Cannabis, Aggression and Violence

An extract from Cannabis: A General Survey of its Harmful Effects
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Cannabis – some very old papers:

Let's take a look at what physicians from a time untainted by politics, drug morality, or profit motive had to say about cannabis risks:

"In large doses it will produce hallucinations, which, in some, are of merriment and in others of a violent nature, even tendency to crime… Its habitual use will cause insanity"

Materia Medica and Clinical Therapeutics, by Fred Petersen, published in 1905
The most common effect, however, is the development of insanities which have been known for many years… Chronic mania and dementia represent terminal stages"

A Textbook of Materia Medica, Pharmacology and Therapeutics, by George F. Butler, published in 1908
"Repeated use of the drug produces mental weakness and [mental] impotence, the result of over-stimulation."

A Compend of Materia Medica, Therapeutics, Prescription Writing: With Especial Reference to the Physiological Actions of Drugs, by Samuel O.L. Potter, published in 1890
"Sometimes the delirium induced by hemp causes the individual to do deeds of violence, but does not act upon all alike… The after-effects are those of depression."

Materia Medica and Therapeutics for Physicians and Students, by John Biddle, published in 1895
"Hallucinations occur, but they are not usually agreeable; they are often painful and are replaced by stupor… Not unfrequently the excitement takes the form of a furious delirium, in which acts of violence are committed – whence the name 'haschaschins,' or assassins, applied to the unfortunate hashish-eater who, under the influence of the drug, commits murder… Dilatation of the pupil, and disorders of vision, which contribute to the hallucinations by distortions of external objects, are produced by hemp"

A Practical Treatise on Materia Medica and Therapeutics, by Roberts Bartholow, published in 1893
"There is often a disposition to laugh, sing, shout, or dance, or to do some other extravagant act; but, in other instances, the excitement betrays itself in a quarrelsome temper or deeds of violence… Occasionally, a species of intoxication is induced, with hallucinations or complete delirium… Among those who use it habitually, it is said ultimately to impair the mental faculties"

A Treatise on Therapeutics, and Pharmacology, or Materia Medica, by George B. Wood, published in 1868

The first paper to link cannabis and psychosis was published in 1845 by Moreau de la Tour, a French psychiatrist:
https://www.preventteendruguse.org/
https://archive.org/details/duhachischetdela00more/page/n6

It is very difficult to determine whether cannabis is associated with violence due to the use of cannabis, withdrawal from the drug, a personality predisposition to violence or indeed because of the illegality. Disputes often arise between drug dealers, users and peers (Arsenault et al 2000). Professor Heather Ashton says in her 1999 review article, 'Adverse effects of cannabis and cannabinoids' that "cannabis in most recreational settings decreases aggressive feelings in humans and increases sociability. However, occasional predisposed individuals, especially if under stress, become aggressive after taking cannabis. Violent behaviour may also be associated with acute paranoid or manic psychosis induced by cannabis intoxication".

A 1995 (Fugelstad et al) Swedish study looked at suicides. In a study of 53 people who jumped from a great height, 11% were under the influence of cannabis, a disproportionate number. They calculated that a cannabis smoker is 18.7 times more likely to take his own life by jumping than a non-smoker. The number of cannabis-related suicides, in comparison with suicides related to the use of other drugs, users of heroin, amphetamines or alcohol, was much higher and none of them jumped from high places or committed murder before taking their own lives. No homicides were carried out by the users of other drugs who committed suicide.

Dyer (1996) wrote in the BMJ that, "Drug or alcohol misuse combined with a mental disorder could treble or quadruple the risk of violence".

Two studies by Kouri and others (1999 and 2002) investigated aggression during withdrawal from cannabis. The Harvard Study in 1999 compared 17 long-term heavy users with 20 infrequent or former smokers. All abstained from the use of cannabis and all other drugs for the duration of the experiment. They were not told that they were being monitored for aggression - temperature and heart rates were measured, so data were not gathered by "self-

reporting". The heavy users showed much more aggression than the controls especially in the first week of abstinence. By day 28 this behaviour had faded.

