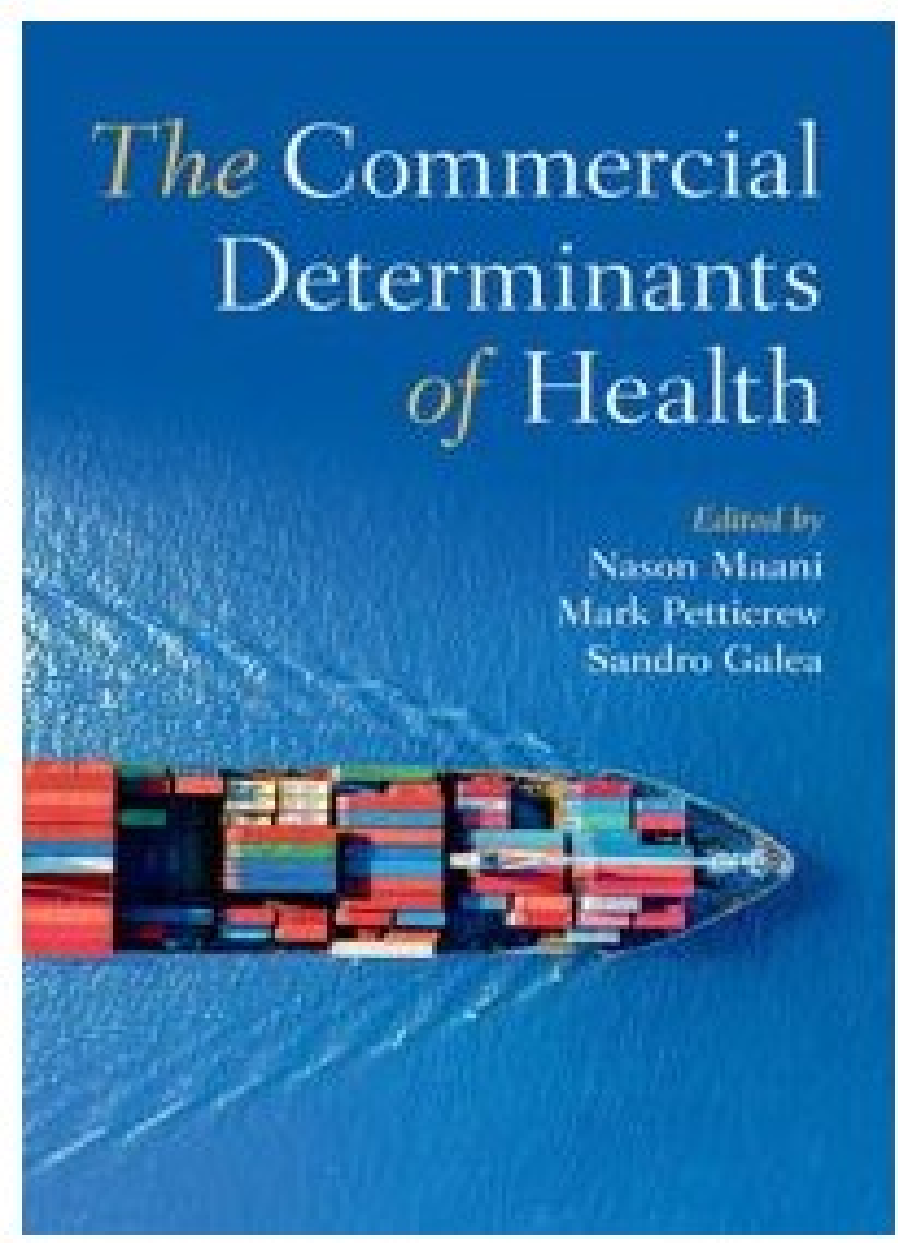
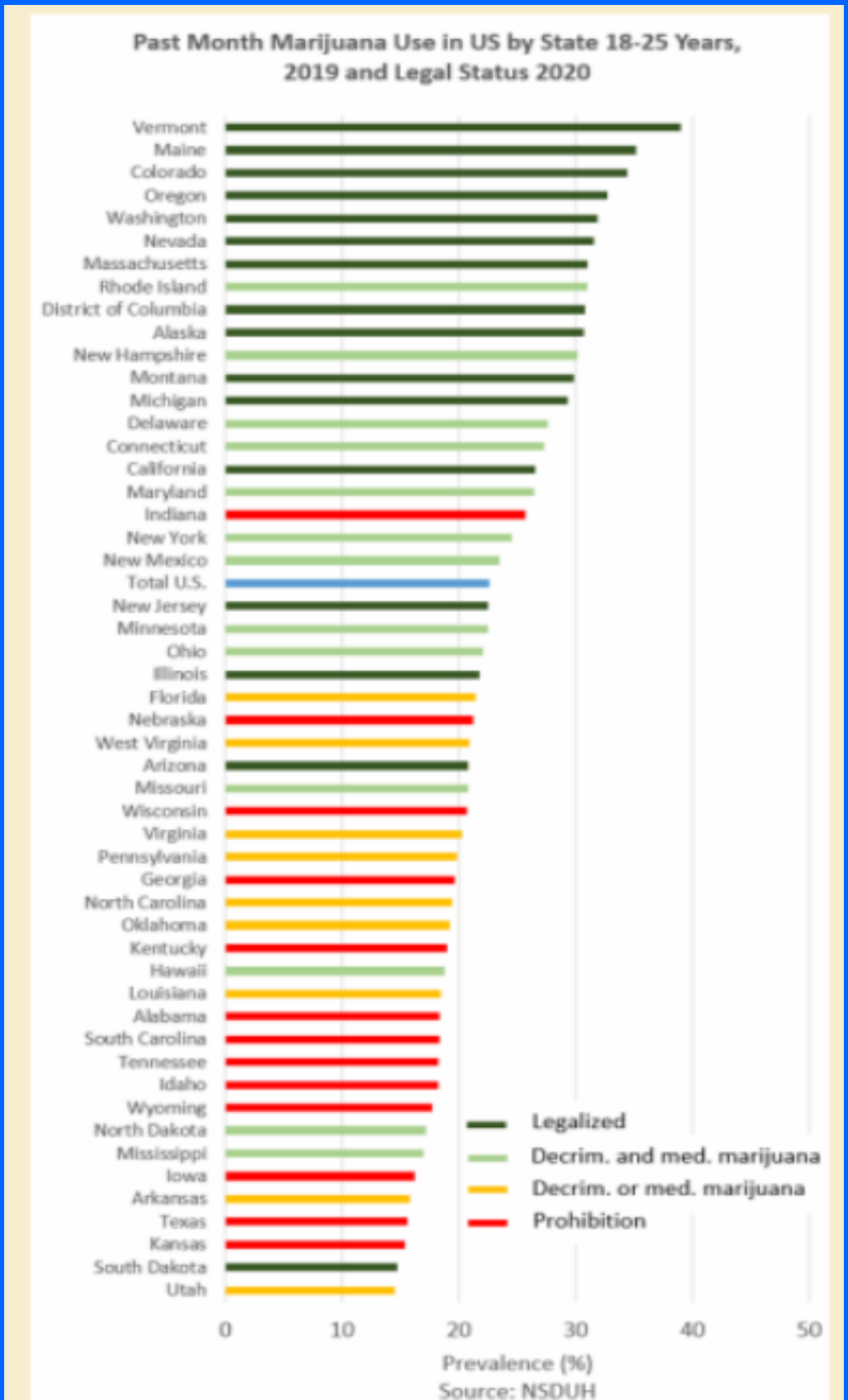
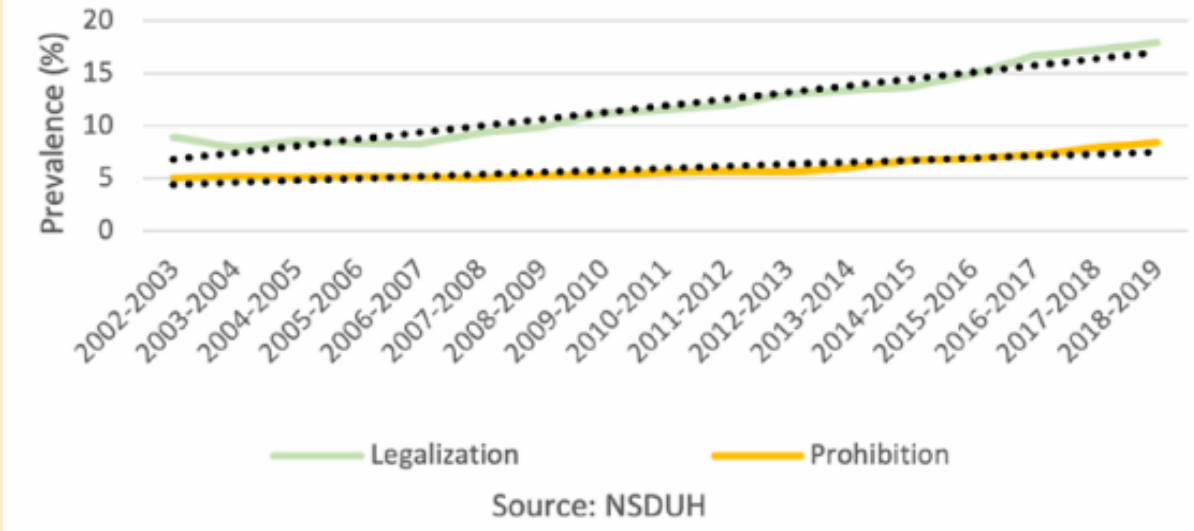
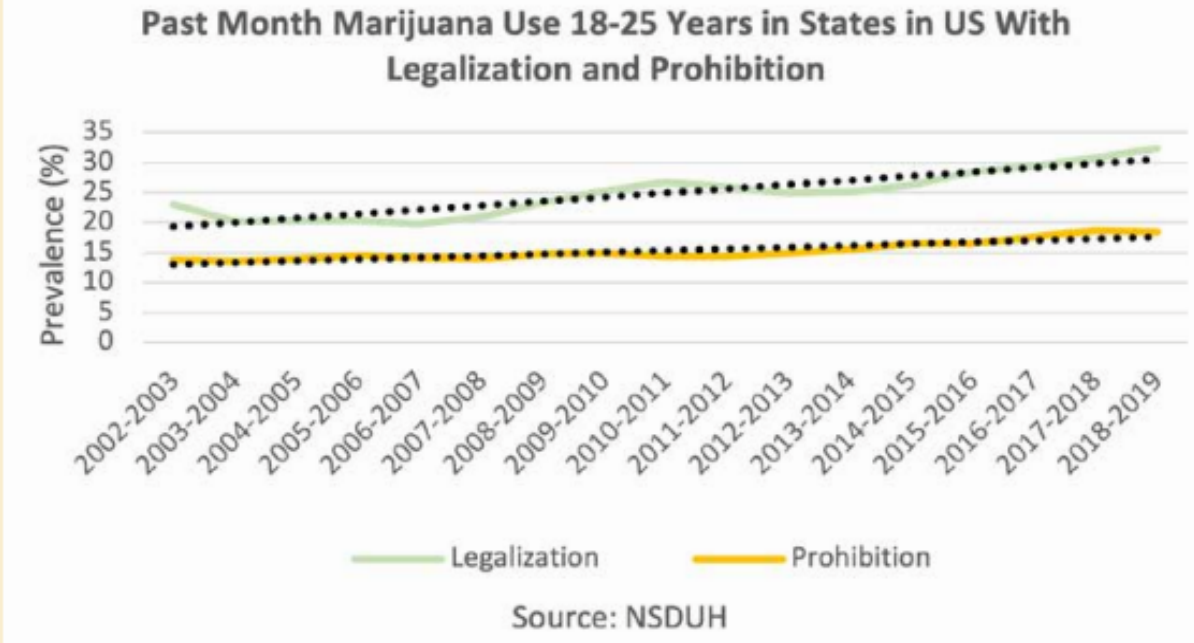
Tillgång och marknadsföring styr beteende



