

**СОЦИАЛЬНО-ПСИХОЛОГИЧЕСКИЕ  
ПОСЛЕДСТВИЯ УПОТРЕБЛЕНИЯ МАРИХУАНЫ  
СТАРШИМИ ШКОЛЬНИКАМИ**

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**MARIJUANA AND HIGH-SCHOOL STUDENTS:  
THE SOCIO-PSYCHOLOGICAL CONSEQUENCES**

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Epidemiological studies in Europe have shown that using marijuana is one of the most widespread abused psychoactive substances among adolescents (Beck & Legleye, 2009). There has been much discussion about the possible effects that marijuana has on one's mental and physical health. The status of marijuana is still very controversial. Some support the use of marijuana as not being a harmful substance and they are fighting for legalization. Some authors argue against this, stating that abusing marijuana has numerous negative consequences. The aim of this paper is to describe the findings about abusing marijuana and its socio-psychological consequences.

Marijuana is a green, brown or grey mixture of dry cut leaves from stems, seeds and flowers of hemp (lat. *Cannabis sativa*). Until the sixties of the 20th century, marijuana had not been that popular in Europe and America. Today, marijuana is one of the most frequent and widespread psychoactive substances that is abused. Cannabis is a term that refers to marijuana and other drugs that have been extracted from the same plant. The stronger forms of cannabis are sinsemilla (sin-she-me-yah), hashish, and hash oil. All forms of cannabis are psychoactive which means that they influence one's consciousness upon consumption. The main active substance of marijuana and hashish is THC (delta-9-tetrahydro-cannabinol). In addition to THC, marijuana consists of around 400 substances. The effect of Marijuana

depends on its concentration and the power of the THC. Between 1980 and 1997 the concentration of THC in Marijuana significantly increased (El Sohly, et al., 2000). The average concentration of THC in Marijuana is 3 % (Bukelic, 1995).

The largest numbers of Marijuana users consume it as a cigarette (joint) or through a pipe. Sometimes, Marijuana is used as a food supplement or as a tea. Recently, crack cocaine or other psychoactive or illegal substances have been added to marijuana cigarettes.

**The Prevalence of Marijuana Abuse.** A large amount of research has shown that marijuana is the most frequently used illegal drug in America and Europe. The same results have been found to be true for Serbia. During the 1970s in America, Marijuana's widespread use especially emerged among young people. According to National Institute of Drug Abuse USA, by 1979, more than 60 percent of 12th-graders in America had tried marijuana at least once in their lives. From this peak, the percentage did decrease for more than a decade afterwards, dropping to only 33 percent in 1992. In 1993, for the first time, marijuana use by 12th-graders began to rapidly grow, reaching 50 percent in 1997; although the percentage of 12th-graders who have tried marijuana has roughly leveled out since then, there is still reason for worry. (Johnston, O'Malley & Bachman, 2006). According to Substance Abuse and Mental Health Services Administration, USA, in 2002, an estimated 2.6 million Americans used marijuana for the first time. About two-thirds of them were under the age of 18. Today, the marijuana that is available can be 5 times more potent than the marijuana of the 1970s. The Drug Abuse Warning Network (DAWN) is an agency that collects data about urgent cases of drug use in the USA and has found that 119,000 urgent cases were caused by Marijuana in 2001; 12 % of this number was of young adolescents between 12 and 15 years old. The Community Epidemiology Work Group (CEWG) is an organization that collects data about drug use in the USA and has reported that Marijuana is frequently combined with other drugs such as: crack, cocaine, PCP, and codeine.

**Marijuana's Effects on the Brain.** There has been much research done regarding how THC acts in the brain to produce its ef-