In the 2002 study they monitored 30 current users and 30 controls (16 former heavy users and 14 light users). There was no difference between the groups to start with except in the ability to concentrate which was worse in the current users. The subjects reported an increase in irritability, anxiety, tension and physical symptoms peaking 7 to 10 days after abstinence. Thus from the 2 studies it can be argued that "aggressive responses of current cannabis users are due to marijuana withdrawal rather than a mere history of marijuana use".

Fergusson and others during The Christchurch Cohort Study in 1997 when the subjects were aged 16, assessed them for cannabis and violence (assault, fighting, weapon use, threats of violence against another). There was a dose-response relationship with higher cannabis use and an increasing number of violent offences which persisted after controlling for other drug use and peer criminal behaviour, suggesting that deviant peer affiliations are not responsible. In a follow-up at the age of 21 (2002), they found the same association. The link was especially strong in those who had started using early, between 14 and 15 and were regular users (weekly or monthly). An increased frequency in incidents of property or violent crime, depression, suicidal ideation and suicide attempts was observed. The authors pointed out that there was a possibility that pre-existing psychosocial problems may have encouraged cannabis use rather than the other way around so caution must be applied and the results may not indicate a causal explanation for cannabis.

Spunt et al (1994) interviewed 268 people in prison for murder in New York State in 1984. 73 had been under the influence of cannabis at the time and 18 said that the use of cannabis was linked to their crime. When asked, 4 of them said it made them violent and aggressive, one said that when he was high he lost control and another that he doubted he would have done it had he not been under its influence. Four were of the opinion that it lowered their inhibitions and 2 said it made them paranoid. Some who were under the influence of both cannabis and alcohol at the time said the combined effect made them lose self-control.

Twelve cases of aggravated violent crime were looked at in Geneva between 1996 and 2000 (Niveau and Dang, 2003). All the perpetrators were under the influence of only cannabis at the time. Others were discarded because of poly-drug use. Five were previously known to have a personality disorder and three others had psychiatric disorders. All twelve suffered from severe negative effects of cannabis use. Four had an acute psychotic condition, one a relapse into or exacerbation of chronic paranoid psychosis, another 3 had intense anxiety and 3 delirium. The remaining one had a "mood" disorder. There is a growing interest in "dual diagnosis", ie cannabis use is included as one of the disorders. There is also growing concern about the combination of alcohol and cannabis.

Serious problems of fighting with weapons, window breaking and theft in males and aggressive acts, violent quarrels with teachers, openly cursing or being sent to see the school head in females were all predictors for early cannabis initiation (Pederson et al 2001). Hall JA and others (2003) said that users of cannabis at an early age are at greatest risk of delinquency and violence. They are also most likely to engage in such behaviours before beginning to use cannabis.

Arsenault and others in their "Dunedin Study 2000", discovered that alcohol dependent individuals were almost twice, marijuana-dependents almost 4 times, and those suffering from schizophrenia spectrum disorder, two and a half times more likely than controls to be violent (Arsenault et al, 2002).

2001 Friedman et al investigated violent behaviour as related to use of marijuana and other drugs. A sample (number 612) of African-American inner city young adults was studied. Unexpectedly, greater frequency of marijuana use was found to be associated with greater likelihood to commit weapons offences. This association was not found with any other drug except alcohol. There was also an association between marijuana and attempted homicide/reckless endangerment offences.

Friedman et al in 2003 found that, for a conventional non-delinquent sub-group, a higher degree of significant relationship between degree of marijuana use and degree of violence occurred, compared to the degree of this type of relationship than was found for either cocaine/crack use , amphetamine use, or tranquilliser/sedative use. In a group that is high on delinquent behaviour, the effect of marijuana was less. Thus, this special dis-inhibition effect was found only for marijuana and not for the other drugs.