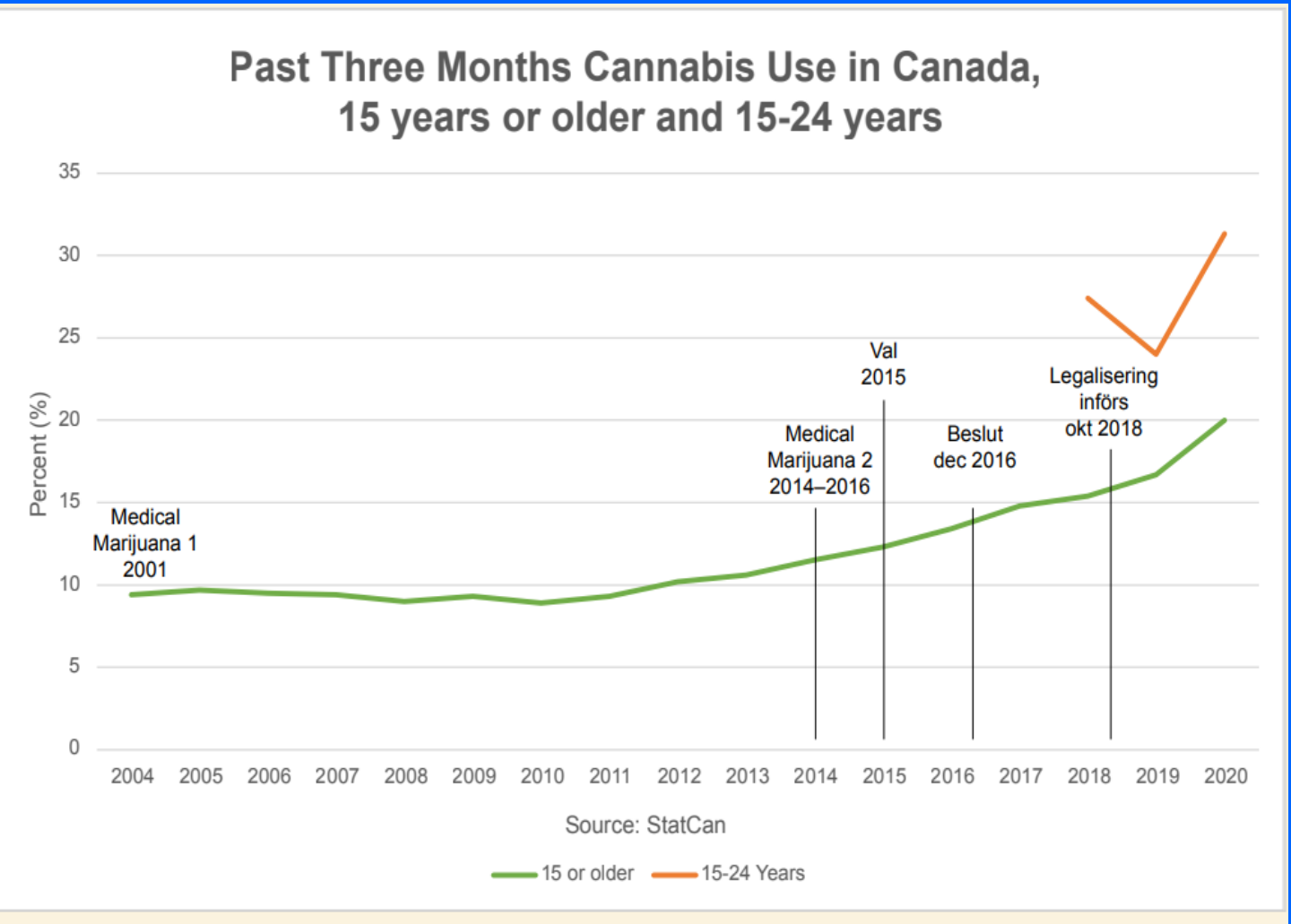
Cannabisbruk 18-25 år i förhållande till legalt status i USA




Past Month Marijuana Use 12 or Older in States in US With Legalization and Prohibition
Prevalence (%)
20
15
10
5
0
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
Legalization
Prohibition
Source: NSDUH


Past Month Marijuana Use 18-25 Years in States in US With Legalization and Prohibition
Prevalence (%)
35
30
25
20
15
10
5
0
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
Legalization
Prohibition
Source: NSDUH

Canada


Past Three Months Cannabis Use in Canada,
15 years or older and 15-24 years
Percent (%)
35
30
25
20
15
10
5
0
Medical Marijuana 1 2001
Medical Marijuana 2 2014–2016
Val 2015
Beslut dec 2016
Legalisering införs okt 2018
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Source: StatCan
15 or older
15-24 Years

FORSKNING
I KORTHET
#12

FORTE:
Forskningsrådet för hälsa, arbetsliv och välfärd

CANNABIS:
HARMLÖS REKREATION ELLER FARLIG DROG?

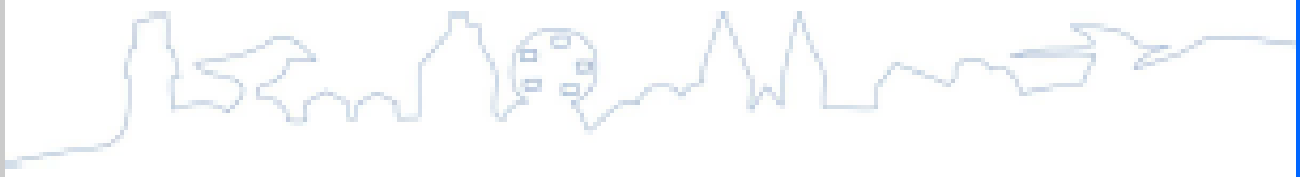
Cannabis är en av världens mest använda droger → Effekter på hälsa och sociala förhållanden är omdebatterade → Cannabisbruk är kopplat till ökad risk för sjukdom i luftvägarna, trafikolyckor och lägre födelsevikt hos barn → Regelbundet bruk kan leda till beroende och nedsatt kognitiv funktion → Cannabisbruk ökar risken för sociala problem → Vissa substanser i växten kan fungera som medicin vid multipel skleros och epilepsi → Effekten mot smärta är inte klarlagd

The health and social effects of nonmedical cannabis use

World Health Organization

LÄNSSTYRELSEN
VÄSTRA GÖTALANDS LÄN

Hälso- och sociala effekter av icke-medicinsk användning av cannabis



Ett studiematerial baserat på WHOs rapport
"The health and social effects of nonmedical cannabis use"

GÖTEBORGS UNIVERSITET

CENTRUM FÖR FORSKNING OCH UTBILDNING KRING RISKBRUK, MISSBRUK OCH BEROENDE (CERA)

Fysiska (kroppsliga) effekter

- Luftvägar
- Hjärt-kärlsystemet
- Cancer
- Graviditet
- Olycksfall
- Hyperemesis

Cannabis och trafikolyckor: Många studier finns

Table 1 : OR for cannabis intoxication of the risk of being responsible for a fatal crash for car drivers above 18 years old, France, 2001-2003, n=6,932

