies Reporting Prevalence Data

	D1	D2	D3	D4	D5	D6	D7	D8	D9
Adhikari 2017	+	+	+	+	+	+	+	+	+
Aguilar 2016	+	+	×	+	+	-	+	+	+
Ali 1994	+	+	×	+	+	+	+	+	+
Araújo-Filho 2021	+	-	×	+	+	+	+	+	-
Ashton 1995	+	+	×	+	+	+	+	+	+
Ayala 2017	+	+	+	+	+	+	+	+	-
Ayinde 2022	-	+	+	+	+	×	+	+	-
Bahji 2021	-	+	+	+	+	+	+	+	×
Baldwin 1991	+	+	+	+	+	+	+	+	+
Baldwin 2006	+	+	+	+	-	+	+	+	×
Bíró 2008	+	-	×	+	-	+	+	+	+
Boniatti 2007	+	+	+	+	-	+	+	+	×
Buchanan 2008	+	-	×	+	-	+	+	+	+
Budhathoki 2010	+	-	+	+	+	+	+	+	+
Carvalho 2008	+	+	+	+	+	+	+	+	+
Casataldelli-Maia 2019	-	-	×	+	-	+	+	+	-
Cerame 2008	+	+	+	+	+	+	+	+	+
Chan 2017	+	+	×	+	-	+	+	+	×
Choi 2013	+	+	×	+	-	+	+	+	×
Chung 2022	+	+	×	+	+	+	+	+	×
Conard 1988	+	×	+	+	-	+	+	-	×
Croen 1997	+	+	×	+	+	+	+	+	+
Da Silveira 2008	+	+	+	+	+	+	+	-	-
Eiselen 2023	×	×	×	×	×	×	+	+	+
Engs 1980	-	-	+	×	-	+	+	+	-

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Global temporal and regional trends in cannabis use among medical students: a systematic review and meta-analysis – Karpovisch E et al.

Esteche 2018	+	+	X	+	-	+	+	+	X
Farias 2009	-	-	X	X	X	-	+	+	-
Farrell 2019	+	+	X	+	-	+	+	+	-
Ferreira 2022	+	+	X	+	+	+	+	+	+
Gaume 2024	+	+	+	+	+	+	+	+	X
Gignon 2016	+	+	X	+	+	+	+	+	+
Jain 2018	+	+	+	+	+	+	+	+	+
James 2013	+	+	X	+	+	+	+	+	+
Jankie 2023	-	+	X	+	X	+	+	+	X
Jodati 2007	+	-	+	+	-	+	+	-	+
Jovin 2022	-	-	X	+	-	X	+	-	-
Kadhun 2022	-	-	+	+	-	-	+	-	X
Keller 2007	+	+	X	+	+	+	+	+	+
Kerr-Corrêa 1999	+	+	+	+	+	+	+	+	+
Khanal 2010	+	+	+	+	+	+	+	+	+
Konstantinov 2021	+	+	+	+	+	+	?	+	-
Kory 1984	+	+	X	+	X	+	+	-	X
Kushwaha 2019	+	+	X	+	+	+	+	+	-
Laporte 1977	+	+	+	+	+	+	+	-	+
Lemos-Santos 2023	+	+	+	+	+	+	+	+	X
Lipp 1972	-	+	+	X	+	+	+	-	+
Lokesh 2023	+	+	+	+	+	+	+	+	X
Lucas 2006	+	+	X	+	-	+	+	+	-
Maddux 1986	-	+	X	X	-	+	+	+	+
Maier 2013	+	+	+	X	+	+	+	+	-
Makanjuola 2007	+	-	+	+	+	+	+	+	+

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Global temporal and regional trends in cannabis use among medical students: a systematic review and meta-analysis – Karpovich E et al.

Marcon 2021	+	X	+	+	+	+	+	+	-
McAuliffe 1984	+	+	+	+	+	+	+	-	+
McAuliffe 1986	+	+	+	+	+	+	+	+	+
McKay 1973	+	+	+	+	+	+	+	-	+
Mehmood 2022	+	X	+	+	-	+	+	+	-
Merlo 2017	+	+	+	+	+	+	+	+	X
Mesquita 1998	+	+	+	+	+	+	+	+	+
Moutinho 2019	+	+	X	+	-	+	+	+	X
Nawaz 2017	+	+	+	+	+	+	+	+	+
Newbury-Birch 2000	+	+	+	+	+	+	+	+	+
Newbury-Birch 2001	+	+	+	+	+	+	+	+	+
Oliveira 2009	+	+	X	+	-	+	+	+	-
Palin 2021	+	+	X	+	+	+	+	+	X
Parfey 1977	+	+	+	+	+	+	+	+	-
Passos 2006	+	+	+	+	+	+	+	+	-
Pereira 2008	+	+	X	+	+	+	+	+	+
Petroianu 2010	+	+	+	+	+	+	+	+	+
Pickard 2000	+	+	+	+	+	+	+	-	+
Rai 2008	+	+	+	+	+	+	+	+	-
Rochford 1977	+	-	X	+	X	+	+	-	X
Rodriguez 1986	+	+	+	+	+	+	+	+	X
Rodriguez 2012	+	-	X	+	-	+	+	+	-
Romero 2009	+	+	+	+	+	+	+	+	+
Rossi 2020	+	+	+	+	+	+	+	+	-
Safiri 2018	+	+	+	+	+	+	+	+	X
Sapkota 2021	+	X	X	+	X	+	+	+	+

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Global temporal and regional trends in cannabis use among medical students: a systematic review and meta-analysis – Karpovich E et al.

Schwartz 1990	+	+	X	+	-	+	+	+	+
Schwarzbold 2019	+	+	+	+	+	+	+	+	-
Serrano 2023	+	+	X	+	-	+	+	+	-
Siebra 2021	-	X	X	+	X	+	+	+	+
Slaby 1972	+	+	X	+	-	+	+	+	X
Solursh 1971	+	+	X	X	+	+	+	+	+
Talih 2018	+	+	X	+	-	+	+	+	X
Tavolacci 2018	+	+	+	+	+	+	+	+	+
Tockus 2008	+	+	X	+	X	+	+	+	X
Trkulja 2003	+	+	+	+	+	+	+	+	+
van Meerbeke 2005	+	+	X	X	+	+	+	+	+
Vaysse 2014	+	+	X	+	+	+	+	+	+
Vorster 2019	+	+	X	+	+	+	+	+	+
Vujcic 2017	+	+	+	+	+	+	+	+	+
Webb 1998	+	+	+	+	+	+	+	+	+
Zhou 2015	+	+	+	+	+	+	+	+	X

D1: Was the sample frame appropriate to address the target population?
D2: Were study participants sampled in an appropriate way?
D3: Was the sample size adequate?
D4: Were the study subjects and the setting described in detail?
D5: Was the data analysis conducted with sufficient coverage of the identified sample?
D6: Were valid methods used for the identification of the condition?
D7: Was the condition measured in a standard, reliable way for all participants?
D8: Was there appropriate statistical analysis?
D9: Was the response rate adequate, and if not, was the low response rate managed appropriately?