A series of surveys by PRIDE (Parent Resources and Information on Drug Education USA) and ONDCP (Office of National Drug Control Policies) in 2006 added more evidence of the link between cannabis use and violence.
Of those students who reported carrying a gun to school during the 2005/6 school year, 63.9% had also used marijuana, 39.9% cocaine and 36.8% crystal meth in the past year. (PRIDE Surveys (2006) Questionnaire report for grades 6-12: 2006 National Summary 184).
Of those students who reported hurting others with a weapon at school, 68.4% had used marijuana, 48.3% cocaine and 44.1% crystal meth in the past year. (PRIDE surveys 2006 etc 197)
The incidences of youth physically attacking others, stealing, and destroying property increased in proportion to the number of days marijuana was smoked in the past year. Marijuana users were twice as likely as non-users to

report they disobeyed school rules. (Office of National Drug Control Policy 2006 *Marijuana Myths and Facts: The Truth Behind 10 Popular Misperceptions 10).*
Of those students who reported threatening someone with a knife, gun or club, or threatening to hit, slap or kick someone in the school year 2005/6, 27% had used marijuana, 7.8% cocaine and 6.2% crystal meth in the past year (PRIDE surveys (2006) etc 194).
During the school year 2005/6, 39.6% of those in trouble with the police used marijuana, 12.2% cocaine and 9% crystal meth in the past year (PRIDE surveys (2006) etc 195).
PRIDE surveys are available: http://www.pridesurveys.com/customercenter/us05ns.pdf.

In a Welsh study of 740 identical and non-identical twins, predictor of cannabis use. The findings suggest that cannabis use and violence to some extent co-occur it was found that, while the environment played a part in the development of cannabis use disorder in those with conduct disorder, genetics had a significant influence. Therefore the absence/presence of a conduct disorder in a twin pair is a good due to personality tendencies (Miles et al, 2002).

Other researchers to find a connection between cannabis and violent behaviour are: Resnick et al, 1997, Dornbusch et al, 1999, Friedman, 1996 and White, 1998.

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2005 Arendt: A Danish study just published in The British Journal of Psychiatry, November 2005, by a team from Aarhus Psychiatric Hospital led by Mikkel Arendt, found that almost half (44.5%) of 535 patients taken from the Danish Psychiatric Central Register and treated for cannabis-induced psychotic symptoms, went on to develop a schizophrenic illness, a third developing paranoid schizophrenia. The signs of schizophrenic illness appeared earlier in cannabis users than others with the condition. Only one in six needed no further treatment. They were compared with 2721 people treated for schizophrenia-spectrum disorders who had no history of cannabis-induced illness. Symptoms appeared in male cannabis users at average age 24.6 years compared with 30.7 in the comparison group, with females it was 28.9 compared with 33.1 years,

A possible mechanism for cannabis-induced violence was found in a paper by Howard and Menkes in October 2007. Five habitual cannabis users were given a reefer containing 11mg of THC. An electrocortical measure of affective impulsivity, Go/No Go contingent negative variation was carried out during and after smoking. Slow brain potentials developed normally in both Go/No Go conditions before and during smoking but were severely disrupted 20 to 30 minutes later – peak intoxication! (The effects were said to resemble those occurring in patients with lateral prefrontal cortex lesions). Larger scale studies were called for.

2008 Crebbin et al investigated drug and alcohol misuse in first-episode psychosis in the UK. Information on patients in Northumberland between 16 and 36 years of age was collected at first presentation and annual follow-up from 1998 till 2005. Hospitalisation was used as an outcome measure and violence rates were examined in retrospect. Drug misuse without alcohol was associated with a highly significant increase in hospital days. Alcohol problems with/without co-existing drug misuse was not predictive of increased hospital days. Drug and alcohol misuse together was associated with violence. They concluded that drug misuse may have a bigger impact than alcohol use on the outcome of first episode psychosis. (Drugs were, skunk, amphetamines and cocaine).