THC (ng/ml)	Number of drivers	Crude OR	95% CI	Adj* OR	95% CI
THC yes/no	529	3.00	2.31-3.91	1.89	1.43-2.51
$0 \leq THC < 1$	6403	1.00	-	1.00	-
$1 \leq THC < 3$	220	2.26	1.57-3.26	1.53	1.03-2.27
$3 \leq THC < 5$	116	4.54	2.37-8.70	2.84	1.44-5.60
$THC \geq 5$	193	3.51	2.22-5.54	2.01	1.24-3.27

* adjusted for 5 alcohol levels, age, gender

Gadegbeku B. et al:
Ann adv Automot Med, 2011

Comparison of the prevalence of alcohol, cannabis and other drugs between 900 injured drivers and 900 control subjects: results of a French collaborative study

P. Mura[a,*], P. Kintz[b], B. Ludes[b], J.M. Gaulier[c], P. Marquet[c], S. Martin-Dupont[d],

Forensic Science International 133 (2003) 79–85

Prevalence of the mainly found compounds and combinations of compounds in blood of drivers and controls

Drugs (positivity thresholds)	Positive (%)		Odds-ratios (95% confidence interval)
	Drivers	Controls	
Alcohol only (>0.5 g/l)[a]	17.0	5.0	3.8 (2.1–6.8)
THC only (>1 ng/ml)[a]	14.1	6.7	2.5 (1.5–4.2)
Alcohol + THC[a]	9.5	2.2	4.6 (2.0–10.7)
Morphine (>20 ng/ml)[b]	2.7	0.3	8.2 (2.5–27.3)
Benzodiazepines only	9.4	5.8	1.7 (1.2–2.4)

[a] Less than 27 years old.
[b] All ages included.

Arbetsskador – stor fråga i USA

Medical Marijuana, Occupational Injuries, and the...
ncci.com

Marijuana and the Workplace:...
shrm.org

Work Injuries and Cannabis Industries
cbalaw.org

Workplace injury trends for C...
pinnacol.com

Resultat av drogtest i förhållande till arbetsförmåga
~5000 anställda följdes under ett år

Results drug test	Accidents	Injuries	Discipline	Absence
Negative	-	-	-	-
Marijuana	1,55	1,85	1,55	1,56
Cocaine	1,59	1,85	1,40	2,37
Other drugs	1,03	0,89	3.17	1,45

Zwerling et al,
JAMA 1990

Psykiska effekter:
Akuta och kroniska

Välkända sedan länge

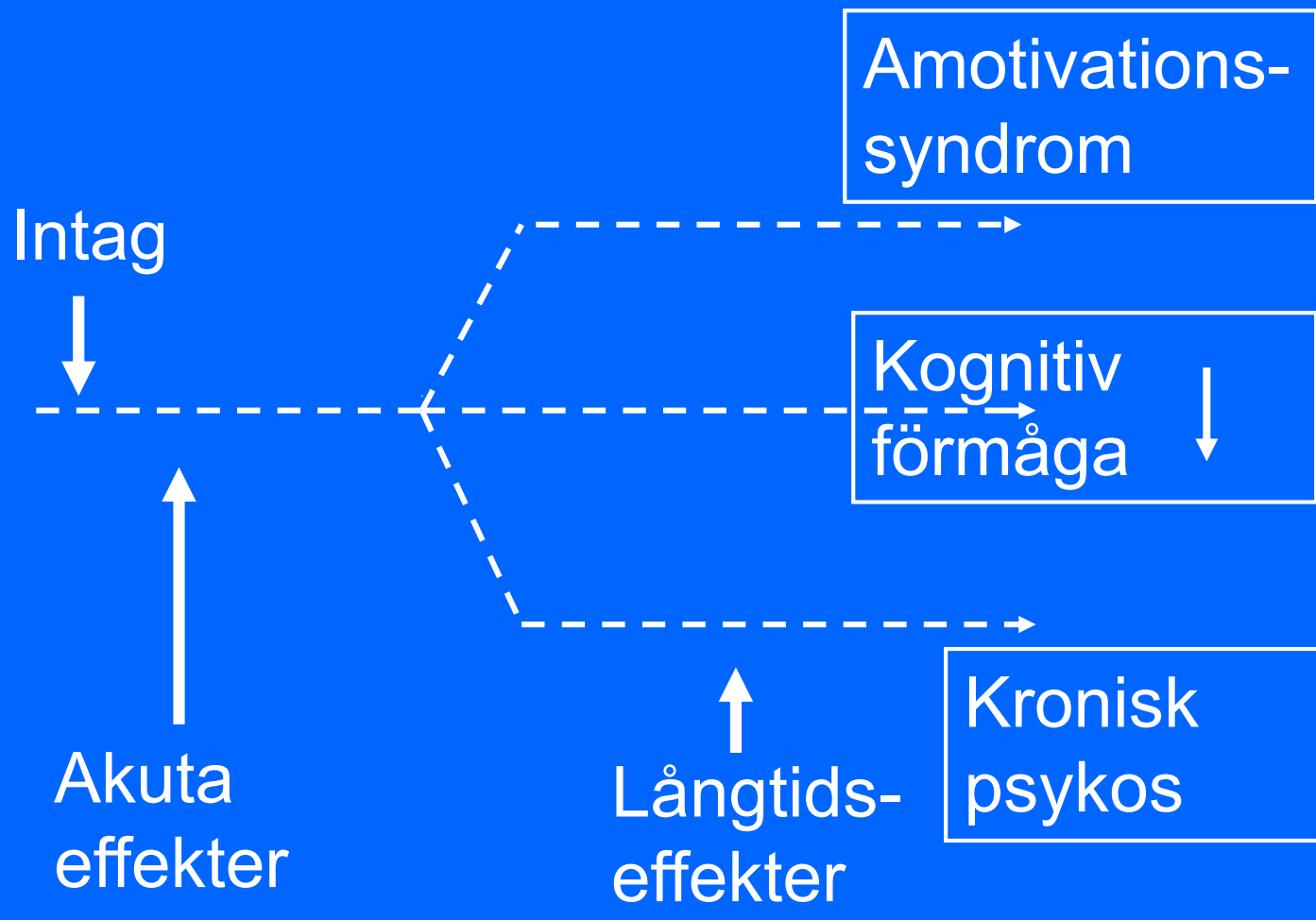
Lätt mätbara

Nyare evidens

Mer svårbedömt

Dagar---veckor---månader---år

Akuta och kroniska effekter



Dagar---veckor---månader---år

Akuta effekter

Ångest – panikattack
Depression
Psykos
Mani
Impulshandlingar

1485 000 LÄSARE – VARJE DAG

AFTONBLADET

ROBINSON-Annelie VEK UT SIG – drabbades av HASCH-PSYKOS då hon var fotomodell

Annelie Wernholm, 47.