Judgement:
 No
 Unclear
 Yes
 No information
 Not applicable

Supplementary Material S1 References

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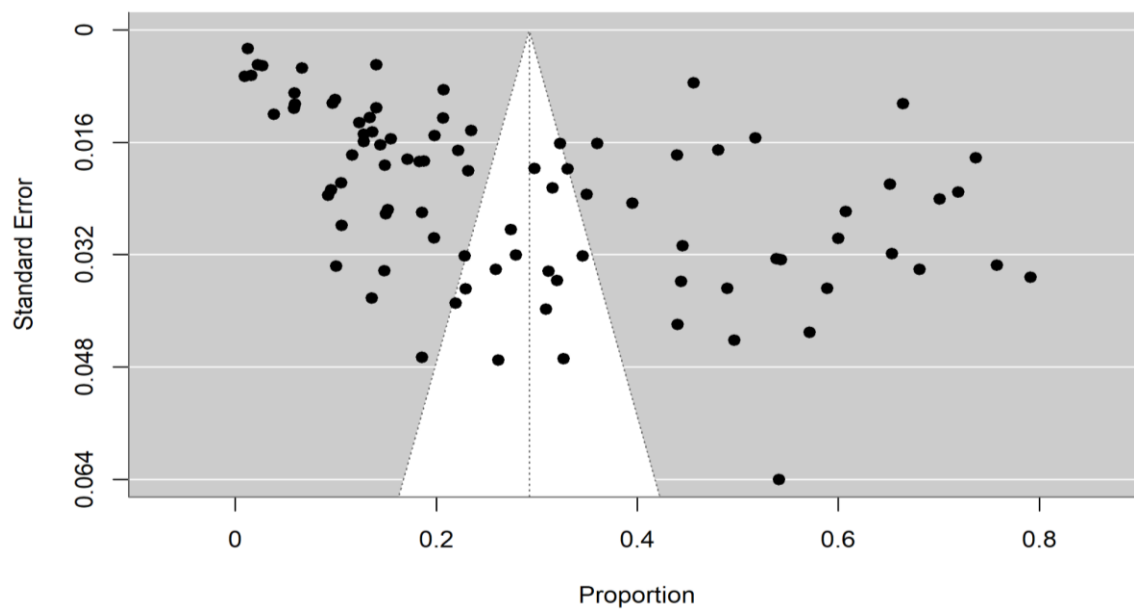
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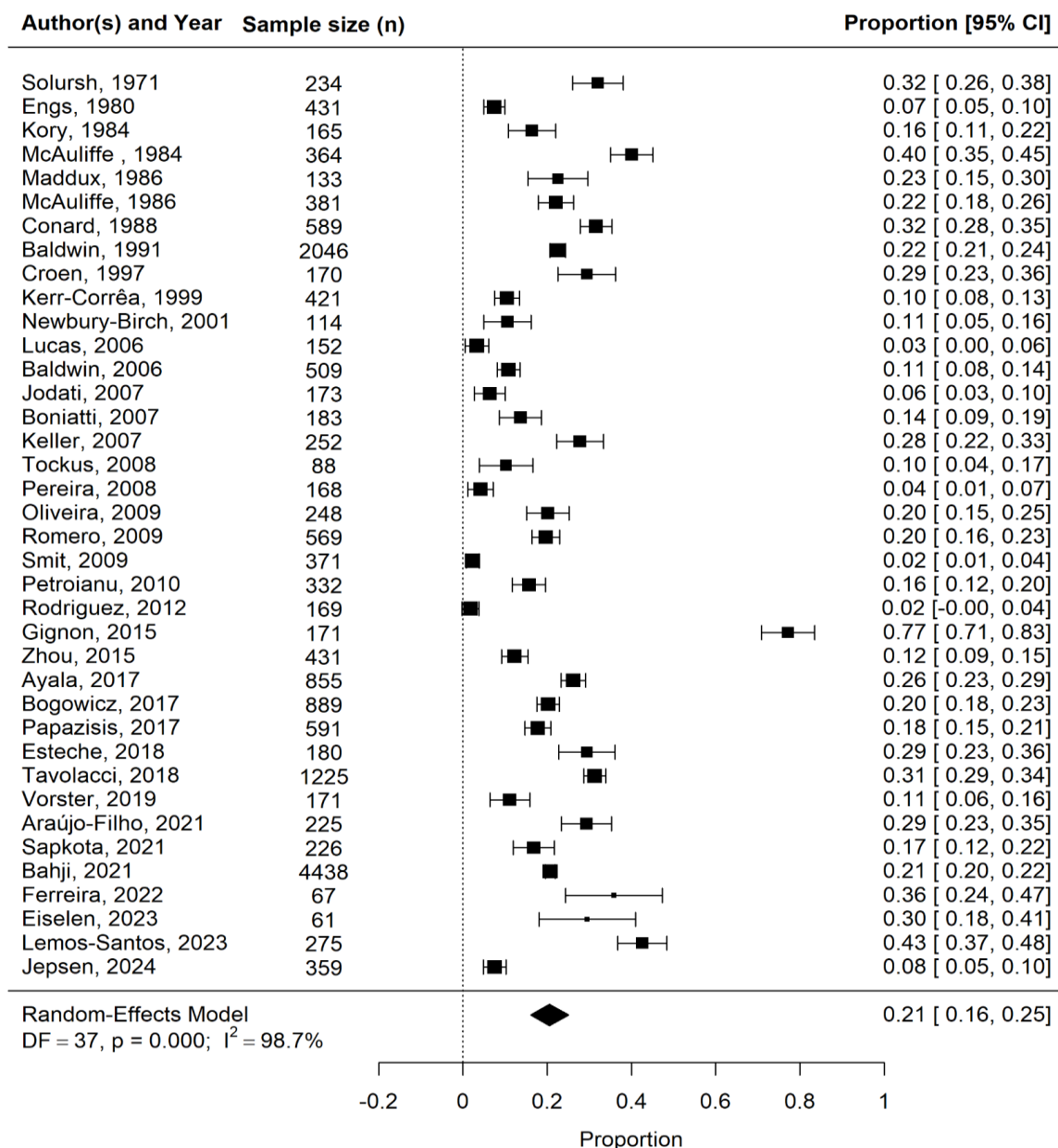
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Supplementary Table S3 Results of regression tests for funnel plot asymmetry and the number of studies suggested by the trim-and-fill method

Meta-analysis	z	p	b	95%CI	Number of suggest studies by trim-and-fill method
Timeframe					
Lifetime use	4.61	< 0.01	0.11	0.03 to 0.20	0
Past-year use	3.21	< 0.01	0.07	-0.02 to 0.16	0
Past-month use	5.73	< 0.01	0.02	-0.01 to 0.05	0
Past-week use	7.94	< 0.01	-0.01	-0.02 to 0.01	0
Sex [†]					
Male	2.55	< 0.05	0.16	0.04 to 0.29	0
Female	3.47	< 0.01	0.06	-0.06 to 0.17	0
World region [†]					
Latin America	2.90	< 0.01	0.05	-0.10 to 0.20	0
Anglo-America	0.84	0.40	0.52	0.34 to 0.71	-
Africa	3.16	< 0.01	0.04	-0.01 to 0.17	0
Asia	8.25	< 0.01	-0.01	-0.04 to 0.02	0
Europe	2.37	< 0.05	0.13	0.02 to 0.25	0
Decade [†]					
1970s	4.52	< 0.01	-0.12	-0.36 to 0.12	0
1980s	1.63	0.10	0.26	-0.11 to 0.62	-
1990s	1.50	0.13	0.11	-0.19 to 0.41	-
2000s	2.64	< 0.01	0.07	-0.02 to 0.17	0
2010s	3.04	< 0.01	0.08	-0.04 to 0.20	0
2020s	2.89	< 0.01	0.08	-0.09 to 0.26	0
Medical school cycle [†]					
Preclinical	1.30	0.19	0.12	-0.13 to 0.36	-
Clinical	1.14	0.25	0.10	-0.16 to 0.36	-
Internship	0.91	0.36	0.11	-0.44 to 0.66	-
Legality [†]					
Legal	1.07	0.28	0.27	0.01 to 0.52	-
Illegal	4.34	< 0.01	0.09	-0.01 to 0.19	0
Institution type [†]					
Private	0.36	0.72	0.24	-0.014 to 0.61	-
Public	5.51	< 0.01	0.04	-0.04 to 0.12	0

[†] Lifetime use.

