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Medical Marijuana Home Page > Diseases / Conditions > Psychological Conditions > Last updated on: 3/9/2015 12:28:49 PM PST

Does Marijuana Use Increase the Risk of Psychosis (Including Schizophrenia)?

General Reference (not clearly pro or con)

The Schizophrenia Society of Canada stated in its article titled "What Do We Know about the Link between Cannabis and Psychosis?," available on its website cannabisandpsychosis.ca (accessed Feb. 26, 2015):

"Several recent studies suggest that frequent cannabis use during adolescence is associated with a clinically significant increased risk of developing schizophrenia and other mental illnesses which feature psychosis.

Some of the headlines about these studies in the media may be leading the everyday reader to believe that there is a direct casual relationship between marijuana and psychosis, i.e. that the average person who smokes some pot may become psychotic. Though this definitely makes for a gripping news story and there are some studies that suggest this causal link, according to the abundance of scientific literature and various other forms of information (e.g. web and print-based resources, anecdotal evidence, documentaries evidence) the nature of the link between the two seems to be more complicated than this."

Feb. 26, 2015 - [Schizophrenia Society of Canada](#) ★

The Drug Policy Alliance (DPA), in an article by Malik Burnett, MD, Policy Manager at DPA, and Amanda Reiman, PhD, Manager of Marijuana Law and Policy at DPA, titled "Does Marijuana Use Cause Psychosis?," posted on the DPA website on Aug. 28, 2014:

"In regards to... cannabis use and the development of mental health problems, the best analogy for where the science is on this issue, is the chicken and egg question. Research in this area shows a correlation between cannabis use and psychosis. This means that the two situations are related, but it does not mean that one situation causes the other. We know that people who have symptoms of psychosis are more likely to use marijuana, but we don't know which comes first, marijuana use or psychotic symptoms...

It is also important to note that the mental disorder of psychosis is extremely rare, with about 3 in every 100 people experiencing a psychotic episode in their lifetime. The onset of psychosis, or similar disease processes like schizophrenia, usually begin in an individual's late teens to early twenties. This generally also happens to be around the same time when individuals have their first exposure to cannabis. The fact that these two time periods overlap is one of the reasons why it is so difficult to know which comes first.

There are several theories that attempt to explain the relationship between cannabis use

and mental illness...:

- The vulnerability theory: stating that cannabis use leads to the development of psychosis in people who have a family history of psychotic episodes.
- The contributing cause theory: stating that cannabis use is one of many factors which leads to the development of psychosis.
- The self-medication theory: stating that individuals who have psychotic experiences, use cannabis to self-medicate in advance of being formally diagnosed with a psychotic disorder.

Overall, the body of scientific literature has not been able to provide a definitive answer as to whether cannabis use causes psychosis. Compelling arguments and data have been provided to suggest that those with a predisposition for mental illness can exacerbate those symptoms by using cannabis, however some fundamental questions remain. Namely, if there is a direct link between cannabis use and psychosis, it should follow that the number of diagnoses of psychosis should rise with the increasing prevalence of cannabis use in society. This phenomenon has not been established."

Aug. 28, 2014 - [Drug Policy Alliance](#) ★

Joseph M. Pierre, MD, Co-Chief of the Schizophrenia Treatment Unit at the Veterans Administration (VA) West Los Angeles Healthcare Center, wrote in his Sep. 2011 article "Cannabis, Synthetic Cannabinoids, and Psychosis Risk: What the Evidence Says" in *Current Psychiatry*:

"There are several ways to explain the link between cannabis use and psychosis, and a causal relationship has not yet been firmly established. Current evidence supports that cannabis is a 'component cause' of chronic psychosis, meaning although neither necessary nor sufficient, cannabis use at a young age increases the likelihood of developing schizophrenia or other psychotic disorders. The overall magnitude of risk appears to be modest, and cannabis use is only 1 of myriad factors that increase the risk of psychosis. Furthermore, most cannabis users do not develop psychosis. However, the risk associated with cannabis occurs during a vulnerable time of development and is modifiable."