Extra bilaga ● Stor guide till

GRAN CANARIA

Långsiktiga effekter

Nedsatt kognitiv funktion
- Minne, inlärning, uppmärksamhet, mm

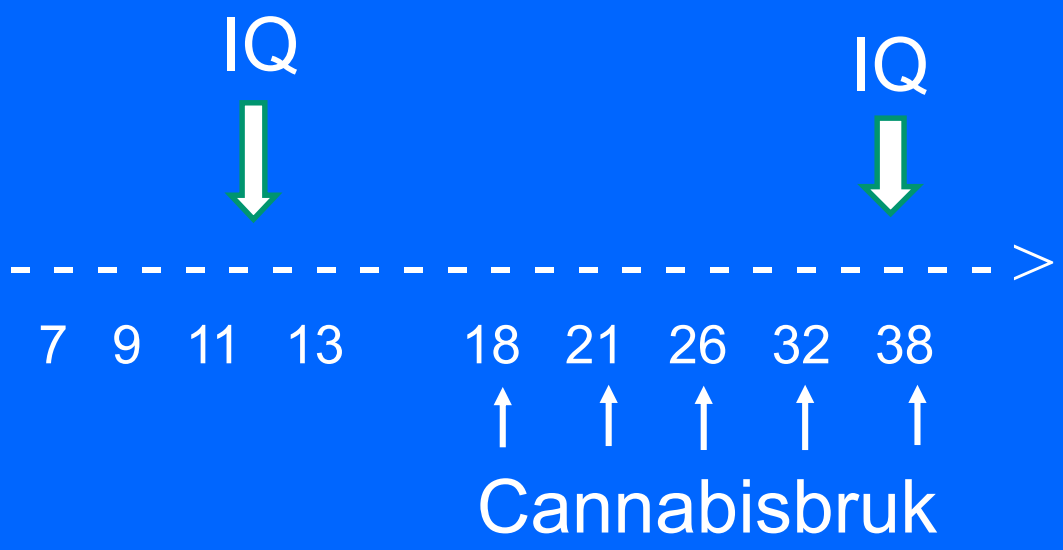
Kronisk psykos

Schizofreni

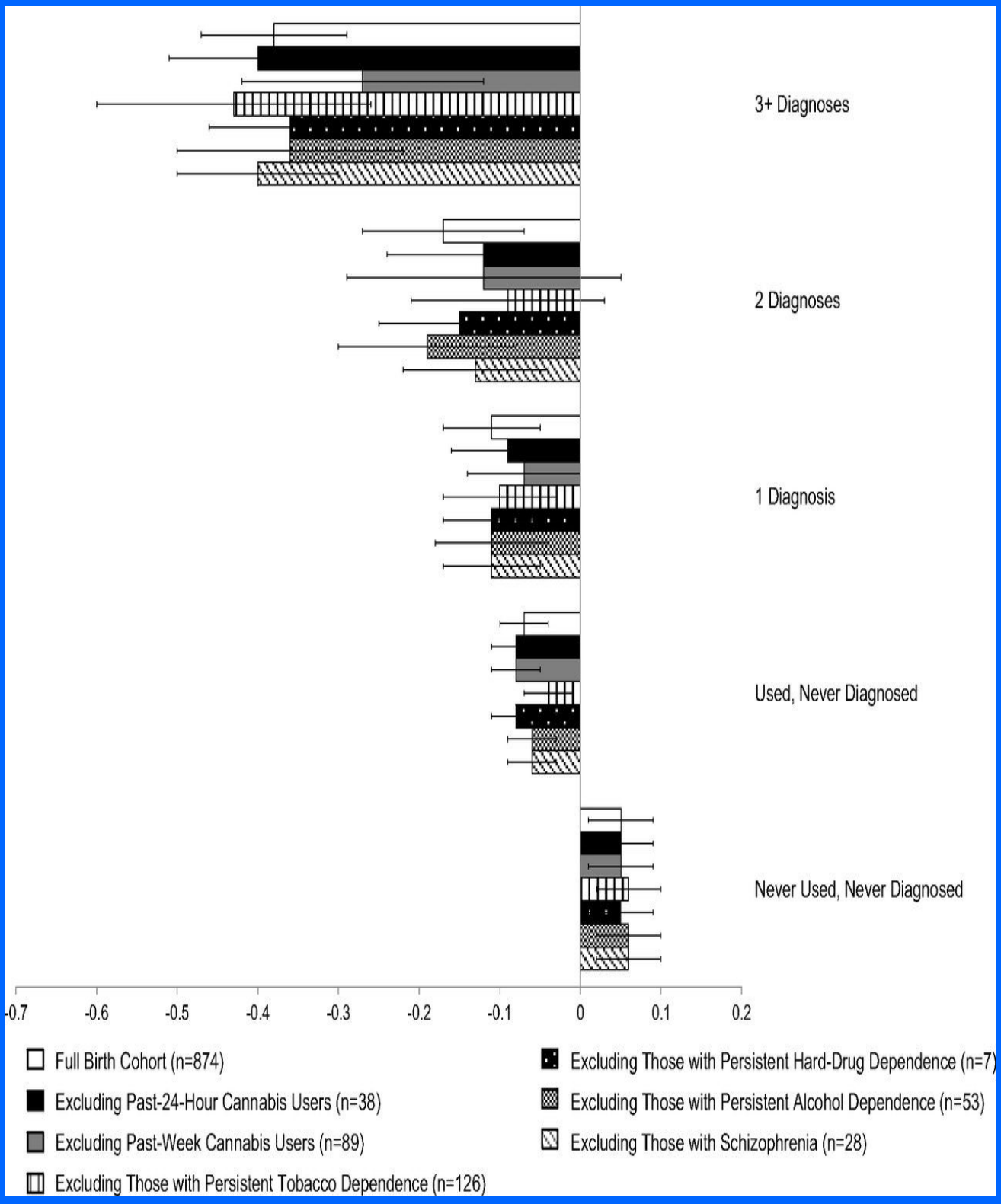
Nedsatt kognitiv funktion (IQ)?

Dunedins födelsekohort:

Alla födda 1972-73 i Dunedin NZ (n=1073)



Meier et al. PNAS 2012;109:40:E2657-E2664



Meier et al. PNAS 2012;109:40:E2657-E2664

©2012 by National Academy of Sciences

Cognitive Functioning of Long-term Heavy Cannabis Users Seeking Treatment

Nadia Solowij, PhD
Robert S. Stephens, PhD
Roger A. Roffman, DSW
Thomas Babor, PhD, MPH
Ronald Kadden, PhD
Michael Miller, PhD
Kenneth Christiansen, PsyD
Bonnie McRee, MPH
Janice Vendetti, MPH
for the Marijuana Treatment Project Research Group

Context Cognitive impairments are associated with long-term cannabis use, but the parameters of use that contribute to impairments and the nature and endurance of cognitive dysfunction remain uncertain.

Objective To examine the effects of duration of cannabis use on specific areas of cognitive functioning among users seeking treatment for cannabis dependence.

Design, Setting, and Participants Multisite retrospective cross-sectional neuropsychological study conducted in the United States (Seattle, Wash; Farmington, Conn; and Miami, Fla) between 1997 and 2000 among 102 near-daily cannabis users (51 long-term users: mean, 23.9 years of use; 51 shorter-term users: mean, 10.2 years of use) compared with 33 nonuser controls.

Main Outcome Measures Measures from 9 standard neuropsychological tests that assessed attention, memory, and executive functioning, and were administered prior to entry to a treatment program and following a median 17-hour abstinence.

Results Long-term cannabis users performed significantly less well than shorter-term users and controls on tests of memory and attention. On the Rey Auditory Verbal Learning Test, long-term users recalled significantly fewer words than either shorter-term users ($P=.001$) or controls ($P=.005$); there was no difference between shorter-term users and controls. Long-term users showed impaired learning ($P=.007$), retention ($P=.003$), and retrieval ($P=.002$) compared with controls. Both user groups performed poorly on a time estimation task ($P<.001$ vs controls). Performance measures often correlated significantly with the duration of cannabis use, being worse with increasing years of use, but were unrelated to withdrawal symptoms and persisted after controlling for recent cannabis use and other drug use.

Conclusions These results confirm that long-term heavy cannabis users show impairments in memory and attention that endure beyond the period of intoxication and worsen with increasing years of regular cannabis use.

JAMA. 2002;287:1123-1131 www.jama.com

IN THE CURRENT CLIMATE OF DEBATE about marijuana laws and interest in marijuana as medicine,[1] one issue remains unresolved: Does heavy, frequent, or prolonged use of cannabis lead to a deterioration in cognitive function that persists well beyond any period of acute intoxication? Is the functioning of the brain altered in the long term? With over 7 million people using cannabis weekly or more often in the United States alone[2] and the potential for increased

Psychopharmacology (2011) 216:131–144
DOI 10.1007/s00213-011-2203-x

ORIGINAL INVESTIGATION

Verbal learning and memory in adolescent cannabis users, alcohol users and non-users

Nadia Solowij · Katy A. Jones · Megan E. Rozman · Sasha M. Davis · Joseph Ciarrochi · Patrick C. L. Heaven · Dan I. Lubman · Murat Yücel

Conclusions Despite relatively brief exposure, adolescent cannabis users relative to their age-matched counterparts demonstrated similar memory deficits to those reported in adult long-term heavy users. The results indicate that cannabis adversely affects the developing brain and reinforce concerns regarding the impact of early exposure.

Cannabis – kronisk psykos

Inte helt enkelt:

1. Låg incidens
2. Varierande bedömningskriterier
3. Orsaksriktning: Psykos leder till cannabisintag?
4. Andra faktorer samvarierar: ärftlighet, sociala faktorer, andra droger

Värnplikts-studien (Andréasson et al, 1987)