Supplementary Figure S1 Funnel plot for lifetime cannabis use among medical students

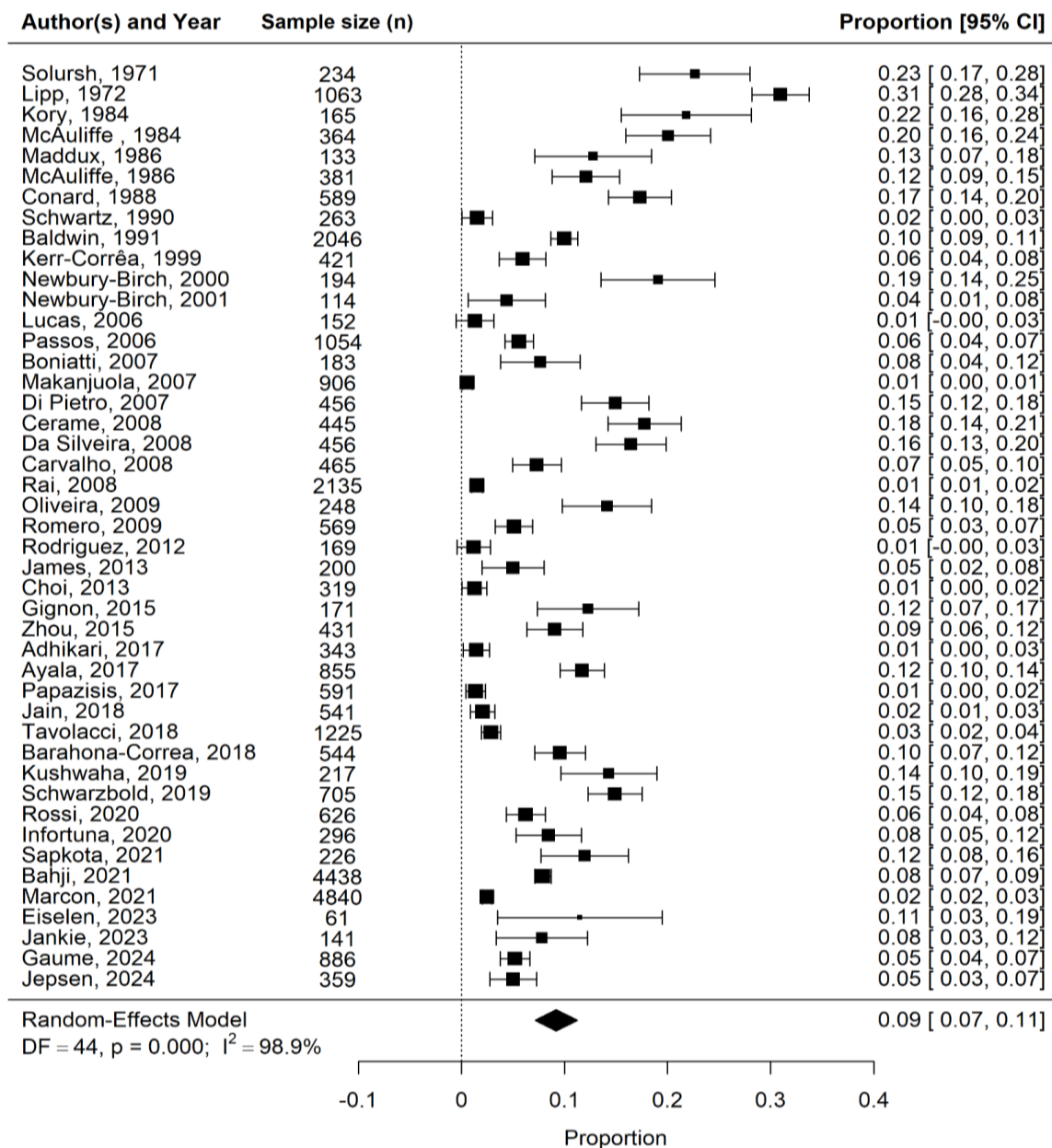
Supplementary Figure S2 Prevalence of recreational cannabis use among medical students in the past year

DF = degrees of freedom.