Sep. 2011 - [Joseph M. Pierre, MD](#) ★★★★★

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PRO (yes)

Marta Di Forti, MD, MRCPsych, Clinical Lecturer at the Institute of Psychiatry at King's College London, et al., stated in their article titled "Proportion of Patients in South London with First-Episode Psychosis Attributable to Use of High Potency Cannabis: a Case-Control Study," published online by *Lancet Psychiatry* on Feb. 18, 2015:

CON (no)

Lynn E. DeLisi, MD, Professor of Psychiatry at Harvard Medical School, et al., stated in their article titled "A Controlled Family Study of Cannabis Users with and without Psychosis," published online by *Schizophrenia Research* on Dec. 2, 2013:

"The results of the current study

"We aimed to investigate how frequent use of skunk-like (high-potency) cannabis in south London affected the association between cannabis and psychotic disorders...

Compared with those who never used cannabis, individuals who mostly used skunk-like cannabis were nearly twice as likely to be diagnosed with a psychotic disorder if they used it less than once per week... almost three times as likely if they used it at weekends... and more than five times as likely if they were daily users...

The association between cannabis use and increased risk of developing schizophrenia-like psychosis has been consistently reported by prospective epidemiological studies. Our previous study was the first to show that use of high-potency (skunk-like) cannabis carries the highest risk for psychotic disorders. In the present larger sample analysis, we replicated our previous report and showed that the highest probability to suffer a psychotic disorder is in those who are daily users of high potency cannabis. Indeed, skunk use appears to contribute to 24% of cases of first episode psychosis in south London."

Feb. 18, 2015 - [Marta di Forti, MD, MRCPsych](#)


Matthew Large, MBBS, Senior Lecturer at the University of New South Wales, et. al, wrote the following in their Feb. 7, 2011 article titled "Cannabis Use and Earlier Onset of Psychosis: A Systematic Meta-analysis," published in the *Archives of General Psychiatry*:

"The results of meta-analysis provide evidence for a relationship between cannabis use and earlier onset of psychotic illness, and they support the hypothesis that cannabis use plays a causal role in the development of psychosis in some

suggest that having an increased familial morbid risk for schizophrenia may be the underlying basis for schizophrenia in cannabis users and not cannabis use by itself...

This study aimed to determine whether people who use cannabis during adolescence have a greater risk for developing schizophrenia because they have an increased familial risk for the illness, and thus have a genetic predisposition for developing it regardless of cannabis use. If this is the case, we would expect to find a significantly higher morbid risk for schizophrenia in the relatives of people who develop schizophrenia compared to the relatives of non-schizophrenia controls, regardless of whether they do or do not use cannabis. The results of the current study, both when analyzed using morbid risk and family frequency calculations, suggest that having an increased familial risk for schizophrenia is the underlying basis for schizophrenia in these samples and not the cannabis use. While cannabis may have an effect on the age of onset of schizophrenia it is unlikely to be the cause of illness."

Dec. 2, 2013 - [Lynn E. DeLisi, MD](#) 

Martin Frisher, PhD, Senior Lecturer in Health Services Research at Keele University, et al., stated the following in their Sep. 2009 article titled "Assessing the Impact of Cannabis Use on Trends in Diagnosed Schizophrenia in the United Kingdom from 1996 to 2005," published in *Schizophrenia Research*:

"Based on literature suggesting a) an elevated risk of developing schizophrenia/psychosis among cannabis users, b) a substantial rise in cannabis use in the UK from the mid-1970s onwards and c) an assumed elevated risk of 20 years, this model would predict a corresponding increase in

patients. The results suggest the need for renewed warnings about the potentially harmful effects of cannabis."

Feb. 7, 2011 - [Matthew Large, MBBS](#) ★★★★★
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Theresa H. M. Moore, MSc, Research Associate in the Department of Social Medicine at the University of Bristol, and Stanley Zammit, PhD, MB, MA, Clinical Lecturer in the Department of Psychological Medicine at Cardiff University, wrote the following in their July 28, 2007 article titled "Cannabis Use and Risk of Psychotic or Affective Mental Health Outcomes: A Systematic Review," published in *The Lancet*:

"There was an increased risk of any psychotic outcome in individuals who had ever used cannabis...with greater risk in people who used cannabis most frequently. There is now sufficient evidence to warn young people that using cannabis could increase their risk of developing a psychotic illness later in life."