- 50 000 män 18-19 år, undersökta 1969-70

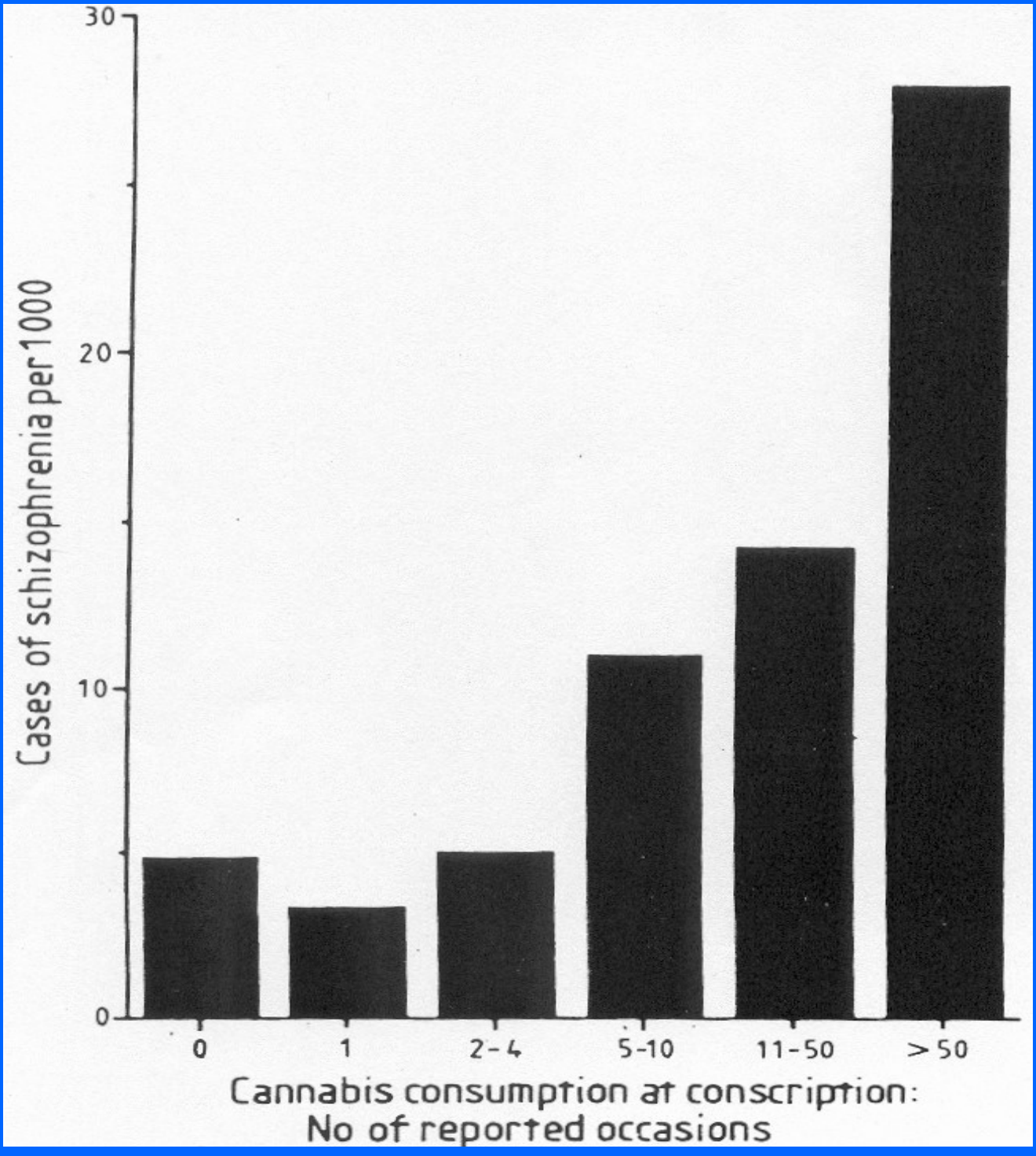
- Frågeformulär om…

- Rökning
- Alkohol
- Narkotika

=> Vilka droger

=> Hur många gånger

Antal schizofrenifall i förh. till cannabiskonsumtion



Risk för schizofreni i 25-årsuppföljning

Zammit et al, BMJ 2002

Cannabis Antal ggr	Riskökning efter kontroll
Aldrig	1.0
En gång	0.6 (0.1-2.3)
2-4 ggr	0.9 (0.4-1.9)
5-10 ggr	1.4 (0.7-2.8)
11-50 ggr	2.2 (1.2-4.0)
>50 ggr	3.1 (1.7-5.5)

Översikt Moore et al (Lancet, juli 2007)

- **7 prospektiva studier**
- **USA, England, Holland, Tyskland, Nya Zeeland, Sverige**
- **Fördubbblad risk för psykos (OR=2,1; CI 1,5-2,8) bland högkonsumenter av cannabis**
- **Metodproblem kvarstår, men..**

Översikt Moore et al (Lancet, juli 2007)

”.. now sufficient evidence to warn young people that using cannabis could increase the risk of developing a psychotic illness later in life.”

Världens främsta medicintidskrift ändrar sig

Världens främsta medicintidskrift ändrar sig

In 1995, we began a *Lancet* editorial with the since much-quoted words: "The smoking of cannabis, even long term, is not harmful to health." Research published since 1995, including Moore's systematic review in this issue, leads us now to conclude that cannabis use could increase the risk of psychotic illness. Further research is needed on the effects of cannabis on affective disorders. The Advisory Council on the Misuse of Drugs will

Risken högre bland unga? Styrkan på cannabis?

di Forti m fl, 2015

	Odds ratio* (95% CI)	p value
Age at first use, years		
Never used	1	..
≥15 years	0·68 (0·34–1·37)	0·292
<15 years	1·55 (1·00–1·39)	0·048
Frequency of use		
Never used	1	..
Less than once per week	0·58 (0·25–1·32)	0·198
Weekends	1·04 (0·41–1·62)	0·929
Every day	3·04 (1·91–7·76)	0·020
Most used type		
Never used	1	..
Hash-like	0·83 (0·52–1·77)	0·903
Skunk-like	2·91 (1·52–3·60)	0·001

*Adjusted for age, gender, ethnic origin, number of cigarettes, alcohol units, other drugs used, education, and employment status.

***Table 3*: Risk for first-episode psychosis for each measure of cannabis exposure**

Befolkningsnivå? Europeisk jämförande studie

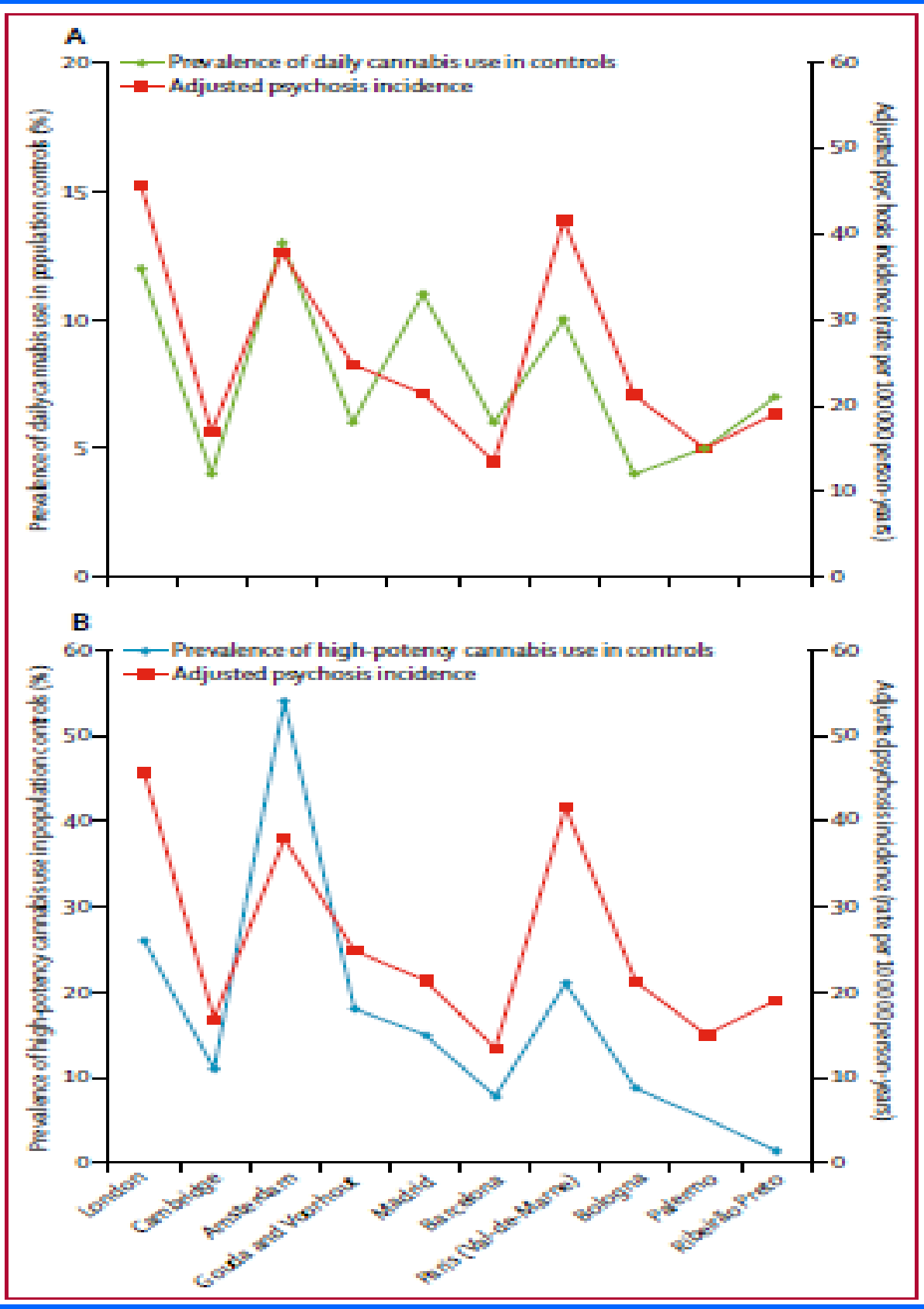
The contribution of cannabis use to variation in the incidence of psychotic disorder across Europe (EU-GEI): a multicentre case-control study

*Marta Di Forti, Diego Quattrone, Tom P Freeman, Giada Tripoli, Charlotte Gayer-Anderson, Harriet Quigley, Victoria Rodriguez, Hannah E Jongsma, Laura Ferraro, Caterina La Cascia, Daniele La Barbera, Ilaria Tarricone, Domenico Berardi, Andrei Szöke, Celso Arango, Andrea Tortelli, Eva Velthorst, Miguel Bernardo, Cristina Marta Del-Ben, Paulo Rossi Menezes, Jean-Paul Selten, Peter B Jones, James B Kirkbride, Bart PF Rutten, Lieuwe de Haan, Pak C Sham, Jim van Os, Cathryn M Lewis, Michael Lynskey, Craig Morgan, Robin M Murray, and the EU-GEI WP2 Group**

Summary

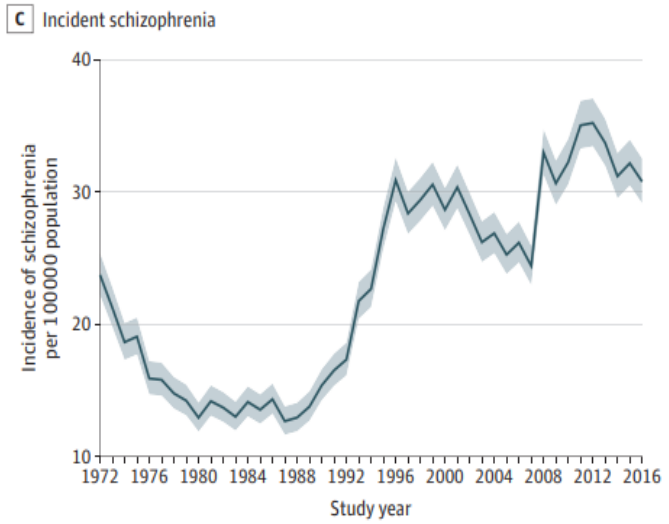
Background Cannabis use is associated with increased risk of later psychotic disorder but whether it affects incidence of the disorder remains unclear. We aimed to identify patterns of cannabis use with the strongest effect on odds of psychotic disorder across Europe and explore whether differences in such patterns contribute to variations in the incidence rates of psychotic disorder

Lancet Psychiatry 2019
Published Online
March 19, 2019
http://dx.doi.org/10.1016/


A
Prevalence of daily cannabis use in controls
Adjusted psychosis incidence
Prevalence of daily cannabis use in population controls (%)
Adjusted psychosis incidence rate per 100 000 person-years
0
5
10
15
20
0
10
20
30
40
50
60
B
Prevalence of high-potency cannabis use in controls
Adjusted psychosis incidence
Prevalence of high-potency cannabis use in population controls (%)
Adjusted psychosis incidence rate per 100 000 person-years
0
10
20
30
40
50
60
London
Cambridge
Amsterdam
Gouda and Voorhout
Madrid
Barcelona
Paris (Val-de-Marne)
Bologna
Palermo
Ribeirão Preto

Ökar schizofreni i befolkningen?

