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Cannabis use and effect of cannabis abstinence on cognitive functioning in young people — an observational case-control follow-up study from rehabilitation centre in Andhra Pradesh

Sripathi Santhosh Goud^{1*}, M. S. Radhika², Vishal Indla¹ and Nagasaritha Kollu³

Abstract

Background: Cannabis is the most commonly used illicit substance globally, in India particularly. In recent times, younger people started abusing cannabis, resulting in academic decline and psychological disorders. Research from developed countries had shown that abstinence from cannabis reverses cognitive decline in the young population to a certain extent. Studies on this topic have been very few in India. We intended to assess the effects of cannabis use and abstinence from cannabis on the cognitive functioning of young adults.

The study was an observational study including 50 consecutive young male patients, who got admitted to our rehabilitation centre with cannabis use disorder (group A). The Montreal Cognitive Assessment (MoCA) test was used to assess the baseline cognitive functioning of these patients initially after 1 week of abstinence and compared with 50 graduate students with no history of cannabis use (group B). The MoCA test was re-administered to group A subjects after 3 months of strict abstinence from cannabis use.

Results: There was a statistically significant difference between the baseline MoCA score of cannabis users and the controls ($P < 0.001$). Both the duration ($r = -0.296$, $P = 0.036$) and the quantity ($r = -0.491$, $P < 0.001$) of cannabis use had a negative correlation with the MoCA score. When the MoCA test was re-administered after 3 months of abstinence, we found a statistically significant improvement in cognitive functioning in cannabis users ($P < 0.001$), but the mean score was still less than the mean score of the control group (24.08 ± 2.66 vs 28.62 ± 0.85 , $P < 0.001$) showing only partial improvement.

Conclusion: This study showed that cognitive deficits were seen in cannabis users as compared to nonusers. It also had shown that abstinence from cannabis had partially reversed the impairment, but still some deficits were remaining. There is an urgent need for primary prevention strategies at community level to decrease the prevalence of cannabis use.

Keywords: Cannabis use, Marijuana, Young adults, Cognitive functioning, Cognitive impairment

Background

Cannabis is the most commonly used illicit psychoactive substance globally. According to the report published by the Ministry of Social Justice and Empowerment, Government of India, in 2019, about 2.8% of the Indians

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Cannabis And Cognitive Functioning

Michael Seilmaier



Cannabis And Cognitive Functioning:

Cannabis and Cognitive Functioning Nadia Solowij, 1998-06-13 Cannabis is the most widely used illicit substance in the world but the question of whether its long term use can result in lasting and irreparable cognitive impairment remains controversial This timely and well argued volume provides an extensive and comprehensive critical review of the literature relevant to cannabis and cognitive functioning examining the evidence in the light of important recent findings in the pharmacology and neuropsychology of cannabis Original studies conducted by the author are presented utilizing one of the most modern and sensitive techniques available to assess cognitive functioning the use of event related potentials or ERPs The author s conclusion that long term cannabis use may produce irreversible impairment in memory attention and the organization and integration of complex functions will be of compelling interest to a wide range of clinicians researchers and policy makers

Cognitive Functioning in Schizophrenia: Leveraging the RDoC Framework Deanna M. Barch, Jared W. Young, 2023-02-17 This book highlights recent research investigating psychological and neural mechanisms contributing to dysfunctional cognition in people with schizophrenia The work on cognition in schizophrenia from the past 20 years is highlighted and emphasis throughout the book is placed on utilizing the Research Domain Criterion framework Thus the book also covers animal work relevant to schizophrenia that assesses behaviors utilizing the same framework enabling mechanistic studies and highlighting potential biomarkers of function The book also includes important areas of research in the field of cognitive function in schizophrenia that have received less attention such as cognitive side effects of current treatments and olfactory based cognition Altogether the book provides a translational perspective of the most up to date research on cognition in schizophrenia to date but with identification of novel directions for research initiatives

An Update on Neurocognitive Impairment in Schizophrenia and Depression Kenneth Hugdahl, Vince D. Calhoun, 2012-05-01 Despite all research that has been devoted to schizophrenia over the last years the understanding of the biological bases of the disorder is still fragmentary Adding to the complexity is the realization that basic cognitive functions are seriously distorted and that removal of symptoms does not necessarily ameliorate the cognitive deficits It has also been shown that cognitive deficits can occur before clinical symptoms in a prodromal phase of the disorder pointing to a possible causal relationship between cognitive deficits and outbreak of the disorder However it is still not possible to diagnose a patient from cognitive deficits alone or from a combination of clinical symptoms and cognitive deficits and structural and functional neuroimaging data although promising have also not found the way to routine clinical practice The aim of the Research Topic is therefore to provide an update on research on cognitive and brain imaging research for the understanding of cognitive deficits in schizophrenia The suggested contributors are all internationally recognized experts in their respective fields The suggested contributions will cover the field from the use of standardized neuropsychological tests to establish cognitive response profiles in patients with schizophrenia to the use of advanced new techniques for the analysis of brain imaging data

Cognition and Addiction Antonio Verdejo García,2019-09-29 Cognition and Addiction A Researcher s Guide from Mechanisms Towards Interventions provides researchers with a guide to recent cognitive neuroscience advances in addiction theory phenotyping treatments and new vistas including both substance and behavioral addictions This book focuses on what to know and how to apply information prioritizing novel principles and delineating cutting edge assessment phenotyping and treatment tools Written by world renowned researcher Antonio Verdejo Garcia this resource will become a go to guide for researchers in the field of cognitive neuroscience and addiction Examines cognitive neuroscience advances in addiction theory including both substance and behavioral addictions Discusses primary principles of cutting edge assessment phenotyping and treatment tools Includes detailed chapters on neuro epidemiology and genetic imaging **Purple Haze: Issues on Cannabis Legalization** Stephane Potvin,Yasser Khazaal,Amine Benyamina,Marc N. Potenza,2022-01-05

