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RESEARCH ARTICLE

ROLE OF CANNABIS IN PSYCHIATRIC ILLNESSES: A MINI-LITERATURE REVIEW.

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Abstract

Cannabis is one of the most abused illicit drug in the United States. Currently, nine states and D.C has legalized marijuana for recreational use, which will only lead to increased use. About 20% of adolescents report using cannabis at least once per week. Its increased use particularly in individuals below 25 years can affect brain development. Multiple surveys and studies have shown a connection between cannabis use and its harmful effects on human health particularly mental health. Whether cannabis use increases the incidence of psychiatric disorders such as mood or psychotic disorders or exacerbates the already established diseases, in either case, both of them are the cause of substantial distress for individuals and their families, also to public burden from health-care costs. In this paper, we have mentioned some psychiatric illnesses which directly or indirectly are associated with cannabis use. The objective of this study is to offer an up-to-date overview of cannabis use and its effects on mental health. This study would contribute to increased knowledge and improved awareness among people towards cannabis use to discourage its further use to enhance the quality of life, thus eliminating its harmful effects. Whether cannabis use is the direct cause of mental health issues or one of the factors associated with it, is still an open question requiring further research and studies.

Introduction:-

Alcohol and cannabis are the top two most abused drugs in the world including the United States. Research to date has shown that a large number of studies for preventing alcohol use among people especially adolescents. However, there are very few studies that have targeted cannabis use and its harmful effects on human health.

Cannabis is the most commonly used illicit substance in the United States. About 20% of young people now report using at least once per week or heavy use (use on >100 occasions) [1]. Its use has increased particularly during early adolescence when developing brain might be susceptible to harmful environmental exposure [1]. Multiple surveys and studies have shown substantial evidence that cannabis intoxication causes psychotic and affective experiences. Whether cannabis use increases the incidence of psychiatric illnesses or exacerbates the already established diseases, both of them are substantial distress for individuals and their families, also to public burden from health-care costs.

REVIEW**1-Anxiety**

Nine states and DC have legalized cannabis for recreational use. One of the often cited reasons for using cannabis is because of its anxiolytic effects [2]. Cannabis has some anxiety-relieving effects particularly at low doses, however at high doses of cannabis can provoke anxiety. Cannabis has many distinct compounds, notably tetrahydrocannabinol (THC) and cannabidiol, which plays a role in our state-of-mind and sense of well-being [3].

These cannabinoids (THC and cannabidiol) can bind to a receptor known as cannabinoid receptor type 1 (CB1), which results in a decrease in brain reactivity to threat- hence anxiolytic. However, tetrahydrocannabinol shows a biphasic dose effect. At a low dose, it is anxiolytic, however, at higher doses, it does the opposite. Rubino T et al. in his study reported that THC at low doses in the prefrontal cortex (10 µg) and ventral hippocampus (5 µg) induced in rats an anxiolytic-like response tested in the elevated plus-maze, whilst higher doses lost the anxiolytic effect and even seemed to switch into an anxiogenic profile [4]. Chronically elevated anxiety can be a risk factor for cannabis abuse, people with cannabinoids dependence are twice as likely to experience a co-occurring anxiety disorder as compared to the people without cannabis dependence [5].

2-Mood disorders

Mood disorders are defined as a psychological disorder characterized by an elevation or depression of a person's mood. It includes major depressive disorder, persistent depressive disorder, cyclothymia, seasonal affective disorder and bipolar disorder.

Recently, studies suggest that cannabis smokers are diagnosed with depression more often than nonsmokers. However, a causal relationship between them is still unknown. Depression is a multifactorial disorder that is influenced by genetic, environmental or other factors that can trigger depression also lead to cannabis use. Some people with diagnosed depression may use cannabis as a way to detach from their depressive symptoms. However, chronic, heavy cannabis users may appear depressed as a result of the dulling effects of the drug on feelings and emotions.

Depression is one of the most common mental disorders, and multiple studies are documented in their association with cannabis use [6]. In an epidemiological study, Chen CY et al. reported that major depression was moderately associated with the number of occasions of cannabis use and with more advanced stages of cannabis use [7]. Some studies propose that there is a significant association between the baseline use of cannabinoids and development of depression later in life [8-9], while others conclude that the risk of developing depression is equal in cannabinoids users and non-users [10-11]. A meta-analysis done by Lev-Ran et al. found that there may be an association between cannabis and depression and that more longitudinal studies should be done to explore this relationship while considering confounding factors [12]. The bottom line is cannabis use, and depression accompanies each other more often than you might expect by chance, but there's no clear evidence that cannabis directly causes depression.