Hjorthøj et al, 2021



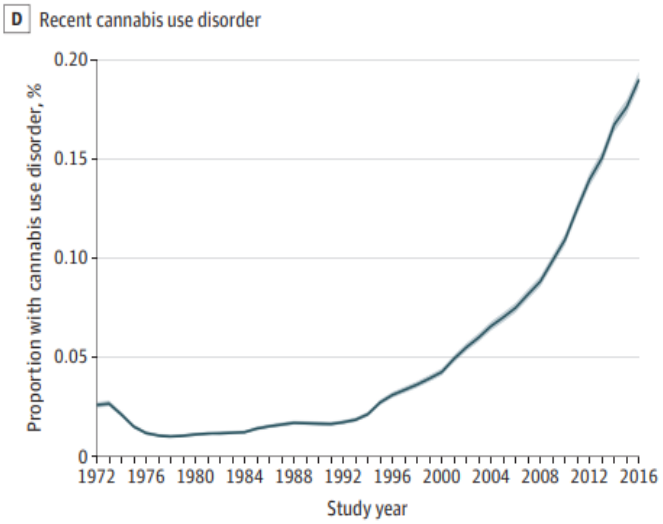
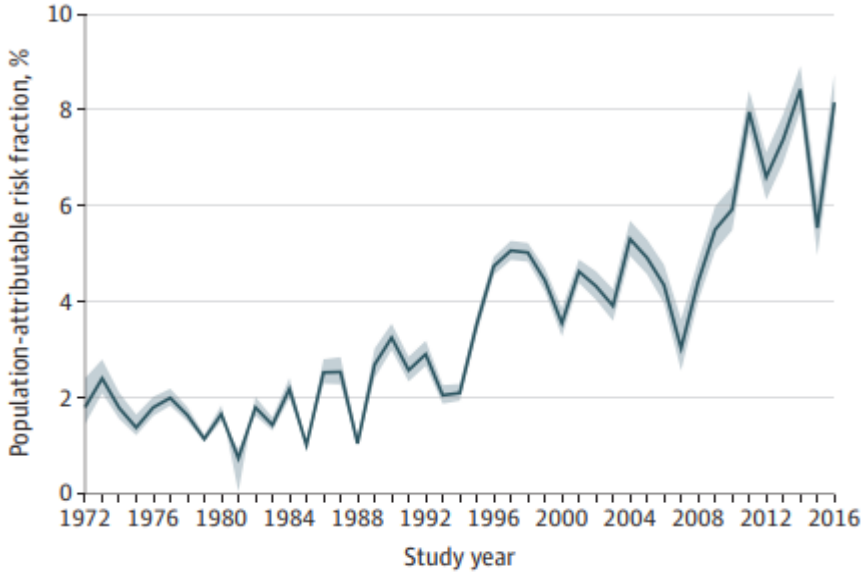


Figure 2. Development of the Population-Attributable Risk Fraction (PARF) of Cannabis Use Disorder in Schizophrenia in Denmark

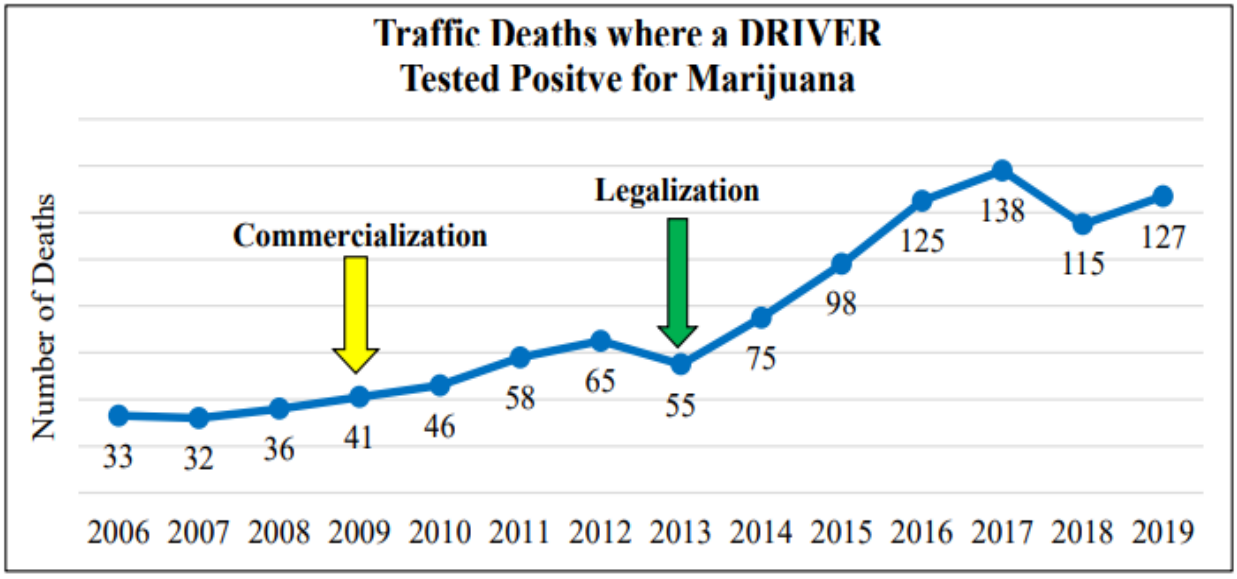


Vad har vi sett hittills?

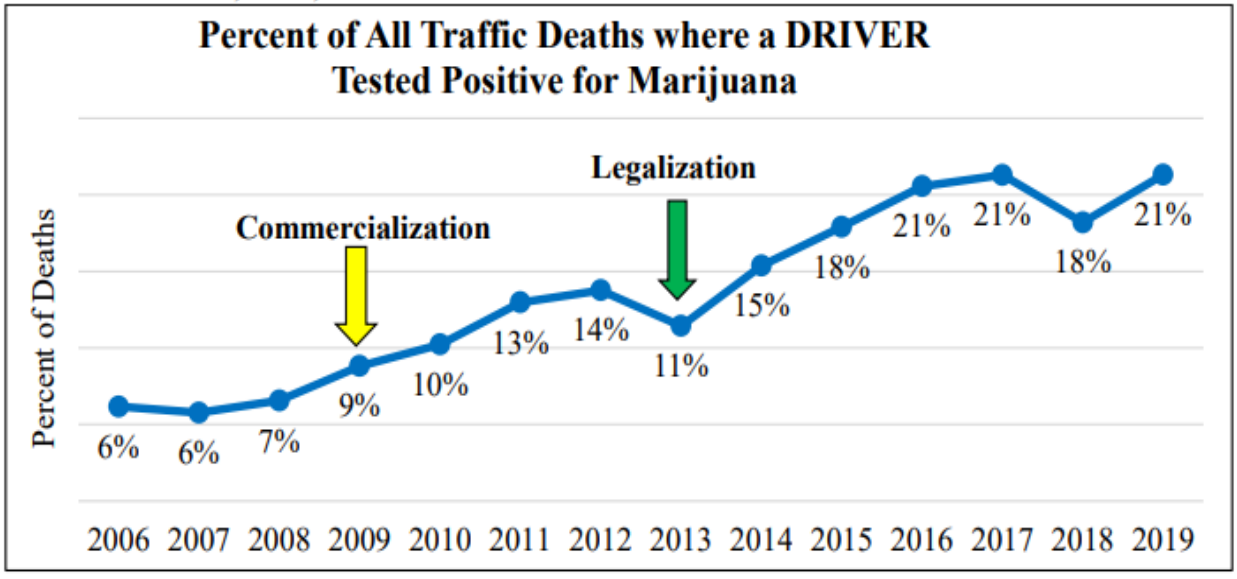
- Omedelbara effekter lätt mätbara
- Långsiktiga effekter mer svårbedömda
- OBS gradvis övergång, ”normalisering”

Trafikdödsfall i Colorado

Rocky Mountain High Intensity Drug Trafficking Area. (2020, September)