Effects of Long Term Cannabis Use on Cognitive Functioning Nadia Solowij,Patricia Therese Michie,Allison M. Fox,1990 The Biology of Marijuana Emmanuel S Onaivi,2002-04-18 Marijuana is the prototypical cannabinoid and is one of the most widely used drugs in the world Interestingly cannabinoids are molecules found naturally in the human body and brain as well as in cannabis This book provides an extensive reference on the biology of marijuana and the role of molecular techniques in elucidating neuropharmacology **The Medicinal Uses of Cannabis and Cannabinoids** Geoffrey William Guy,Brian Anthony Whittle,Philip Robson,2004 Describing all the current research findings relating to the medicinal use of cannabis and cannabinoids this title reports the latest information on the pharmacology formulation safety and efficacy of cannabis as a therapeutic agent Marijuana and Madness David Castle,Robin M. Murray,Deepak Cyril D'Souza,2011-10-27 The second edition of this critically acclaimed and award winning text provides a comprehensive overview of the psychiatry and neuroscience of Cannabis sativa marijuana It outlines the very latest developments in our understanding of the human cannabinoid system and links this knowledge to clinical and epidemiological facts about the impact of cannabis on mental health Clinically focused chapters review not only the direct psychomimetic properties of cannabis but also the impact consumption has on the courses of evolving or established mental illnesses such as schizophrenia Effects of cannabis on mood are reviewed as are its effects on cognition This new edition has been extensively updated and expanded with ten new chapters to incorporate major new research findings This book will be of interest to all members of the mental health team as well as to neuroscientists epidemiologists public health specialists and those involved in drug and alcohol research *The Science of Marijuana* Leslie L. Iversen,2000 After alcohol and nicotine marijuana is the most commonly used recreational drug in Western countries There has already been a growing debate about the medical applications of marijuana and other cannabis based preparations and increasing pressure to legalize such use voters in several States in the US in the 1996 and 1998 elections approved prosals to implement such measures In *The Science of Marijuana* the author explains the remarkable advances that have been made in scientific research on cannabis with the discovery of specific receptors and the

existence of naturally occurring cannabis like substances in the brain The book also gives an objective and up to date assessment of the scientific basis for the medical use of cannabis and what risks this may entail The recreational use of the drug and how it affects users is described along with some predictions about how attitudes to cannabis use may change in the future Leslie Iversen is a scientist who has worked both in academia and in the pharmaceutical industry and has specialized in the study of drug actions on the brain The book is written with a minimum of scientific jargon or technical language for readers who want to know more about the science that underlies the current cannabis debate **Cannabis** Great Britain. Parliament. House of Lords. Select Committee on Science and Technology, Great Britain. Parliament. House of Lords. Science and Technology Committee, 1998 Evidence heard before Sub committee I HLP 151 I 97 98 ISBN 0104754982

Cannabis Canada. Commission of Inquiry into the Non-medical Use of Drugs, 1972 **Marijuana Myths, Marijuana Facts** Lynn Etta Zimmer, John P. Morgan, 1997 Reviews the scientific research about the effects of marijuana on human health and behavior debunking some of the myths that have been circulated about the drug and offering a basis for making informed personal and public policy decisions regarding marijuana use **Neurocognitive and Personality Function in MDMA and Polydrug Users** Karen Lee Hanson, 2006 Cognition in Schizophrenia Tonmoy Sharma, Philip D. Harvey, 2000 Although it has been known for 100 years that cognitive functioning is impaired in schizophrenia the implications of this impairment have only recently been clearly understood While in the past cognitive deficits were thought to be the result of other aspects of the illness such as poor co operation or as a result of the treatment of the illness it is now known that these factors exert only a very minor influence on cognitive deficit This book with contributions from the major international names in the field reviews the most recent research on the impairment of cognitive functioning in schizophrenia covering what it is how wide ranging it can be what the clinical implications are and how it can be treated The book is divided into three sections The first section provides background information on the important aspects of cognitive functioning in schizophrenia The second section provides information on the correlates of cognitive functioning examining classical symptoms of the illness as well as social and adaptive functional deficits The final section provides information on the treatment of cognitive functioning in schizophrenia from the older less effective treatments with conventional antipsychotics to the developing treatment strategies using experimental compounds A clear insight into cognitive deficit is the key to understanding why previous treatments have failed and the key by which new treatments may change this terrible illness treatments significantly more effective than earlier interventions **Cannabis, Health Risks** Oriana Joseau Kalant, 1983 Abstracted papers selected from the Cannabis Archive of the Addiction Research Foundation *Canadian Journal of Psychiatry*, 2000

Drugs and Human Performance Fact Sheets Fiona J. Couper, 2004 These Fact Sheets represent the conclusions of the Panel and include the state of current scientific knowledge in the area of drugs and human performance for the 16 drugs selected for evaluation The selected drugs include over the counter medications such as dextromethorphan and

diphenhydramine prescription medications such as carisoprodol diazepam and zolpidem and abused and or illegal drugs such as cocaine GHB ketamine LSD marijuana methadone methamphetamine MDMA morphine PCP and toluene

Understanding Substance Addictions Sophia F. Dziegielewski,2005 **Understanding Drugs and Behaviour**
Andrew Parrott,2004 This textbook provides an introduction to the action that various drugs have on the brain and behaviour providing an opportunity for learning about basic physiology Its extensive coverage of social consequences and health implications makes it equally ideal for use in health psychology and health promotion

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