2009 Morrison and Murray published the results of their experiments carried out at London's Institute of Psychiatry and mentioned previously in this report. 21 healthy male participants (21 to 50) were recruited from staff and students from King's College, London. They had all previously taken cannabis on at least one occasion. They concluded that: 'THC can induce a transient acute psychotic reaction in psychiatrically well individuals. The extent of the psychotic reaction was not related to the degree of anxiety or cognitive impairment'.

2012 November Sheehan and others looked at gender differences in the presence of drugs in violent deaths. Conclusions: Suicide and homicide decedents are characrterized by varying patterns of licit and illicit drug use that differ by gender. Drugs associated with homicides (marijuana, cocaine and amphetamines) are stronger among males, while drugs associated with suicide are stronger among females (antidepressants and opiates). Taking these differences into consideration may allow for targeted interventions to reduce violent deaths.

2012 Reingle et al looked at the relationship between marijuana use and intimate partner violence. Abstract: Intimate partner violence is a significant public health problem, as these behaviors have been associated with a number of negative health outcomes including illicit drug use, physical injury, chronic pain, sexually transmitted diseases, depression, and posttraumatic stress disorder. The current study examined the association between marijuana use and intimate partner violence using a longitudinal survey of adolescents and young adults ages 15 to 26 years. Data were obtained from 9,421 adolescents in the National Longitudinal Study of Adolescent Health (Add Health) Waves 1 through 4 (1995-2008). Marijuana use was measured in the past year at each wave and

participants were categorized as "users" or "nonusers." Partner violence was constructed using six items (three pertaining to victimization and three concerning perpetration) from Wave 4 (2007-2008). Using these six items, participants were categorized as "victims only," "perpetrators only," or "victims and perpetrators." Survey multinomial regression was used to examine the relationship between marijuana use and intimate partner violence. Consistent use of marijuana during adolescence was most predictive of intimate partner violence (OR = 2.08, $p < .001$). Consistent marijuana use (OR = 1.85, $p < .05$) was related to an increased risk of intimate partner violence perpetration. Adolescent marijuana use, particularly consistent use throughout adolescence, is associated with perpetration or both perpetration of and victimization by intimate partner violence in early adulthood. These findings have implications for intimate partner violence prevention efforts, as marijuana use should be considered as a target of early intimate partner violence intervention and treatment programming.

2013 Brook et al looked at the relationship of marijuana use from adolescence to adulthood and the use of weapons including guns. African Americans and Puerto Ricans (838). There was a higher probability of engagement in violence (shooting or hitting with a weapon) among those with increasing marijuana use, moderate use and the quitter group than those with no use.

2014 Fleur et al predicted intimate partner violence by type of substance use disorder. All patients (N = 1799) were screened for IPV perpetration and victimization; almost one third of the sample committed or experienced any IPV in the past year. For males, an alcohol use disorder in combination with a cannabis and/or cocaine use disorder significantly predicted any IPV (perpetration and/or victimization) as well as severe IPV perpetration. For females, alcohol and cocaine abuse/dependence predicted both any IPV (perpetration and/or victimization) and severe IPV perpetration. Results from the present study emphasize the importance of routinely assessing IPV in patients in substance abuse treatment and demonstrate that clinicians should be particularly alert for IPV in patients with specific substance use disorder combinations.

2014 Large et al conducted a meta-analysis of outcomes associated with psychosis and co-morbid substance abuse. Current substance-using patients were significantly younger than non-substance-using patients and more likely to be male. They did not differ in age at onset of psychosis or in level of education. Current substance users had higher rates of positive symptoms and were more likely to have a history of violence. Older studies reported a stronger association between current substance abuse and positive symptoms than those more recently published. Current substance abusers did not differ from non-users on measurements of negative symptoms, depressive symptoms, social function, self-harm or number of hospital admissions. They concluded: Current substance users with psychosis may have more severe positive symptoms than patients never used substances, but this result should be interpreted with caution because of demographic differences between substance users and non substance users.