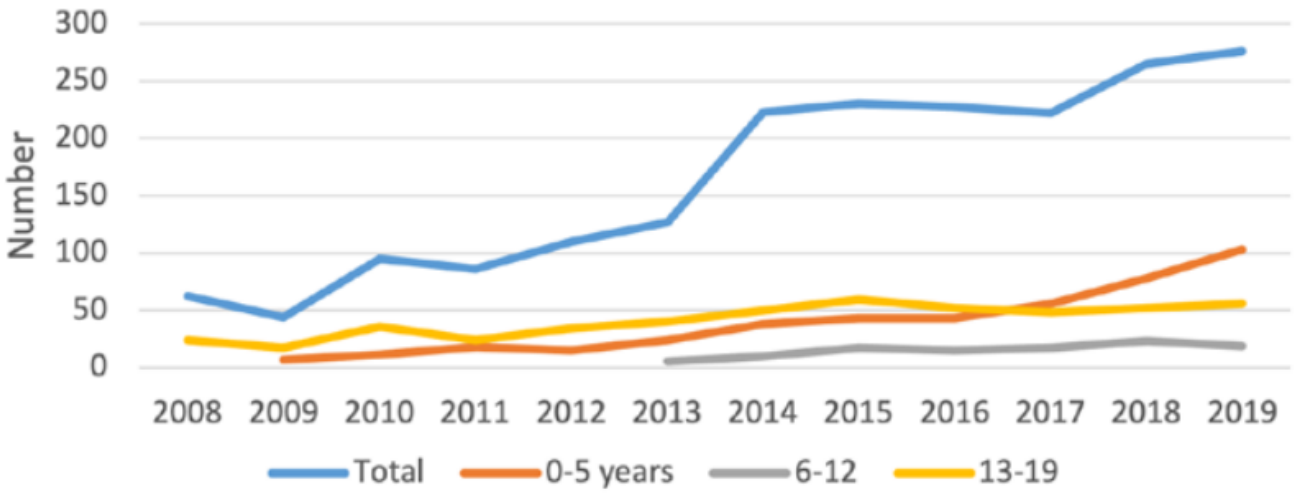


SOURCE: NHTSA, FARS, 2006-2011 and CDOT 2012-2019

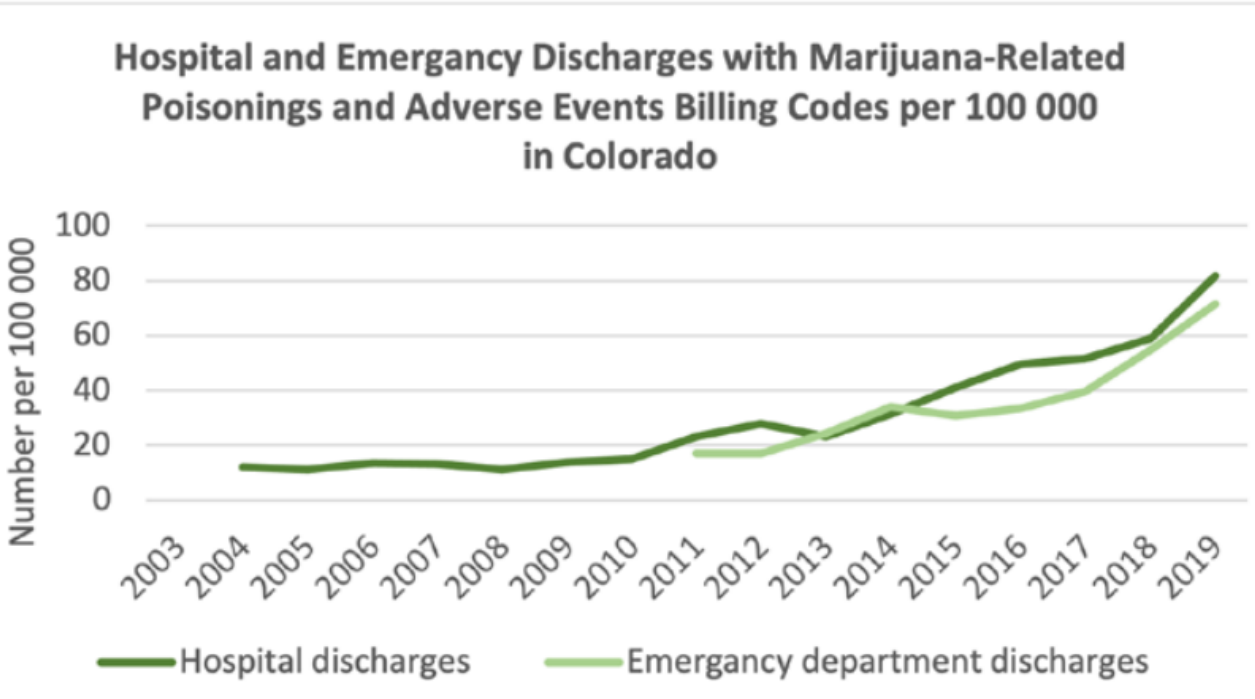


SOURCE: NHTSA, FARS, 2006-2011 and CDOT 2012-2019

Samtal till giftinformation resp sjukhusvård



Source: Rocky Mountain Poison and Drug Safety

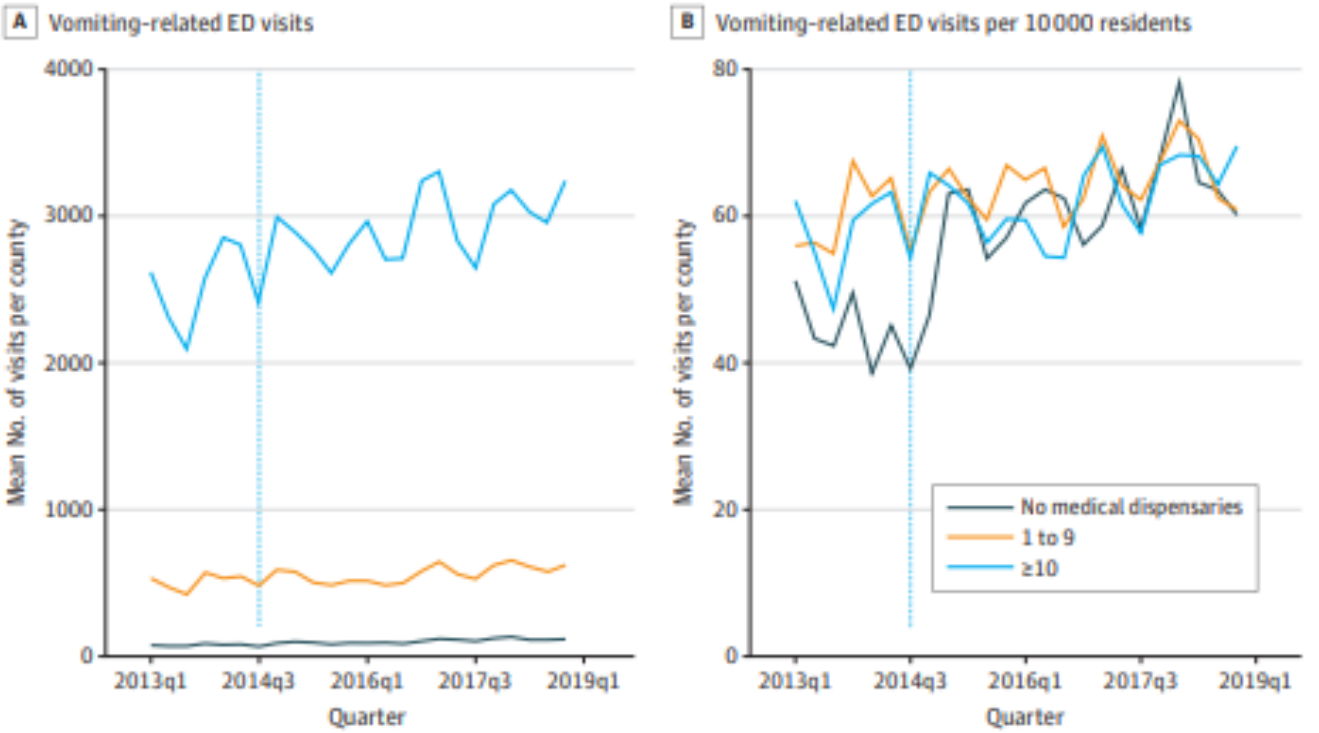


Source: Colorado Hospital Association

Akutbesök hyperemesis Colorado 2013-2018

Table 1 provides additional descriptive statistics on our main outcome and exposure measures. Over the study period, the mean (SD) number of county-level vomiting-related ED visits increased from 466.1 (950.3) in 2013 to 600.3 (1260.4) in 2018—a 28.8% increase over the period. Mean (SD)

Figure 1. Changes in Vomiting-Related Emergency Department (ED) Visits Over Time, by Baseline Medical Dispensary Exposure