fects. According to the Institute of Drug Abuse USA, during the consumption of marijuana, THC rapidly passes from the lungs into the bloodstream, which carries the chemical to the brain, where the THC connects to cannabinoid receptors in nerve cells and thereby influences their activity. Many cannabinoid receptors are found in the parts of the brain that influence pleasure, memory, thought, concentration, sensory and time perception, and coordinated movement. When marijuana is smoked, it takes effect immediately after the drug enters the brain. Effects last from 1 to 3 hours. If marijuana is consumed orally, the short-term effects begin more slowly; they usually take effect from 30 minutes to 1 hour, and last longer, sometimes up to 4 hours. Within the first few minutes after inhaling marijuana smoke, an individual's heart begins to beat more rapidly, the bronchial passages relax and enlarge, and blood vessels in the eyes expand, making the eyes appear reddish. The heart rate may jump to 20 to 50 beats per minute. This effect can be greater if other drugs are taken with marijuana. As THC enters the brain, it causes the user to feel euphoria. It does so by affecting the brain's reward system, stimulating brain cells to release dopamine. This causes marijuana users to experience pleasant sensations, colors and sounds may seem more intense to them, as well as the passage of time may seem to them to slow. The mouth of the user may feel dry, and they tend to suddenly become very hungry and thirsty. Their hands may tremble and grow cold. Eventually, euphoria passes, and the user may feel sleepy or unhappy. Occasionally, marijuana use produces anxiety, fear, distrust, or panic. Marijuana users who consume it in high doses may succumb to acute toxic psychosis, which includes hallucinations, delusions, and depersonalization- a loss of the sense of personal identity, or self-recognition.

**The Effects of Marijuana on Physical Condition.** The use of marijuana has been demonstrated to make difficulty for those users who are trying to quit smoking tobacco. Marijuana use and continued smoking is particularly strong in those who smoke marijuana daily (Ford, Vu, & Anthony, 2002). Burning and stinging of the mouth and throat can be caused even by infrequent marijuana and can often be accompanied by a heavy cough. Marijuana and tobacco smokers regularly have many of the same respiratory problems, such as daily

cough and phlegm production, frequent acute chest illnesses, a heightened susceptibility to lung infections, and a greater tendency towards obstructed air passages. The risk of cancer of the respiratory tract and lungs may also be increased by Marijuana smoke (Tashkin, 1990). This is due to the fact that marijuana contains irritants and carcinogens; its smoke contains 50 percent to 70 percent more carcinogenic hydrocarbons than from tobacco. High levels of an enzyme that converts certain hydrocarbons into their carcinogenic form - levels that may be able to accelerate changes that ultimately produce malignant cells - are also produced more actively by marijuana smoke. Certain adverse health effects caused by marijuana may occur due to the fact that THC impairs the immune system's ability to fight infectious diseases and cancer. In certain laboratory experiments where animal and human cells were exposed to THC or other active ingredients in marijuana, the normal disease-preventing reactions of many of the key types of immune cells were inhibited (Adams & Martin, 1996). According to the National Institute of Drug Abuse, the consequences of using Marijuana are the following: those that are acute (present during intoxication) include impairment to short-term memory, attention, judgment, and other cognitive functions, impairment to coordination and balance, increase of heart rate; those that are persistent (lasting longer than intoxication, but may not be permanent) include impairment to memory and learning skills; those that are long-term (cumulative, potentially permanent effects of chronic abuse) include addiction, increases for the risk of chronic cough, bronchitis, and emphysema, increase for the risk of cancer of the head, neck, and lungs.

**Professional and Social Consequences of Abusing Marijuana.** There is evidence that depression, anxiety and tension are related to the consumption of marijuana. It has been found that marijuana has the potential to cause problems in one's everyday life, or to further worsen them. Marijuana has an effect on one's ability to learn and their memory, and decreasing one's intellectual, working and social skills. The negative effects of marijuana on one's ability to learn and memory can last for a days or weeks, after the acute effect of consumption disappears (Pope et al., 2001). It has been found that adolescents who smoke Marijuana have a lower G.P.A. (Grade Point

Average) than their peers who abstain from using the drug (Brook, Balka & Whiteman 1999; Lynskey & Hall, 2000).

Chronic marijuana use produces impairment of verbal expressive skills without concomitant impairment of vocabulary, reading comprehension, mathematical abilities, or general abilities (Robert et al., 1990). Associations between the extent of marijuana use and subsequent educational achievement including dropping out of school, failing to enter university and failure to obtain a university degree have also been found (Fergusson, Horwood, & Beautris, 2003). The result of research that has been conducted on college students who use marijuana has shown a decrease in concentration, memory and ability to learn (Pope & Yurgelun-Todd, 1996). Users of frequent and large quantities of marijuana have more difficulty to keep attention, register, organize and use information, compared to the users that consume marijuana only 3 times a month. Recent studies have shown that even the infrequent use of marijuana among adolescents is a significant predictor for the later consumption of other drugs and problems in education (Degenhardt et al., 2010). Results also have shown a lower level of intellectual functioning in those who consume marijuana every day. It was also found that after quitting marijuana, some intellectual abilities were able to be recovered. Heavy marijuana use can possibly impair one's ability to form memories, recall events and shift attention from one item to another (Pope & Yurgelun-Todd, 1996). The correlation between marijuana and low educational success, lower salaries, material insecurity as well as problems in one's relationship with their significant other has also been found (Fergusson & Boden, 2008).