2014 Freeman and others found out how cannabis causes paranoia. 121 people with paranoid ideation were randomised to receive placebo, THC or THC preceded by a cognitive awareness condition. THC significantly increased paranoia, negative effect (anxiety, worry, depression, negative thoughts about the self) and a range of anomalous experiences, and reduced working memory capacity. The increase in negative effect and anomalous experiences fully accounted for the increase in paranoia. It was definitely demonstrated that the drug triggers paranoid thoughts in vulnerable individuals.

2014 Di Forti et al looked at the age of onset of psychosis and the potency of skunk. Patients with a history of cannabis use (daily) presented with their first episode of psychosis at an earlier age than those who had never used. Those who started under 15 had an earlier onset than those who started after 15 years. Those who used high potency cannabis (skunk) every day had the earliest onset compared to never users among all the groups – average of 6 years earlier than that of non-users.

2015 Kylie et al looked at cannabis use and violence among 3 Aboriginal Australian communities. 264 random individuals between 14 and 42 were selected. Physical trauma presentations between June 2004 and June 2006 were used. One in 3 of them (88) presented with physical trauma. The majority (58) had at least one presentation that was violence-related. Nearly 2 in 3 of the total presentations for trauma following violence involved the use of a weapon, hunting tools, wooden or rock implements. Individuals who reported any current cannabis use were nearly 4 times more likely than non-users to present at least once for violent trauma, after adjusting for alcohol, age and sex.

2015 Wilkinson et al looked at marijuana use in patients with PTSD. They found, after relevant baseline co-variants that marihuana use was significantly associated with worse outcomes in PTSD symptom severity, violent behaviour, and measures of drug and alcohol abuse, compared to those who stopped (used at admission but not after discharge) and never-users. Those two groups also had the lowest levels of PSTD symptoms at follow-up, while starters (used after discharge but not at admission) had the highest levels of violent behaviour.

2015 Parker and Bradshaw investigated teen dating violence (TVD) victimisation and patterns of substance use among high school students. The adolescents who had experienced physical and psychological TVD were more likely to be polysubstance users or use alcohol and marijuana.

2016 Schoeler et al looked at continuity of cannabis use and violent offending over the life course. The study (The Cambridge Study in Delinquent Development) involved 411 boys all born around 1953, raised in working class urban areas in London, 97% were Caucasian and all were raised in 2-parent households. Researchers controlled for a number of factors, including antisocial traits e.g. alcohol or other drug use, cigarette smoking, mental illnesses and family history etc. Most of the participants never used cannabis and they were never reported to have violent behavior. 38% of the participants did try cannabis at least once in their life. Most of them experimented with cannabis in their teens, but then stopped using it. However, 20% of the boys who started using pot by age 18 continued to use it through middle age (32-48 years). One fifth of those who were pot smokers (22%) reported violent behavior that began after beginning to use cannabis, whereas only 0.3% reported violence before using weed. Continued use of cannabis over the life-time of the study was the strongest predictor of violent convictions, even when the other factors that contribute to violent behavior were considered in the statistical analysis. In conclusion, the results show that continued cannabis use is associated with a 7-fold greater odds for subsequent commission of violent crimes. This level of risk is similar to the increased risk of lung cancer from smoking cigarettes over a similar duration (40 years). The authors suggest that impairments in neurological circuits controlling behavior may underlie impulsive, violent behavior, as a result of cannabis altering the normal neural functioning in the ventro-lateral prefrontal cortex.