The Second most common mood disorder associated with cannabis use is bipolar disorder [13]. Bipolar disorder affects 1 % of the population worldwide, and multiple studies have shown a positive correlation with baseline cannabis use and bipolar disorder. However, upon follow-up, these studies use subclinical manic and hypomanic symptoms as the outcome measures thus, further longitudinal studies are required to find their association. A longitudinal study conducted by D Feingold in 2014 suggested that the association between bipolar disorder and

cannabinoids can be mediated by psychiatric disorders, substance use, and other factors. They also found an association between weekly to daily or almost daily cannabis use and bipolar disorder incidence [14].

Further work needs to be done to evaluate this association. Patients suffering from bipolar disorder report using cannabis as self-medication, however recent studies indicate that cannabis might worsen maniac episode associated with Bipolar disorder exacerbation [15]. Feingold D et al. found a positive association between bipolar disorder and cannabis use on crude analysis but, when they adjusted for covariates, no significant association was observed suggesting a role of social demographic and clinical factor in the initiation of cannabis use among patients who have bipolar disorder [14].

3- Addiction/ Marijuana use disorder

In the past decade, epidemiological, clinical and laboratory studies have established a positive association between cannabis use and adverse health outcomes. With the advent of legal cannabis, one primary concern is its addiction potential. Cannabis, like other drugs of abuse, is addictive and dangerous [16-18]. According to the National Institute on Drug Abuse, as many as four million Americans meet the diagnostic criteria for a cannabis use disorder such as abuse, dependence, or addiction. The dependence on cannabis will only increase with its legalization [19-21].

4- Effect on children/adolescents on mental health

Cannabis has deleterious health effects on children and adolescents such as effects on brain development, exacerbation of allergies, respiratory infections, fertility issues, immune system disorders, decreased intelligence, and increased risk of addiction and dependence. Children can be exposed to cannabis either by breathing in secondhand smoke or eating cannabis containing food.

Cannabis use has very harmful effects on brain cells because the human brain is not fully developed until the early 20s [22-23]. According to Fergusson DM et al., teens who use cannabis are at increased risk of developing memory and learning issues, impaired coordination, and difficulty maintaining attention [24]. In teenagers, cannabis use has adverse effects on social, and school life with a decline in school performance increased risk of mental health issues, impaired driving and potential for addiction [25].

Similarly, cannabis use during pregnancy and nursing can have deleterious health effects on babies including, but not limited to, problems with neurological development, diminished problem-solving skills, memory problems, and decreased motor development [26].

5- Psychosis/Schizophrenia disorders

The role of cannabis in psychotic and schizophrenic disorders has been an area of interest for decades. Epidemiological studies have shown that as the frequency of cannabis abuse increases, so does the risk for a psychotic disorder such as schizophrenia [27]. Clinicians and multiple studies support the temporal association between cannabis use and acute psychotic disorder; however, these connections are complex and not fully understood.

There are several factors which contribute to psychosis in patients who use cannabis including heavy usage, length and age of users, and psychotic vulnerability [28]. As the research in the endocannabinoid system is emerging, the cloning of brain Cannabinoid receptors (CB-1 R), the identification of several endogenous ligands and second messenger systems, the development of selective CB-1 R antagonists, and other recent advances have rekindled interest in the association between cannabis and psychosis.

A study published in Nature by D'Souza DC et al. observed that THC produced transient effects in healthy individuals including positive symptoms, negative symptoms, perceptual alterations, euphoria, anxiety, and deficits in working memory, recall, and the executive control of attention without altering general orientation [29]. Besides, there was a direct correlation between dosage and extent of the effects. The primary outcome of cannabinoids is the modulation of neurotransmitter release via activation of presynaptic CB-1Rs. CB-1Rs are distributed in high density in the cerebral cortex (mainly frontal regions), basal ganglia, hippocampus, anterior cingulate cortex, and cerebellum regions that are relevant to both the known effects of cannabinoids and also regions that have been implicated in the putative neural circuitry of psychosis.

Animal studies have demonstrated that chronic exposure to cannabis in animals can induce behavioral sensitization to subsequent cannabinoid exposure and also to amphetamine [30]. Sensitization has been implicated as a mechanism involved in psychosis. Cannabis exposure during the critical period of adolescent brain maturation may disrupt neuro-modulatory influences of endocannabinoids and increase Schizophrenia susceptibility. Again the CB1/CNR1 is the principal brain receptor mediating the significant psychological effects.

Conclusion:-

Cannabis is one of the most abused illicit drug in the United States. Since its legalization, its use is only increasing. Different studies have shown the connection between cannabis use and its harmful effects on human health particularly mental health. The objective of this study is to offer an up-to-date overview of cannabis use and its impact on psychological health. Whether cannabis use is the direct cause of mental health issues or one of the factors associated with it, it is still an open question requiring further research and studies.

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