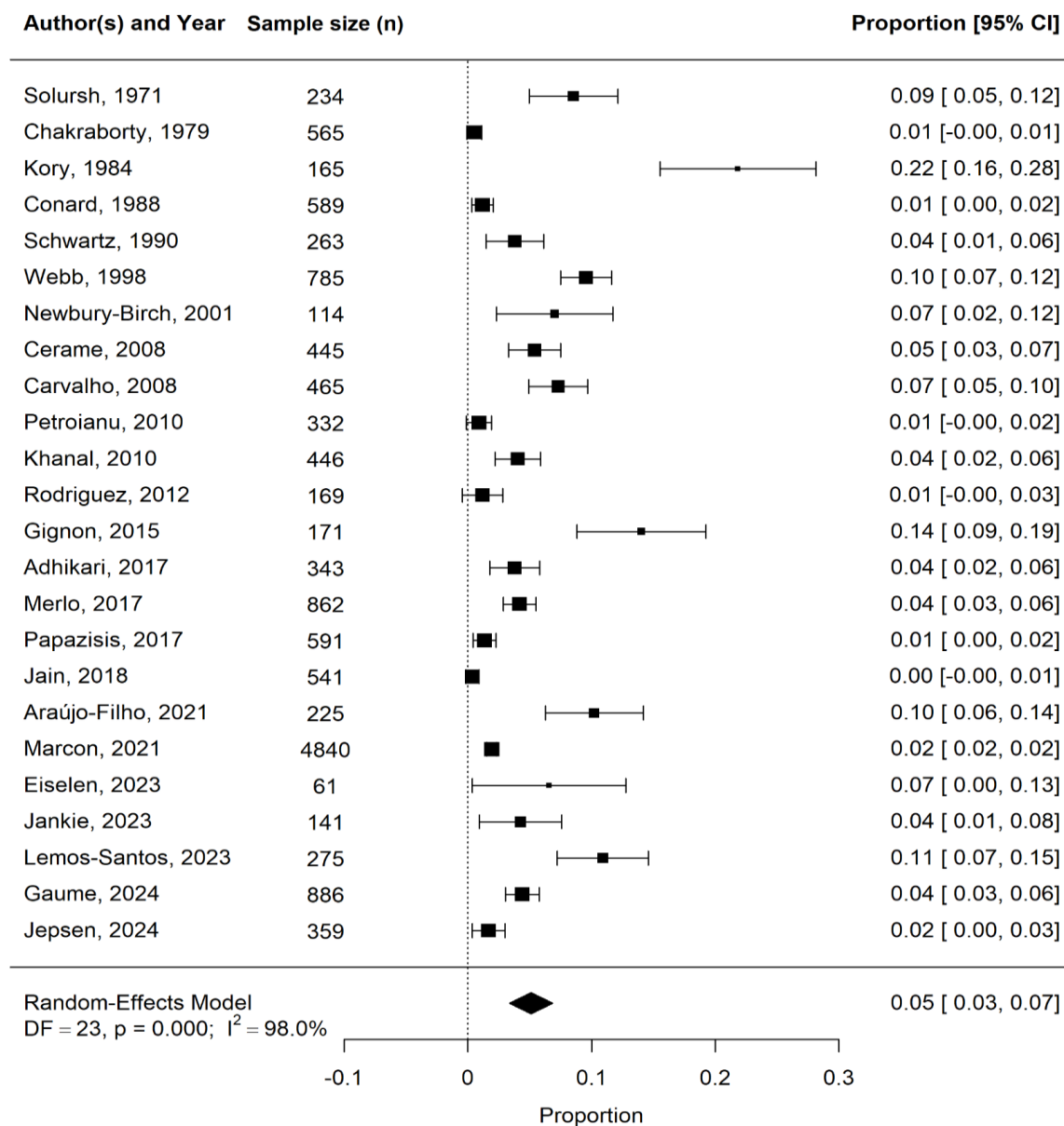
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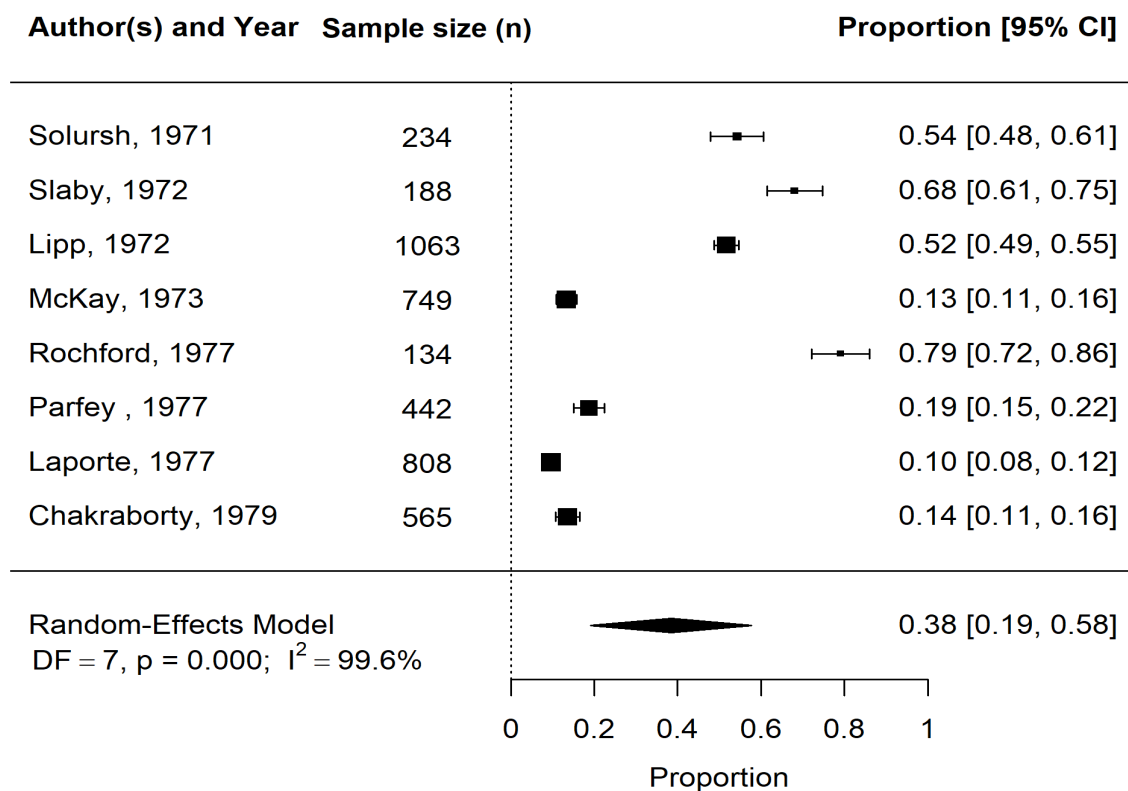
Supplementary Figure S3 Prevalence of recreational cannabis use among medical students in the past month



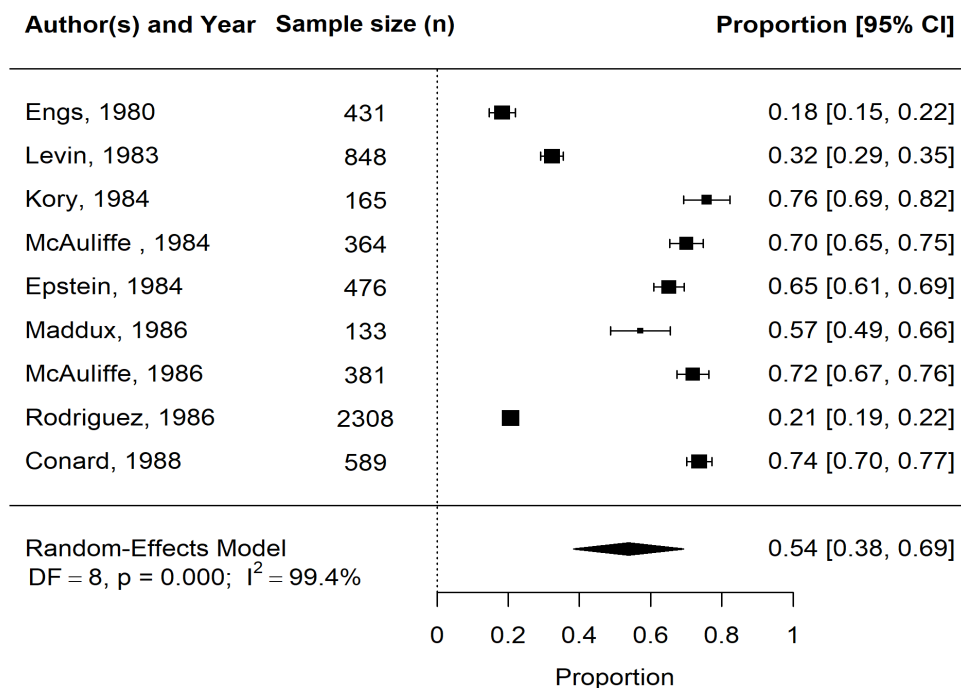
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Supplementary Figure S4 Prevalence of recreational cannabis use among medical students in the past week

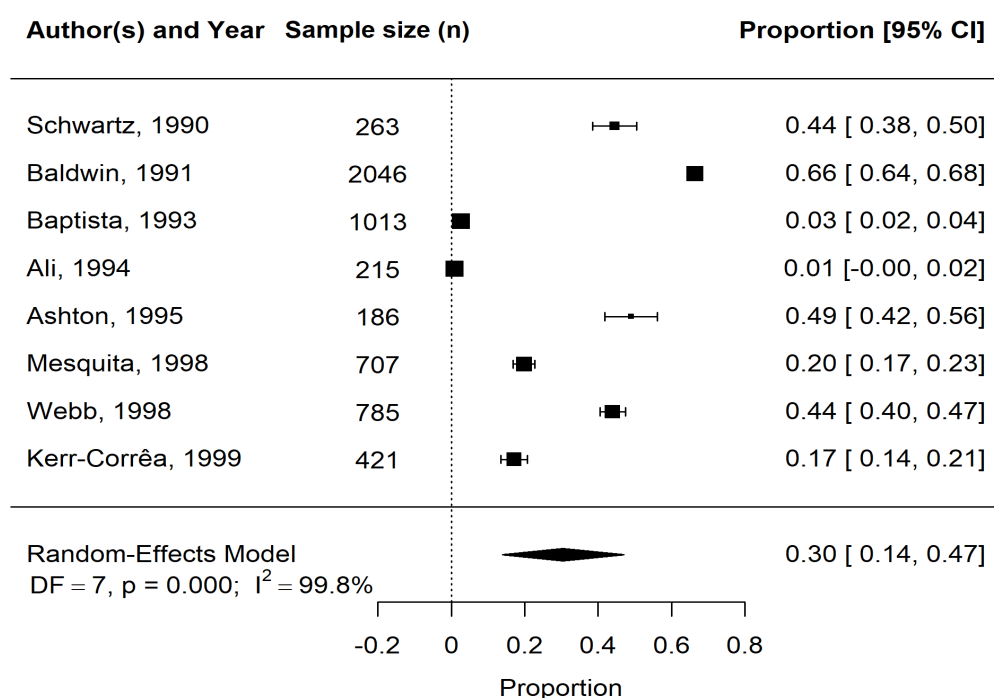
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Supplementary Figure S5 Prevalence of recreational cannabis use among medical students in the 1970s