2016 Mok et al looked at parental psychiatric disease and risks of attempted suicide and violent criminal offending in offspring. All persons born in Denmark 1967 – 1997 were followed from their 15th birthday till occurrence of adverse outcome or December 31st 2012 whichever came first.
'1 743 525 cohort members (48.7% female) Risks for offspring suicide attempt and violent offending were elevated across virtually the full spectrum of parental psychiatric disease. Incidence rate ratios were the most elevated for parental diagnoses of antisocial personality disorder (suicide attempt, risk 3.96 times; violent offending, 3.62 times; and cannabis misuse (suicide attempt, 3.57 times risk; violent offending, 4.05; and for parental suicide attempt (suicide attempt, 3.42;; violent offending, 3.31 times. Parental mood disorders (and bipolar disorder in particular) conferred more modest risk increases. A history of mental illness or suicide attempt in both parents was associated with double the risks compared with having just 1 affected parent. Associations between parental psychiatric disease and offspring violent offending were stronger for female than for male offspring, whereas little sex difference in risk was found for offspring suicide attempt'. Early interventions to tackle parental mental disorders may be beneficial to both parents and children.

2017 Guimaraes et al looked at criminal behaviour among illicit drug users (IDU). ' A Cross-sectional study carried out with IDU undergoing treatment for chemical dependence. Of the total participants (n = 274), 46.7%, 15.7%, and 10.9% reported involvement in robbery, drug trafficking and homicide, respectively. Robbery was associated with young age, withdrawal symptoms, prison record, sex work, and crack use, while drug trafficking was associated with young age, low education, and marijuana use. Homicides were associated with cocaine and marijuana use'.

2017 Miller et al looked at marijuana, violence and the law. Abstract:'Marijuana is currently a growing risk to the public in the United States. Following expanding public opinion that marijuana provides little risk to health, state and federal legislatures have begun changing laws that will significantly increase accessibility of marijuana. Greater marijuana accessibility, resulting in more use, will lead to increased health risks in all demographic categories across the country. Violence is a well-publicized, prominent risk from the more potent, current marijuana available. We present cases that are highly popularized storylines in which marijuana led to unnecessary violence, health risks, and, in many cases, both. Through the analysis of these cases, we will identify the adverse effects of marijuana use and the role it played in the tragic outcomes in these and other instances. In the analysis of these cases, we found marijuana as the single most common, correlative variable in otherwise diverse populations and circumstances surrounding the association of violence and marijuana.

2017 Johnson et al investigated marijuana use and physical dating violence (PDV) among adolescents and emerging adults. They conducted a systematic review of the relevant literature between 2003 and 2015. 13 articles examined marijuana in association with PDV 5 addressed victimisation and 11 perpetration. They suggested that marijuana use is associated with an increase in the odds of PDV victimisation and 45% increase in odds of perpetration.

2017 Delteil et al looked at a case of death by self-mutilation after oral cannabis consumption. Abstract: Major self-mutilation (amputation, castration, self-inflicted eye injuries) is frequently associated with psychiatric disorders and/or substance abuse. A 35-year-old man presented with behavioral disturbances of sudden onset after oral cannabis consumption and major self-mutilation (attempted amputation of the right arm, self-enucleation of both eyes and impalement) which resulted in death. During the enquiry, four fragments of a substance resembling cannabis resin were seized at the victim's home. Autopsy confirmed that death was related to hemorrhage following the mutilations. Toxicological findings showed cannabinoids in femoral blood (tetrahydrocannabinol (THC) 13.5 ng/mL, 11-hydroxy-tetrahydrocannabinol (11-OH-THC) 4.1 ng/mL, 11-nor-9-carboxy-THC (THC-COOH) 14.7 ng/mL, cannabidiol (CBD) 1.3 ng/mL, cannabinol (CBN) 0.7 ng/mL). Cannabinoid concentrations in

hair (1.5 cm brown hair strand/1 segment) were consistent with concentrations measured in chronic users (THC 137 pg/mg, 11-OH-THC 1 pg/mg, CBD 9 pg/mg, CBN 94 pg/mg). Analysis of the fragments seized confirmed that this was cannabis resin with high levels of THC (31-35%).

