Supplementary Online Content

Dellazizzo, L., Potvin, S., Dou, BY., et al. Association Between the Use of Cannabis and Physical Violence in Youths: A Meta-Analytical Investigation

Methods S1. Electronic search strategy for the meta-analysis conducted as of July 2019.

Table S1. Details of the retrieved studies included in the meta-analysis.

Table S2. MOOSE Checklist.

Figure S1. Egger's test for publication bias.

This supplementary material has been provided by the authors to give readers additional information about their work.

Methods S1. Electronic search strategy for the meta-analysis conducted as of July 2019.

Database; Search	Search terms
1. **PubMed**; k=6,607	((cannabis[Title/Abstract]) OR (hashish[Title/Abstract]) OR (THC[Title/Abstract]) OR (tetrahydrocannabinol[Title/Abstract]) OR (marijuana[Title/Abstract]) OR (marihuana[Title/Abstract]) OR (pot[Title/Abstract]) OR (cannabinoids[Title/Abstract]) OR (weed[Title/Abstract]) OR (cannabis abuse[MeSH Terms]) (cannabis[MeSH Terms]) OR (cannabis dependence[MeSH Terms]) OR (marijuana use[MeSH Terms]) OR (marijuana dependence[MeSH Terms]) OR (substance[Title/Abstract]) OR (marijuana abuse[MeSH Terms])) AND ((violence[Title/Abstract]) OR (violent[Title/Abstract]) OR (violence[Title/Abstract]) OR (violence[MeSH Terms]) OR (aggress*[Title/Abstract]) OR (aggression[MeSH Terms]) OR (batter*[Title/Abstract]) OR (fight*[Title/Abstract]) OR (offend*[Title/Abstract]) OR (assault*[Title/Abstract]))
2. **PsycINFO**; k=1,194	(title: substance OR abstract: substance OR title: cannabinoids OR abstract: cannabinoids OR title: cannabis OR abstract: cannabis OR title: hashish OR abstract: hashish OR title: marijuana OR abstract: marijuana OR title: tetrahydrocannabinol OR abstract: tetrahydrocannabinol OR title: THC OR abstract: THC OR title: marihuana OR abstract: marihuana OR title: pot OR abstract: pot OR title: weed OR abstract: weed) AND (title: violence OR title: violent OR title: aggress* OR title: batter* OR title: fight* OR title: offend* OR title: assault* OR abstract: violence OR abstract: violent OR abstract: aggress* OR abstract: batter* OR abstract: fight* OR abstract: offend* OR abstract: assault*)
3. **Web of Science**; k=5,873	(TS=(substance OR cannabinoids OR cannabis OR hashish OR marijuana OR tetrahydrocannabinol OR THC OR marihuana OR pot OR weed)) AND (TS=(violence OR violent OR aggress* OR batter* OR fight* OR offend* OR assault*))

Note. A search in Google Scholar and cross-referencing from hand searches of bibliographies of retrieved sources enabled in the finding of additional k=3 studies.

Table S1. Details of the retrieved studies included in the meta-analysis.

| Author, Year | Geographic setting | Study design based on the measures considered | Population | | Measures: Violence | Measure: Cannabis | Confounding factors | Quality of observational study (GRADE System) |
			Sample analyzed	% Boys				
Arseneault et al.,[22] 2000	New-Zealand	Cross-sectional	91	51.6	Simple assault, aggravated assault, robbery, rape and gang-fighting assessed with a private standardized interview; Past 12 months	DSM-III-R Cannabis use disorder; Past 12 months	Socioeconomic status and sex	Moderate
Brook et al.,[26] 2014	United-States	Longitudinal	838	52.4	Shooting or hitting with weapon (gun or club); Last follow-up	Cannabis use (increasing users, moderate users, quitters); Trajectories of 5 years	Gender, ethnicity, delinquency at T1, alcohol use at T1, peer deviance at T4, and educational level at T4	High
Dukarm et al.,[42] 1996	United-States	Cross-sectional	12,272	48	Physical fighting; Past 12 months	Cannabis use; Past month		Moderate
Epstein-Ngo et al.,[43] 2013	United-States	Cross-sectional	243	0	Physical dating violence aggression; Past month	Cannabis use; Past month	Age and race	Moderate
Forman-Hoffman et al.,[50] 2017	United-States	Cross-sectional	2910	51.2	Serious fights; Past 12 months	Cannabis use; Past year initiates, Lifetime DSM-IV Cannabis use disorder; Past year initiates, Lifetime	Survey year	High