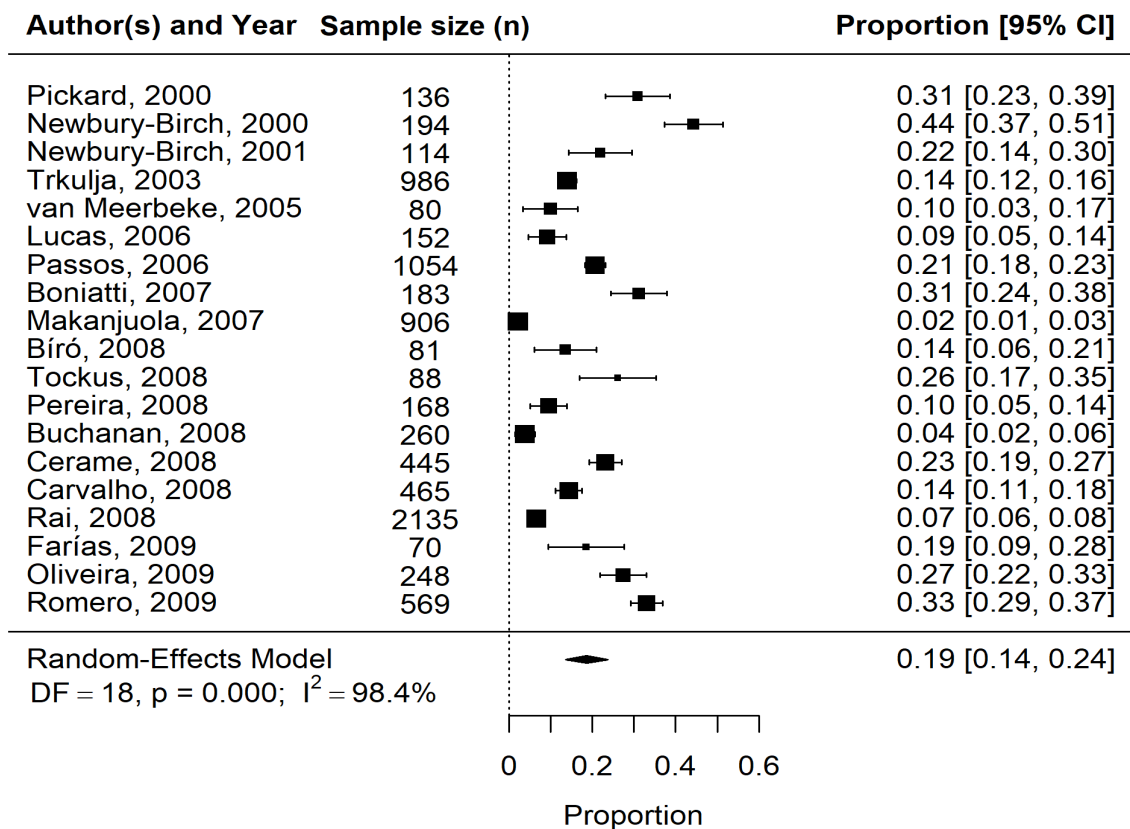
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Supplementary Figure S6 Prevalence of recreational cannabis use among medical students in the 1980s

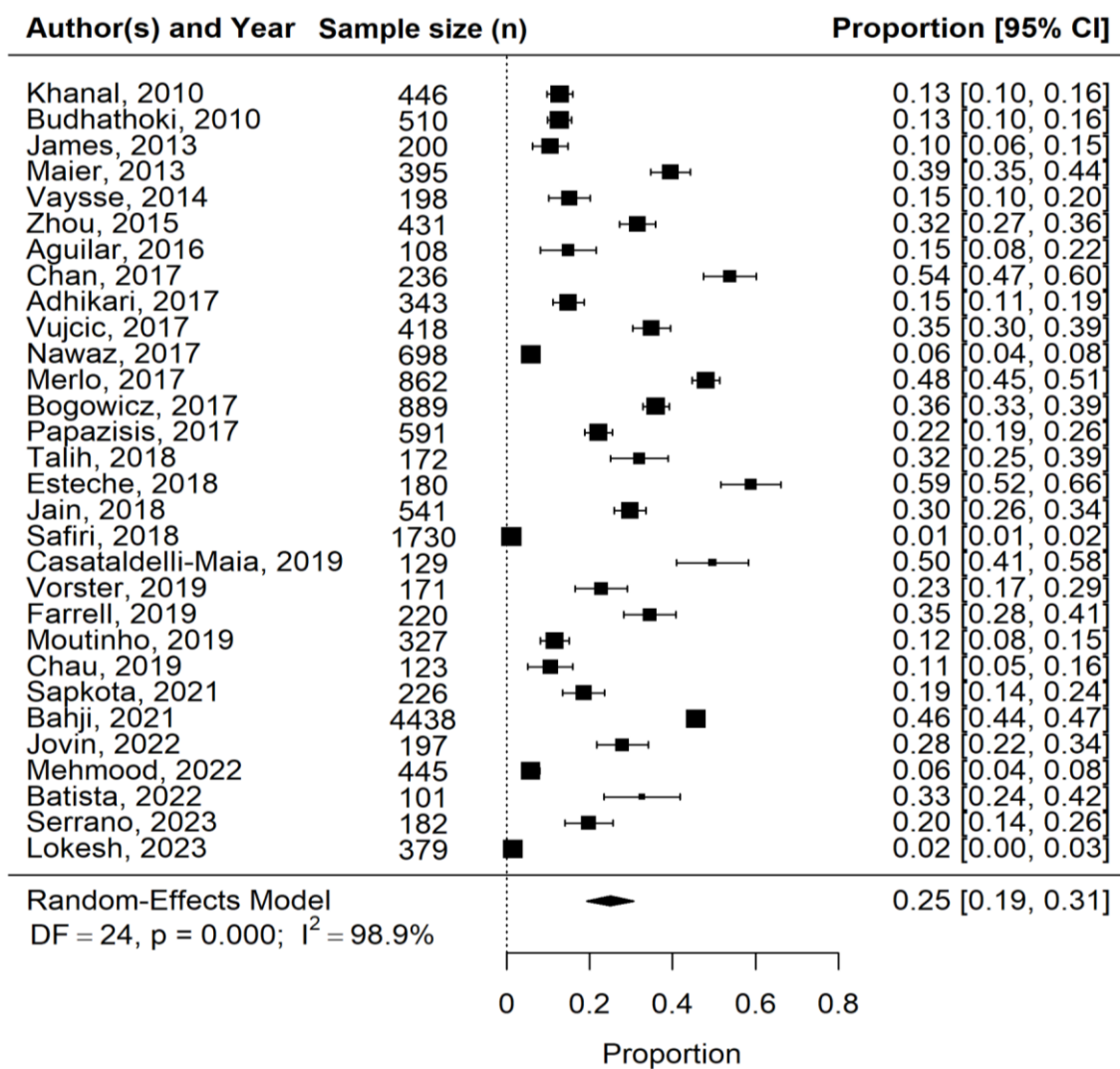
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Supplementary Figure S7 Prevalence of recreational cannabis use among medical students in the 1990s