2017 Orpinas et al looked at perpetration of physical dating violence (PDV) 7-year associations with suicidal ideation, weapons and substance abuse. The Healthy Teens Longitudinal Study followed 588 randomly selected students adolescents from grades 6 – 12. They completed a self-reported computer-based survey every spring. Across most grades, Significantly more students in the 'Increasing' trajectory for PDV rather than 'Low' trajectory, reported suicidal ideation, carried a weapon and threatened someone with a weapon. Ehy also had higher trajectories of alcohol use, being drunk and marijuana use than the low trajectory. All differences were already significant in grade 6. So behaviour problems – PDV, suicide ideation and attempts, weapon carrying and threats, marijuana and alcohol use cluster together as early as 6th grade and persist over time.

2017 Dugre et al looked at the persistency of cannabis use predicting violence following acute psychiatric discharge. 'Violence is a major concern and is prevalent across several mental disorders. The use of substances has been associated with an exacerbation of psychiatric symptoms as well as with violence. Compared to other substances such as alcohol and cocaine, existing literature on the cannabis–violence relationship has been more limited, with most studies being conducted in the general population, and has shown controversial results. Evidence has suggested a stronger relationship when examining the effects of the persistency of cannabis use on future violent behaviors. Though, while cannabis use is highly prevalent amid psychiatric patients, far less literature on the subject has been conducted in this population. Hence, the present prospective study aims to investigate the persistency of cannabis use in psychiatric patients. The sample comprised of 1,136 recently discharged psychiatric patients provided by the MacArthur Risk Assessment Study. A multi-wave (five-assessment) follow-up design was employed to allow temporal sequencing between substance use and violent behaviors. Generalized estimating equations (GEE) were used to examine the effect of persistency of cannabis use on violence, while controlling for potential confounding factors. Potential bidirectional association was also investigated using the same statistical approach. Our results suggest a unidirectional association between cannabis use and violence. GEE model revealed that the continuity of cannabis use across more than one time wave was associated with increased risks of future violent behavior. Patients who reported having used cannabis at each follow-up periods were 2.44 times more likely to display violent behaviors (OR = 2.44, 95% CI: 1.06–5.63, $p <$ 0.05). These findings are particularly relevant as they suggest that the longer individuals report having used cannabis after a psychiatric discharge, the more likely they are of being violent in the following time waves. These results add to our understanding of the negative consequences of chronic cannabis use amid psychiatric patients'.

2018 Dawson et al investigated violent behaviour by emergency department patients with an involuntary hold status. Abstract: Retrospective review of patients evaluated during an involuntary hold at a suburban acute care hospital ED from January 2014 through November 2015. Of 251 patients, 22 (9%) had violent incidents in the ED. Violent patients were more likely to have a urine drug screen positive for tricyclic antidepressants (18.2% vs 4.8%, P=0.03) and to present with substance misuse (68.2% vs 39.7%, P=0.01), specifically with marijuana (22.7% vs 9.6%, P=0.06) and alcohol (54.5% vs 24.9%, P=0.003). ED readmission rates were higher for violent patients (18.2% vs 3.9%, P=0.02). No significant difference was found between violent patients and non violent patients for sex, race, marital status, insurance status, medical or psychiatric condition, reason for involuntary hold, or length of stay.

2019 (January) Alex Berenson wrote a book: 'Tell your children the truth about marijuana, mental illness and violence'. He writes: My wife Jacqueline is a forensic psychiatrist. She evaluates the criminally mentally ill. She told me that nearly all her patients had used marijuana heavily, many at the times of their crimes. At first I didn't really believe her—stupidly—but she encouraged me to evaluate the evidence myself. And the more I read, the more I realized she was right. Marijuana drives a surprising amount of psychosis, and psychosis—besides being a terrible burden for sufferers and their families—is a shockingly high risk for violent crime.
Psychosis is a known factor for violent crime. People with schizophrenia commit violent crime at rates far higher than healthy people - their homicide rates are about 20 times as high. Worse, they commit most of that crime while they are under the influence. Since cannabis causes paranoia—not even advocates dispute that fact—and psychosis, it is not surprising that it would drive violent crime. And in fact there are a number of good studies showing that users have significantly higher violence rates than non-users. Further, in researching the book, I found many, many cases where the causation appeared clear. In some cases it was as simple and obvious as, *this person—with no history of violence*—smoked, became psychotic, and committed a homicide.