Author, Year	Geographic setting	Study design based on the measures considered	Population		Measures: Violence	Measure: Cannabis	Confounding factors	Quality of observational study (GRADE System)
			Sample analyzed	% Boys				
Foshee et al.,[59] 2010	United-States	Cross-sectional	1666	51.1	Dating violence perpetration (i.e., hitting, pushing, shoving, kicking, or assaulting partner with a weapon); Initiation of violence between fall and following spring	Cannabis use; Lifetime	Family structure, parent education and number of friends who completed the survey	High
Grest et al.,[58] 2018	United-States	Longitudinal	823	42	Intimate partner violence, specifically sexual aggression perpetration; Past year	Cannabis use; Lifetime	History of any childhood abuse (i.e., psychological, physical, and sexual) and witnessing domestic violence during childhood	High
Grunbaum et al.,[54] 1998	United-States	Cross-sectional	1617	/	Fought, Past 12 month	Cannabis use; Past month	Age	High
Herrenkohl et al.,[52] 2012	United-States	Longitudinal	685	51	Incidents of fighting (hitting someone with the intent to hurt that person; hitting a parent, using force against others, and hitting a teacher, beating someone badly and threatening someone with a weapon); Past 12 months	Cannabis use; Lifetime	Gender and race	High

Author, Year	Geographic setting	Study design based on the measures considered	Population Sample analyzed	Population % Boys	Measures: Violence	Measure: Cannabis	Confounding factors	Quality of observational study (GRADE System)
Hughes et al.,[48] 2008	United-Kingdom, Germany, Spain	Cross-sectional	3003	51.9	Physical fights; During holidays	Cannabis use; During holidays	Nationality, location of survey, gender, age group, length of stay, use of tobacco on holiday, use of cannabis on holiday, use of ecstasy on holiday, use of amphetamine on holiday, use of cocaine on holiday, use of GHB on holiday, use of ketamine on holiday, frequency of drunkenness on holiday, frequency of visiting bars or nightclubs on holiday, and reasons for visiting Ibiza/Majorca (cost, nightlife, culture, weather, work, visiting family or friends)	High
Liakoni et al.,[21] 2018	Switzerland	Cross-sectional	103	79	Domestic violence (physical pain or damage intent inflicted); At presentation in an emergency department	Cannabis use, At presentation in an emergency department		Moderate
Lowry et al.,[49] 1999	United-States	Cross-sectional	10,904	52.1	Physical fighting; Past 12 months	Cannabis use; Past month	Demographics	High

Author, Year	Geographic setting	Study design based on the measures considered	Population		Measures: Violence	Measure: Cannabis	Confounding factors	Quality of observational study (GRADE System)
			Sample analyzed	% Boys				
Lukash et al.,[51] 2018	Switzerland	Cross-sectional	3899	48.7	Robbery and/or assault; Past 12 months	Cannabis use, Past month	Gender and immigration background	Moderate
Malik et al.,[31] 1997	United-States	Cross-sectional	707	/	Community violence (threw objects, pushed, grabbed or shoved, slapped, kicked, bit, or punched, and hit or tried to hit with an object); past 12 months	Cannabis use; Past 12 months	Sociodemographic variables, measures of exposure, measures of potential mediators	High
McNaughton Reyes et al.,[60] 2014	United-States	Longitudinal	2455	47	Physical dating violence (Use of physical force with the potential for causing harm against a dating partner); Past 3 months	Cannabis use; Past 3 months	Grade-level, sex, race and parent education	High
Mercado-Crespo et al.,[23] 2013	United-States	Cross-sectional	12,404	49	Involved physical fighting; 12 months	Cannabis use; Past month	Age, sex and race/ethnicity	High
Nabors et al.,[55] 2010	United-States	Cross-sectional	1635	39	Intimate partner violence; Past 12 months	Cannabis use, Past 12 months	Gender, racial and ethnic group, university year, parents' level of education, yearly family income, relationship status, alcohol consumption, and exposure to interparental violence	High