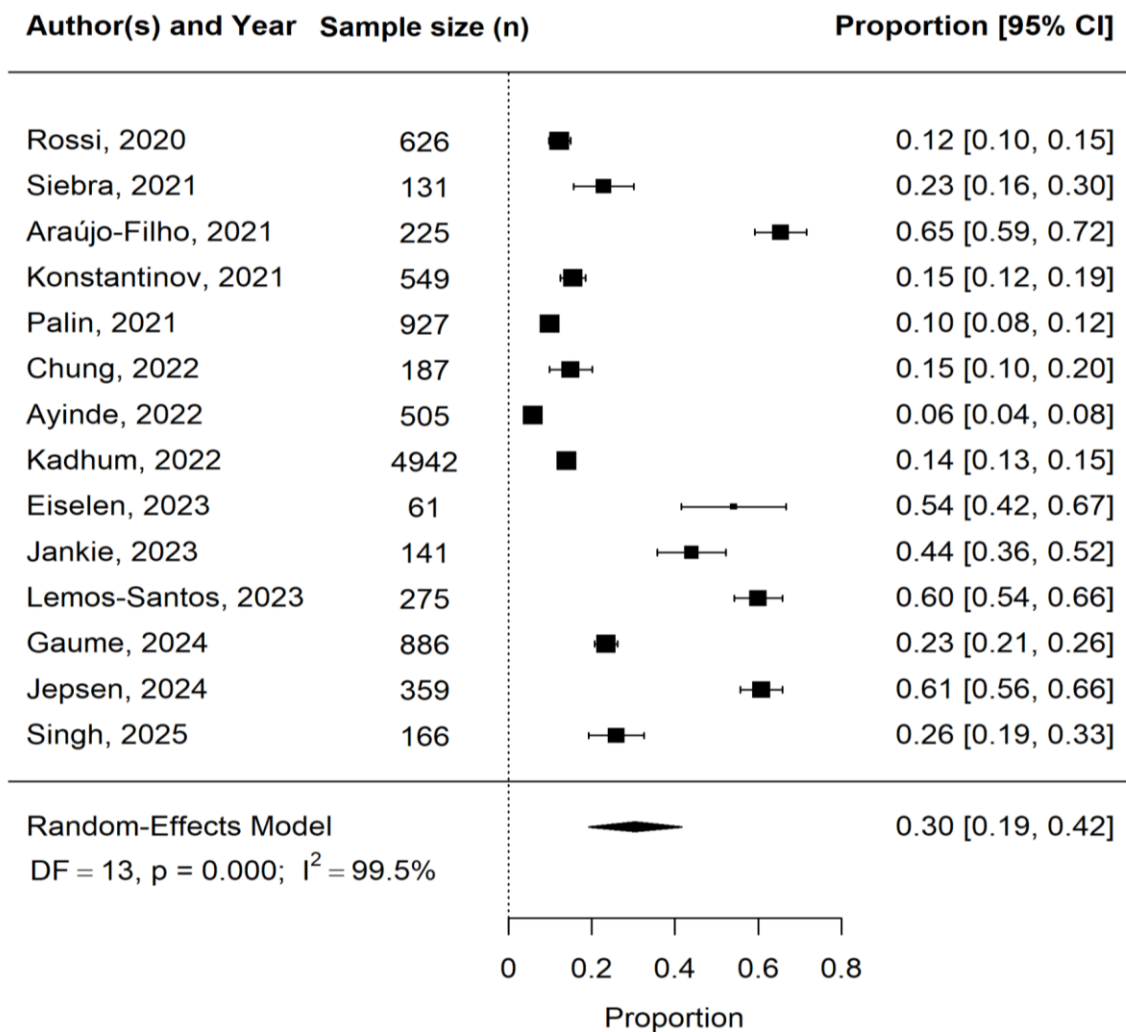
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Supplementary Figure S8 Prevalence of recreational cannabis use among medical students in the 2000s

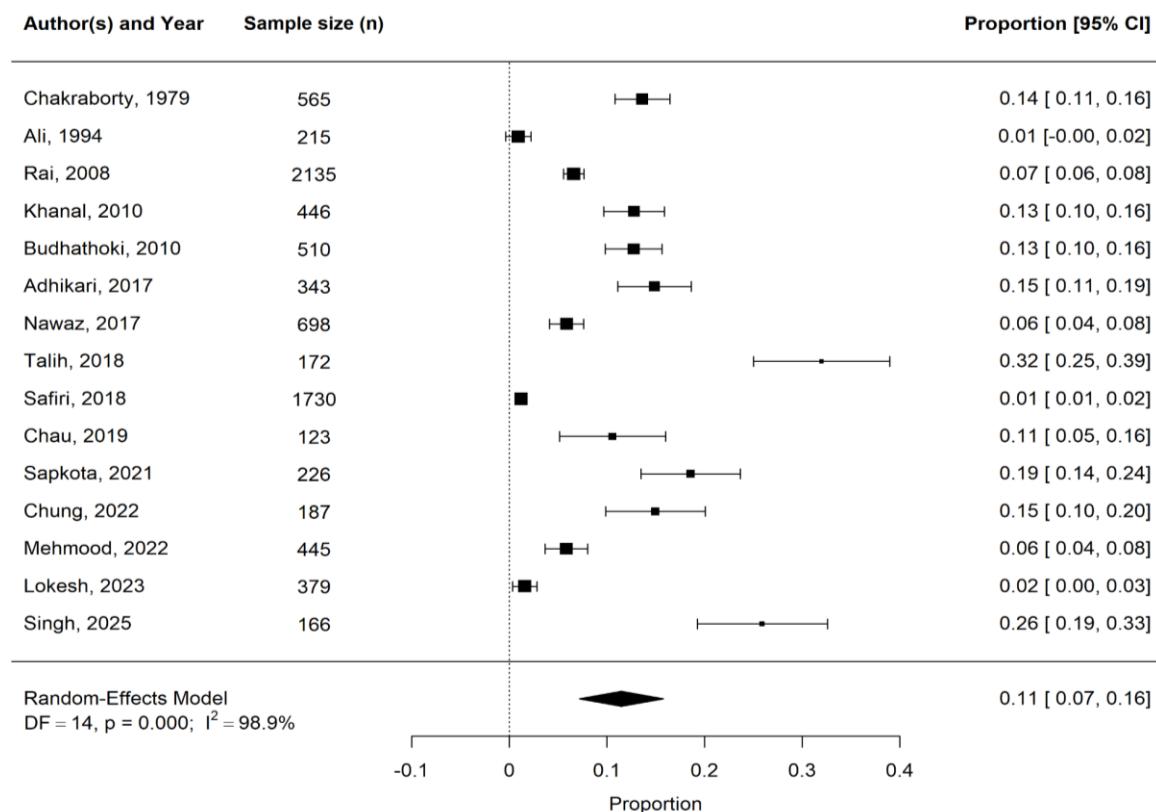
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Supplementary Figure S9 Prevalence of recreational cannabis use among medical students in the 2010s