July 28, 2007 - [Theresa H. M. Moore, MSc](#) ★
[Stanley Zammit, PhD, MB, MA](#) ★★★★★

David M. Semple, MBBS, Consultant Psychiatrist at Hairmyres Hospital, Andrew M. McIntosh, MSc, MD, MPhil, MBChB, Clinical Reader in Psychiatry at the University of Edinburgh, and Stephen M. Lawrie, MD, MPhil, MBChB, Professor of Psychiatry and Neuroimaging at the University of Edinburgh, stated the following in their Mar. 2005 article "Cannabis as a Risk Factor for Psychosis: Systematic Review," published in the *Journal of Psychopharmacology*:

"Meta-analysis suggests that cannabis is a risk factor, increasing the chances of developing schizophrenia or a schizophrenia-like psychotic illness by approximately three-fold..."

Our findings underline the need to recognize the use of cannabis as a

schizophrenia/psychosis during our study period [1996-2005]...

The results of this study indicate that the incidence and prevalence of diagnoses of schizophrenia and psychoses in general practice did not increase between 1996 and 2005...

This study does not therefore support the specific causal link between cannabis use and the incidence of psychotic disorders..."

Sep. 2009 - [Martin Frisher, PhD](#) ★★★★★

Paul Armentano, Senior Policy Analyst at the National Organization for the Reform of Marijuana Laws (NORML), stated in an Aug. 2, 2007 press release titled "NORML Responds to New Rash of Pot and Mental Health Claims":

"Despite the enormous popularity of cannabis in the 1960s and 1970s in numerous Western cultures, rates of psychotic disorders haven't increased since then in any of these societies. Individuals suffering from mental illness such as schizophrenia tend to use all intoxicants - particularly alcohol and tobacco - at greater rates than the general population. Not surprisingly, many of these individuals also use cannabis."

Aug. 2, 2007 - [Paul Armentano](#) ★

Jason Schiffman, PhD, Associate Professor of Clinical Psychology at the University of Hawaii at Manoa, et al, reported in their article, "Symptoms of Schizotypy Precede Cannabis Use," published Mar. 30, 2005 in *Psychiatric Research*:

"The onset of schizotypal symptoms generally precedes the onset of cannabis use. The findings do not support a causal link between cannabis use and schizotypal traits."

Mar. 30, 2005 - [Jason Schiffman, PhD](#) ★★★★★

significant risk factor for schizophrenia and schizophrenia-like psychotic illness."

Mar. 2005 - David M. Semple, MBBS 

David M. Fergusson, PhD, Research Professor in the Department of Psychological Medicine at the Christchurch School of Medicine & Health Sciences at the University of Otago in New Zealand, et al., wrote in their article titled "Tests of Causal Linkages Between Cannabis Use and Psychotic Symptoms," published in Mar. 2005 in *Addiction*:

"Daily users of cannabis had rates of psychotic symptoms that were between 1.6 and 1.8 times higher than non-users of cannabis...."

The results of the present study add to a growing body of evidence suggesting that regular cannabis use may increase risks of psychosis.

The present study suggests that:

- A. the association between cannabis use and psychotic symptoms is unlikely to be due to confounding factors; and
- B. the direction of causality is from cannabis use to psychotic symptoms."

Mar. 2005 - David M. Fergusson, PhD 

Cécile Henquet, PhD, Researcher in the Department of Psychiatry and Neuropsychology at Maastricht University, et al., in their Dec. 2004 article "Prospective Cohort Study of Cannabis Use, Predisposition for Psychosis, and Psychotic Symptoms in Young People," published in the *British Medical Journal*, stated:

"Exposure to cannabis during adolescence and young adulthood increases the risk of psychotic symptoms later in life. Cannabis use

Oakley Ray, PhD, Emeritus Professor of Psychology and Pharmacology at Vanderbilt University, and Charles Ksir, PhD, Professor Emeritus of Psychopharmacology and Drug Policy at the University of Wyoming, wrote in their 2004 textbook *Drugs, Society and Human Behavior*:

"There have been reports of psychotic 'breakdowns' occurring with rare frequency after marijuana has been smoked, but the causal relationship is in question.

The psychotic episodes are generally self-limiting and seem to occur in individuals with a history of psychiatric problems."