Author, Year	Geographic setting	Study design based on the measures considered	Population		Measures: Violence	Measure: Cannabis	Confounding factors	Quality of observational study (GRADE System)
			Sample analyzed	% Boys				
Reingle et al.,[27] 2012	United-States	Longitudinal	9421	42.5	Intimate partner violence (Threaten with violence, push or shove, throw something that could hurt, slap, kick, hit, give injuries because of fight); Past 12 months	Cannabis use (Consistent users, desisted users, initiated users); 6 years	Adjusted for race/ethnicity, gender, age, and listed covariate (Depression, parental involvement, binge drinking, peer cannabis and alcohol use, parental alcohol use	High
Salas-Wright et al.,[44] 2016	United-States	Cross-sectional	216,852	54.1	Attacks intended to seriously harm; Past 12 months	Cannabis use; Past 12 months		High
Schepis et al.,[53] 2012	United-States	Cross-sectional	1906 2191	100 0	Physical fighting; 12 months	Cannabis use; Past month	Grade	High
Sholes-Balog et al.,[47] 2016	Australia	Longitudinal	852	47	Physical fights with people; Past 12 months	Cannabis use; 7 years		High
Shorey et al.,[61] 2014	United-States	Cross-sectional	173	0	Physical dating violence; Past 3 months	Cannabis use; Past 3 months	Alcohol use	Moderate
Shorey et al.,[45] 2014	United-States	Cross-sectional	67	100	Physical dating violence; Past 3 months	Cannabis use; Past 3 months	Alcohol use	Moderate
Stoddard et al.,[30] 2015	United-States	Cross-sectional	599	59	Peer violence (Physical assault and injury, pushed or hit, used a knife or gun); Past month	Cannabis use; Past month	Age of aggression	Moderate

Author, Year	Geographic setting	Study design based on the measures considered	Population Sample analyzed	% Boys	Measures: Violence	Measure: Cannabis	Confounding factors	Quality of observational study (GRADE System)
Temple et al.,[20] 2013	United-States	Longitudinal	828	44	Dating violence (Slapped, pushed, hit, threw something); Past 12 months	Cannabis use; Lifetime	Grade level, sex, race/ethnicity, use of alcohol, cocaine, inhalants, ecstasy, or amphetamines, interparental violence	High
Tinklenberg et al.,[46] 1981	United-States	Cross-sectional	293	100	Homicide, inflicted wound, assault with weapon, robbery, man slaughter, sexual aggression; Lifetime	Cannabis use; Lifetime		Moderate
Tucker et al.,[57] 2005	United-States	Longitudinal	5833	57	Predatory violence (e.g., gang fighting, attacking someone); Past 12 months	Cannabis use (persistent use); Past 12 months		High
Walton et al.,[62] 2009	United-States	Cross-sectional	1128	45.9	Physical peer violence (i.e., pushed slapped, fights, beat up, used a knife/gun); Past 12 months	Cannabis use; Past 12 months		Moderate
Wei et al.,[56] 2004	United-States	Longitudinal	417	100	Gang fighting, strong-arming, attacking someone with a weapon or intent to seriously hurt or kill, and rape or forced sex; Past 12 months	Cannabis use (persistent use); 9 years	Prior year violence and alcohol	High

Table S1. MOOSE Checklist.

Item No	Recommendation	Reported on Page No
Reporting of background should include		
1	Problem definition	1
2	Hypothesis statement	2
3	Description of study outcome(s)	2
4	Type of exposure or intervention used	2
5	Type of study designs used	2
6	Study population	2
Reporting of search strategy should include		
7	Qualifications of searchers (eg, librarians and investigators)	2
8	Search strategy, including time period included in the synthesis and key words	2
9	Effort to include all available studies, including contact with authors	2
10	Databases and registries searched	2
11	Search software used, name and version, including special features used (eg, explosion)	2
12	Use of hand searching (eg, reference lists of obtained articles)	2
13	List of citations located and those excluded, including justification	2
14	Method of addressing articles published in languages other than English	2
15	Method of handling abstracts and unpublished studies	2
16	Description of any contact with authors	2
Reporting of methods should include		
17	Description of relevance or appropriateness of studies assembled for assessing the hypothesis to be tested	2
18	Rationale for the selection and coding of data (eg, sound clinical principles or convenience)	2
19	Documentation of how data were classified and coded (eg, multiple raters, blinding and interrater reliability)	2
20	Assessment of confounding (eg, comparability of cases and controls in studies where appropriate)	2
21	Assessment of study quality, including blinding of quality assessors, stratification or regression on possible predictors of study results	2
22	Assessment of heterogeneity	3
23	Description of statistical methods (eg, complete description of fixed or random effects models, justification of whether the chosen models account for predictors of study results, dose-response models, or cumulative meta-analysis) in sufficient detail to be replicated	2-3
24	Provision of appropriate tables and graphics	Suppl. Mat.
Reporting of results should include		
25	Graphic summarizing individual study estimates and overall estimate	4