Wang, Buttorff, wilks et al, 2021

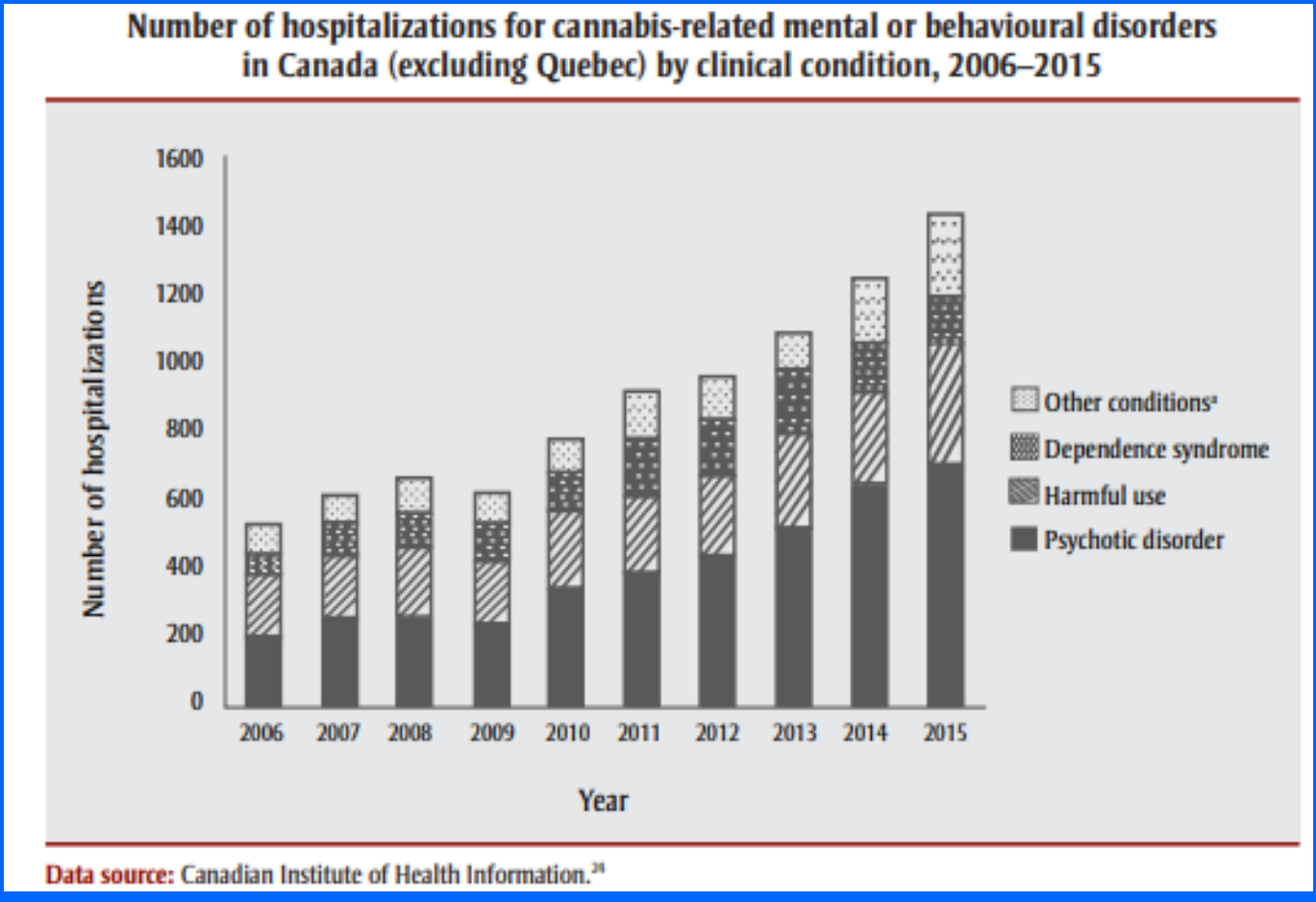
Akutbesök hyperemesis Alberta, Canada 2017-2021

TABLE 3 Number of CHS-related ED visits and distinct clients by study time period

	Pre-Covid/Pre-Legalisation October 2017–October 2018	Pre-Covid/Post-Legalisation October 2018 to October 2019	Post-Covid/Post-Legalisation March 2020 to March 2021
# of visits	665	996	1650
# of unique patients	531	725	1134
# of visits/patient	1.3	1.4	1.5
Age category			
Age, mean	30.3	30.1	29.9
16–24, *n* (%)	213 (40.1)	300 (41.4)	436 (38.5)
25–34, *n* (%)	162 (30.5)	224 (30.9)	393 (34.9)
35–44, *n* (%)	83 (15.6)	109 (15.0)	173 (15.2)
45–54, *n* (%)	52 (9.8)	51 (7.0)	78 (6.9)
55+, *n* (%)	21 (4.0)	41 (5.7)	51 (4.5)
Sex			
Male, *n* (%)	292 (55.0)	356 (49.1)	526 (46.4)
Female, *n* (%)	239 (45.0)	369 (50.9)	608 (53.6)

Andrews CN et al, 2022

Canada:
Vårdtillfällen för cannabisrelaterade psykiska störningar 2006-2015



Maloney-Hall et al, 2020

Cannabispsykos resp schizofreni Ontario och Alberta 2015-2019

Callaghan et al, 2022

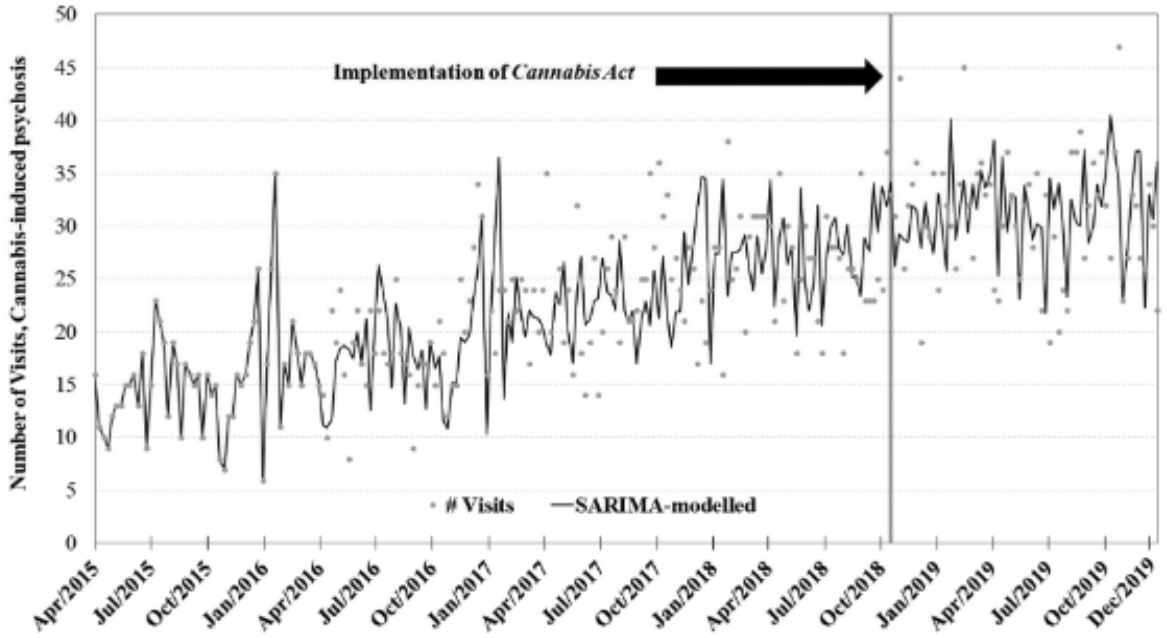


Figure 1. Weekly counts of conditions presenting to emergency departments in Ontario and Alberta before and after cannabis legalization, April 1, 2015–December 31, 2019.

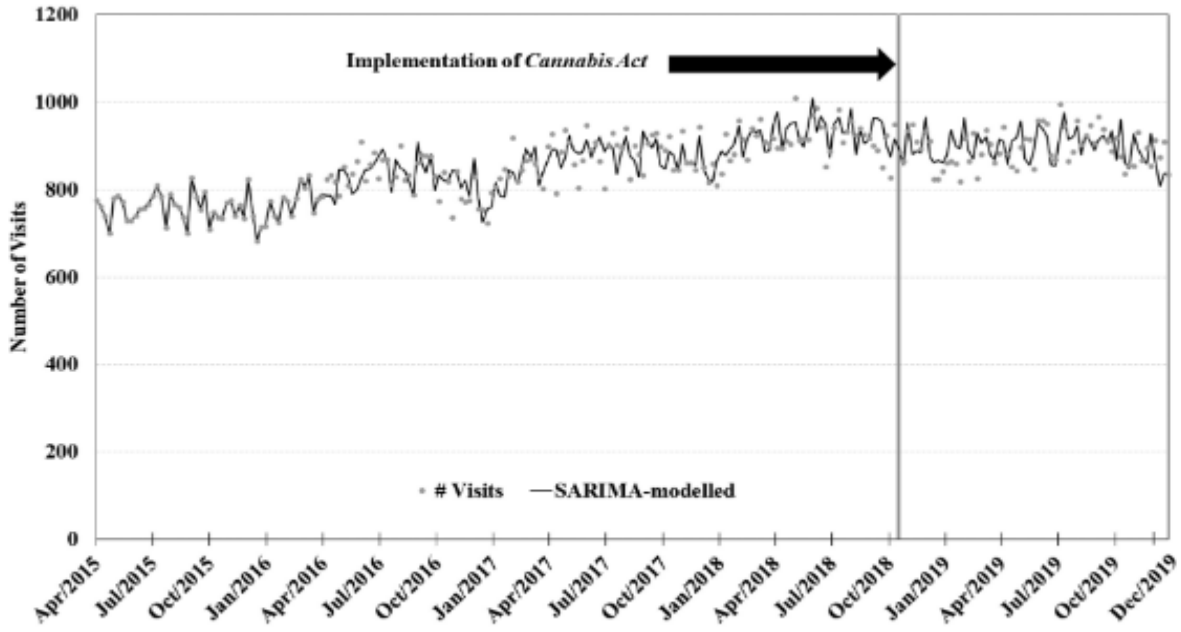


Figure 2. Weekly counts of schizophrenia conditions presenting to emergency departments in Ontario and Alberta before and after cannabis legalization, April 1, 2015–December 31, 2019.

Sammanfattning

- Legalisering leder till ökad konsumtion
- ”Normalisering” (diskussion/planer om legalisering) leder till ökad konsumtion
- Akuta hälsoeffekter: Ffa olycksfall
- Långsiktiga hälsoeffekter: Nedsatt kognitiv funktion och psykos, risk ffa bland unga