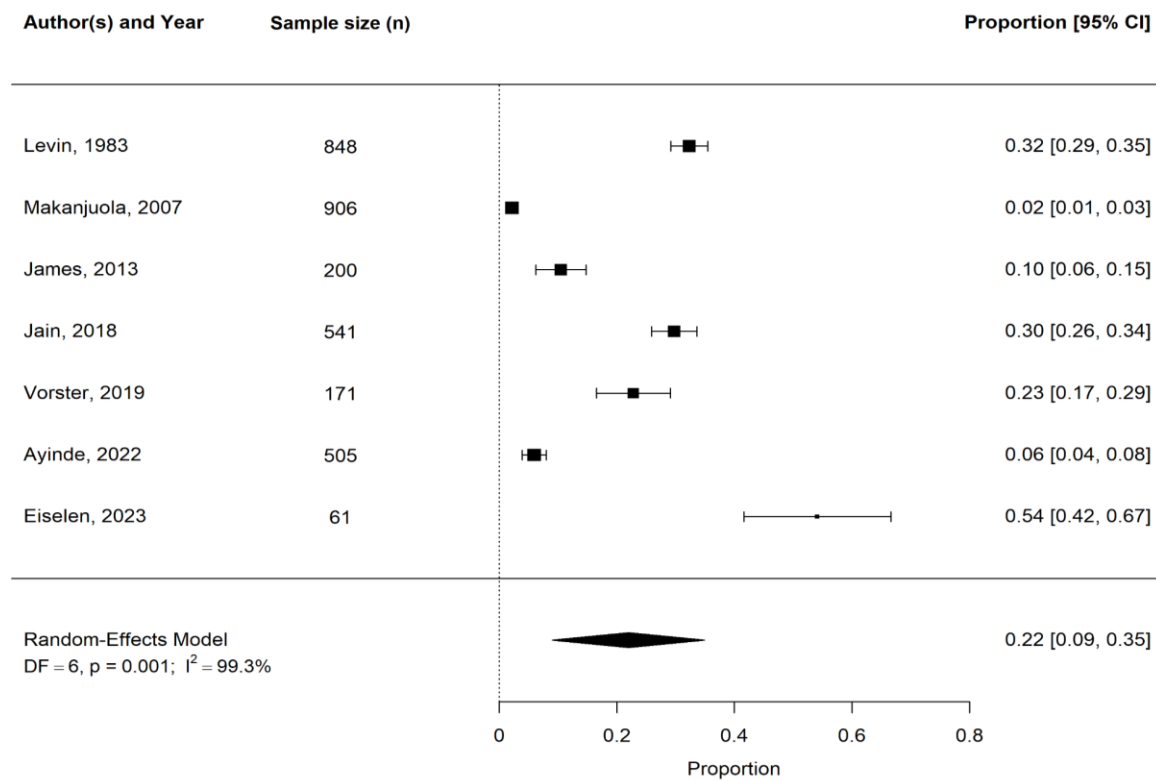
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Supplementary Figure S10 Prevalence of recreational cannabis use among medical students in the 2020s

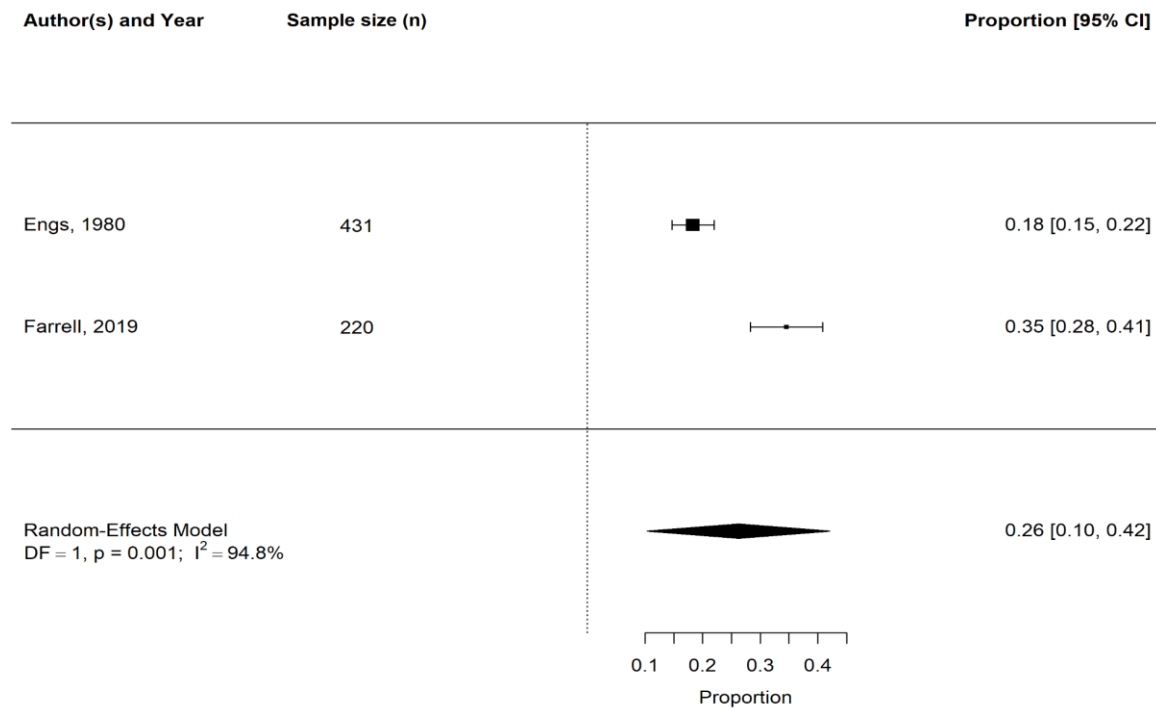
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Supplementary Figure S11 Prevalence of recreational cannabis use among medical students in Asian countries

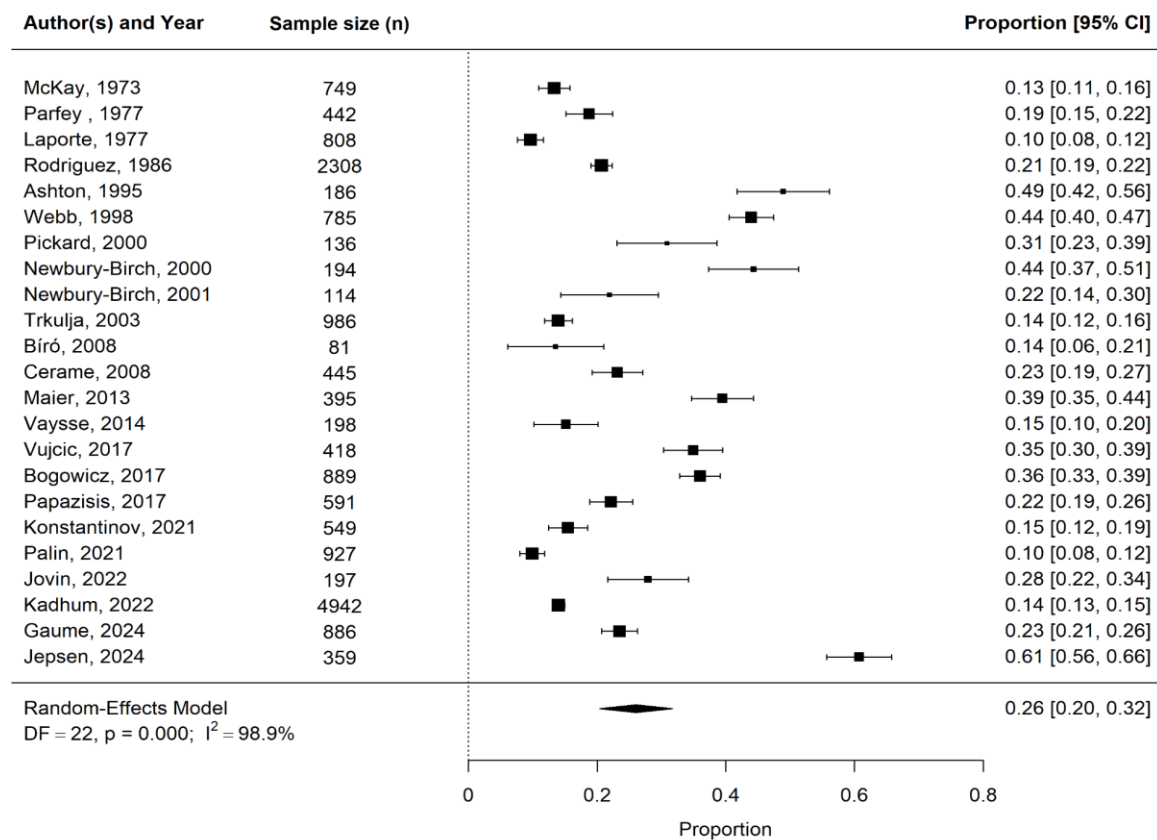
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Supplementary Figure S12 Prevalence of recreational cannabis use among medical students in African countries