2004 - Charles Ksir, PhD 
Oakley Ray, PhD 

Colin Blakemore, PhD, ScD, Chair of the Department of Physiology at the University of Oxford, wrote in a Dec. 27, 2002 email to ProCon.org:

"It is conceivable that excessive use of cannabis sometimes contributes to acute schizophrenic episodes. But it is difficult to believe that cannabis is a strong risk factor for this disorder, because there is no evidence that the incidence of schizophrenia has risen dramatically over the past 50 years, in parallel with the huge increase in cannabis use.

Young schizophrenic patients are often heavy cigarette smokers too, but no-one would suggest that tobacco causes schizophrenia."

Dec. 27, 2002 - Colin Blakemore, PhD, ScD 

Lynn Zimmer, PhD, late Professor Emeritus at Queens College, noted in her 1997 book *Marijuana Myths, Marijuana Facts*:

"Given that the incidence of

at baseline increased the cumulative incidence of psychotic symptoms at follow up four years later... but has a much stronger effect in those with evidence of predisposition for psychosis."

Dec. 2004 - Cécile Henquet , PhD 

Stanley Zammit, PhD, MB, MA, Clinical Lecturer in Psychiatric Epidemiology at Cardiff University, and Peter Allebeck, MD, Professor in Social Medicine at the Karolinska Institutet, et al., in their article titled "Self Reported Cannabis Use As a Risk Factor for Schizophrenia in Swedish Conscripts of 1969: Historical Cohort Study," published Nov. 23, 2002 in the *British Medical Journal*, wrote:

"Cannabis use is associated with an increased risk of developing schizophrenia, consistent with a causal relation. This association is not explained by use of other psychoactive drugs or personality traits relating to social integration."

Nov. 23, 2002 - Stanley Zammit, PhD, MB, MA 

Andrew Johns, MB, Consultant in Forensic Psychiatry at the Maudsley Hospital in London, noted in a Feb. 2001 article, "Psychiatric Effects of Cannabis," published in the *British Journal of Psychiatry*:

"There is good evidence that taking cannabis leads to acute adverse mental effects in a high proportion of regular users. Many of these effects are dose-related, but adverse symptoms may be aggravated by constitutional factors including youthfulness, personality attributes and vulnerability to serious mental illness...

An appreciable proportion of cannabis users report short-lived adverse effects, including psychotic states following heavy consumption, and regular users are at risk of

schizophrenia declined substantially in Western societies in the 1970s, at the same time cannabis use was rising, it seems highly unlikely that marijuana causes schizophrenia in otherwise healthy people....

Cannabis psychosis is self-limiting, disappearing in a few days with or without medical treatment. Toxic psychosis probably occurs more commonly in individuals with preexisting psychiatric disorders....

Marijuana temporarily alters mood, thought, emotions, and perception, sometimes quite dramatically. None of marijuana's effects cause people to behave in any particular manner. In the midst of a toxic psychosis, people may become agitated and frightened. In response to acute panic, people may become withdrawn and inactive. Neither of these states eliminates the social and moral restraints that guide human behavior."

1997 - Lynn Zimmer, PhD 

Hollie V. Thomas, DPhil, Director of the MSc Program in Psychiatry at Cardiff University, wrote in an article titled "Psychiatric Symptoms in Cannabis Users," published Aug. 1993 in the *British Journal of Psychiatry*:

"Cannabis use can lead to a range of short-lived symptoms such as de-personalisation, de-realisation, a feeling of loss of control, fear of dying, irrational panic and paranoid ideas...

The evidence that cannabis has a causative role in chronic psychotic or affective disorders is not convincing, although the drug may modify the course of an already established illness."

Aug. 1993 - Hollie V. Thomas, DPhil 

dependence...

The untoward mental effects of cannabis may be classified:

1. Psychological responses such as panic, anxiety, depression or psychosis. These effects may be described as 'toxic' in that they generally relate to excess consumption of the drug.
2. Effects of cannabis on pre-existing mental illness and cannabis as a risk-factor for mental illness.
3. Dependency or withdrawal effects."

Feb. 2001 - Andrew Johns, MB 

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233 Wilshire Blvd., Suite 200, Santa Monica, CA 90401

Tel: 310-451-9596 Fax: 310-393-2471