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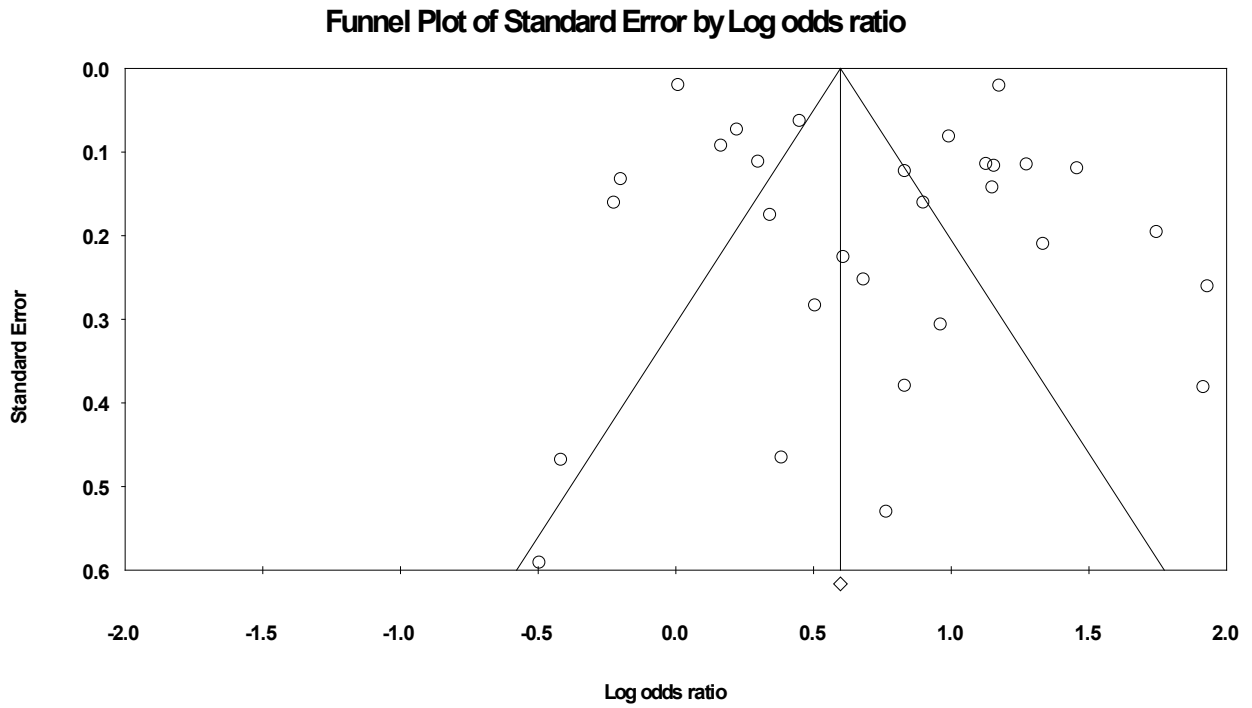| Item No	Recommendation	Reported on Page No
26	Table giving descriptive information for each study included	Suppl. Mat
27	Results of sensitivity testing (eg, subgroup analysis)	3
28	Indication of statistical uncertainty of findings	3
Reporting of discussion should include		
29	Quantitative assessment of bias (eg, publication bias)	3
30	Justification for exclusion (eg, exclusion of non-English language citations)	3
31	Assessment of quality of included studies	Suppl. Mat
Reporting of conclusions should include		
32	Consideration of alternative explanations for observed results	4-6
33	Generalization of the conclusions (ie, appropriate for the data presented and within the domain of the literature review)	6
34	Guidelines for future research	6
35	Disclosure of funding source	6

Figure S1. Egger's test for publication bias.