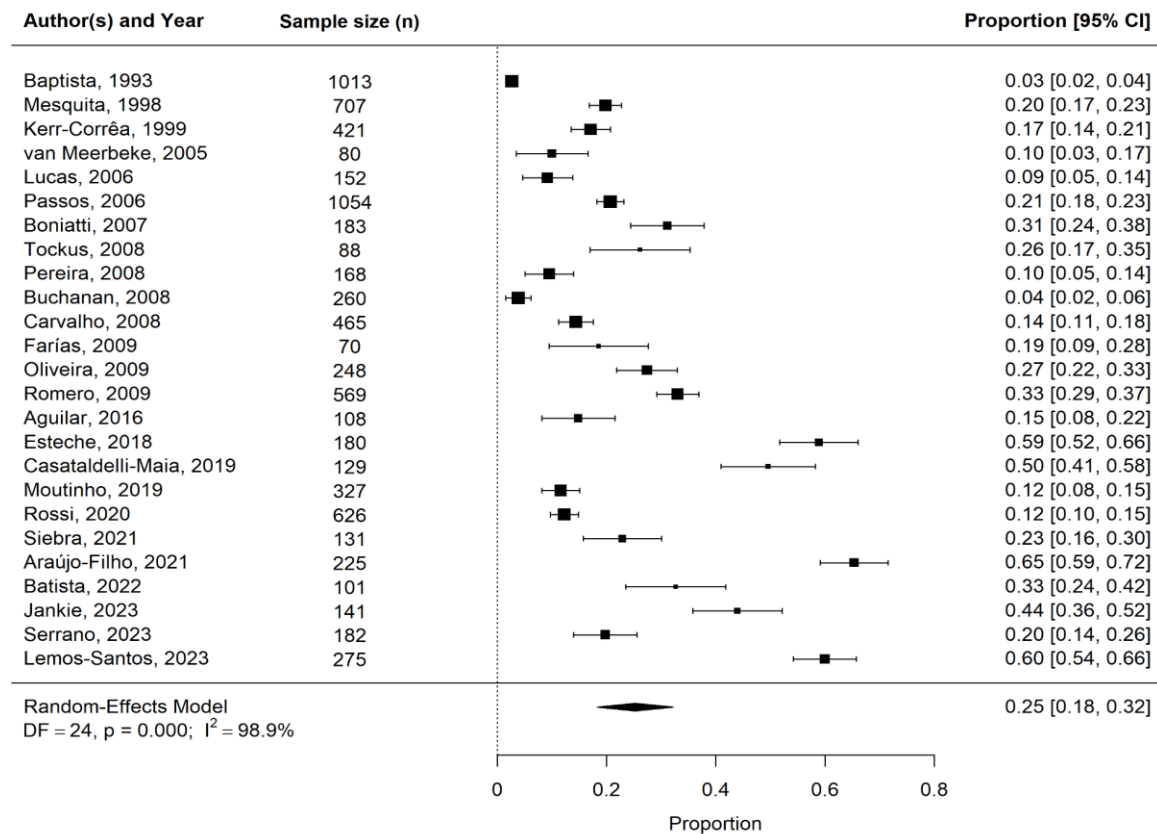
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Supplementary Figure S13 Prevalence of recreational cannabis use among medical students in Oceanian countries

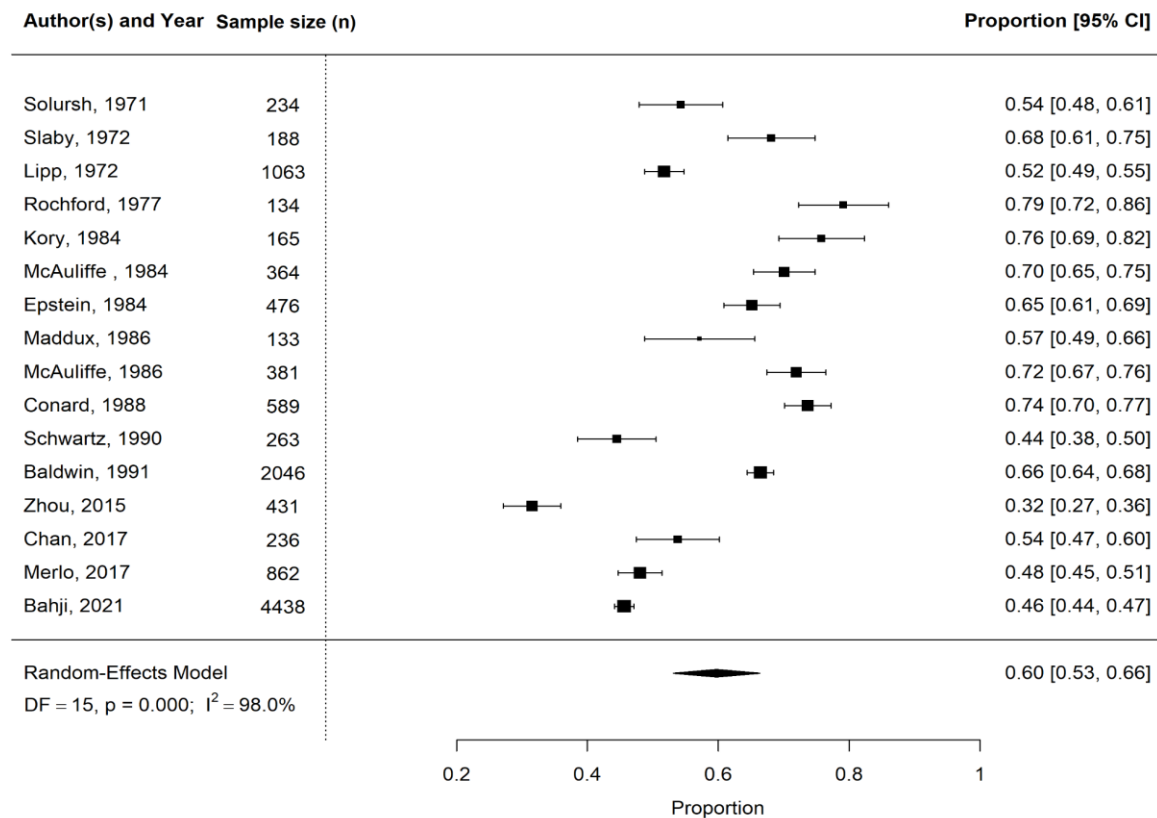
DF = degrees of freedom.

Supplementary Figure S14 Prevalence of recreational cannabis use among medical students in European countries

DF = degrees of freedom.

Supplementary Figure S15 Prevalence of recreational cannabis use among medical students in Latin American countries

DF = degrees of freedom.

Supplementary Figure S16 Prevalence of recreational cannabis use among medical students in the United States and Canada

DF = degrees of freedom.