2019 Dellazizzo et al looked at cannabis use and violence in patients with severe mental illness. The relationship between cannabis and violence remains unclear, especially amid those with severe mental illnesses (SMI). The objective of this meta-analysis was to investigate the cannabis-violence association in a population of individuals with a SMI. A systematic search of literature using PubMed, PsychINFO, Web of Science and Google scholar was performed (any time-August 2018). All peer-reviewed publications assessing both cannabis use and the perpetration of violence in an SMI sample were included. Data on several key study characteristics such as the proportion of SMI in the sample as well as the number of cannabis users and violent participants were extracted. Odds ratios (OR) were likewise extracted and aggregated with random-effects models. Of the potential 2449 articles that were screened for eligibility, 12 studies were analyzed using a random-effect meta-analysis. Results showed a moderate association between cannabis use and violence (OR = 3.02, CI = 2.01–4.54, $p = 0.0001$). The

association was significantly higher when comparing cannabis misuse (OR = 5.8, CI = 3.27–10.28, $p = 0.0001$) to cannabis use (OR = 2.04, CI = 1.36–3.05, $p = 0.001$). These findings are clinically relevant for violence prevention/management and highlight the necessity of further investigations with methodologically-sound studies. Thus, longitudinal studies adjusting for important confounding factors (i.e., psychopathic traits and stimulant use) are warranted.

2019 Di Forti et al looked at the contribution of cannabis use to variation in the incidence of psychotic disorder across Europe.

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. **Methods** We included patients aged 18–64 years who presented to psychiatric services in 11 sites across Europe and Brazil with first-episode psychosis and recruited controls representative of the local populations. We applied adjusted logistic regression models to the data to estimate which patterns of cannabis use carried the highest odds for psychotic disorder. Using Europe-wide and national data on the expected concentration of Δº-tetrahydrocannabinol (THC) in the different types of cannabis available across the sites, we divided the types of cannabis used by participants into two categories: low potency (THC low potency (THC <10%) and high potency (THC =/> 10%). Assuming causality, we calculated the population attributable fractions (PAFs) for the patterns of cannabis use associated with the highest odds of psychosis and the correlation between such patterns and the incidence rates for psychotic disorder across the study sites. **Findings** Between May 1, 2010, and April 1, 2015, we obtained data from 901 patients with first-episode psychosis across 11 sites and 1237 population controls from those same sites. Daily cannabis use was associated with increased odds of psychotic disorder compared with never users (adjusted odds ratio [OR] 3·2, 95% CI 2·2–4·1), increasing to nearly five-times increased odds for daily use of high-potency types of cannabis (4·8, 2·5–6·3). The PAFs calculated indicated that if high-potency cannabis were no longer available, 12·2% (95% CI 3·0–16·1) of cases of first-episode psychosis could be prevented across the 11 sites, rising to 30·3% (15·2–40·0) in London and 50·3% (27·4–66·0) in Amsterdam. The adjusted incident rates for psychotic disorder were positively correlated with the prevalence in controls across the 11 sites of use of high-potency cannabis (r=0·7; p=0·0286) and daily use (r=0·8; p=0·0109). **Interpretation** Differences in frequency of daily cannabis use and in use of high-potency cannabis contributed to the striking variation in the incidence of psychotic disorder across the 11 studied sites. Given the increasing availability of high-potency cannabis, this has important implications for public health.

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