THC is also able to disrupt one's coordination and balance by binding itself to receptors in the cerebellum and basal ganglia. Due to its effects on the brain and body, marijuana intoxication is known to be the cause of accidents (Cimbura et al., 1990). It has also been found that consuming marijuana increases behavioral problems in youths, increases depression, suicide and criminal behavior (Fergusson, Horwood & Swain-Campbell, 2002). (Although, it must be noted that abusing all kinds of psychoactive substances increase criminal behavior). It has also been found that people under 16 years

of age who abuse psychoactive substances have a high risk of being arrested (Slade et al., 2008)

Abusing marijuana together with alcohol is recognized as being a possible cause of slower psychosocial development (Chassin et al., 2010). According to the results of epidemiological studies regarding an increase in the consumption of marijuana among adolescents, it is of significant importance to highlight the relationship between consumption of marijuana and chronic mental health problems. Research has shown that consumption of marijuana during adolescence increases the risk for developmental psychosis later in life (Arseneaul et al., 2002; Henquet et al, 2005; McGrath et al., 2010). Evidences from studies also suggest that heavy cannabis use may increase depressive symptoms (Degenhardt, Hall & Lynskey, 2003).

**Method.** *Present study.* The aim of this study was to assess the prevalence of marijuana consumption among high-school students. In addition, the relationship between using marijuana and one's prosocial behavior and G.P.A. was investigated.

*Participants.* The sample consisted of 296 high school students. The study was conducted in Belgrade, Serbia. The mean age was 17,24; SD-0,63 (range from 16 to 19); 50,3 % were females and 49,7 % were males.

*Procedure.* The study was conducted in 4 high schools in Belgrade, Serbia. During the testing, subjects were found in their classrooms, and an examination was performed during their regular classes. A socio-demographical questionnaire was administered to them, which covered questions about marijuana consumption, punishments for their improper behavior in school, problems in their behavior (such as being prone to fights), severe illegal behavior (robberies, or breaking into another person's domicile)

**Results.** It was found that 17,1 % of high-school students consumed marijuana. Statistically significant positive correlations between using marijuana and punishments for improper behavior in school, proneness to fighting, severe illegal behavior were found. In addition, a statistically significant negative correlation with one's G.P.A. (Table) and marijuana use was found.

Predicting Gender Membership According to Canonical Function

	Improper behavior	Proneness to fighting	Severe illegal behavior	G.P.A
Marijuana	0,211**	0,295**	0,351**	-0,143*

Analyzing gender differences, it was found that males consume marijuana more than females (Pearson Chi-Square=29,582,  $p < 0,001$ ).

**Discussion.** It is important to note that while this type of research always comes under the huge influence of providing socially desirable answers, a huge number of marijuana users among high-school students were still found. The result that marijuana users are less successful in school is in accordance with the results of effects marijuana on the CNS. The continuous use of marijuana leads to cognitive deficiency, a disturbed memory and a weakened ability to learn, which can all cause lower grades and problems in education. Educational neglect is merely a starting point for further economic and social consequences on society. This has been confirmed by many studies and our results are in concordance with the fact that marijuana consumers are more prone to antisocial and criminal behavior. It should be noted also that our study has found that males use marijuana significantly more than females.

Our results indicate that harmful effects of marijuana do exist and this is a significant piece of evidence against marijuana's decriminalization (which is often wrongly interpreted as legalization; in other words, permission to abuse marijuana). On the contrary, more restrictive laws can decrease accessibility to all psychoactive substances, as well as marijuana. In addition to laws, it is necessary to involve a huge number of high-school students in educational programs, to design preventive programs for schools and local groups for adolescents, as well as for their parents and teachers. Society must increase the options for the creative spending of free time, which can decrease exposure to experimenting with psychoactive substances. The role of media is of the utmost importance, as it must inform the public about the harmful effects of psychoactive substances, breaking the very popular widely held belief that there are some easy, harmless drugs, as in reality, there is no difference between so called easy and severe drugs.

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