1 Introduction

1.1 Cannabis and mental health: The debate

In this document, the term “cannabis” is used to describe any psychoactive product of the plant *Cannabis sativa*. Evidence has shown that those experiencing mental health disorders use cannabis at higher rates than those who are not experiencing mental health disorders, and, conversely, that cannabis users are more likely to experience mental health problems than their non-cannabis-using peers [2]. However, the reason for this association remains unclear; it is unknown whether cannabis causes mental health problems, whether mental health problems make it more likely that someone will use cannabis, or whether there is a third factor that influences both. Determining the nature of the link between the use of a substance and a particular adverse health outcome is an essential step in assessing the social and economic burden of that substance use [3].

Interest in the association between cannabis and mental health has a long history. In the mid-19th century the French psychiatrist Jacques-Joseph Moreau (1845/1973) [4] documented the effects of cannabis intoxication in volunteers and claimed that such intoxication could reproduce nearly any mental disturbance. In India, in 1893 a Commission was created by the British government to investigate potential consequences of cannabis use, including psychosis; cannabis-induced psychosis was seen as a common occurrence in India at the time, although the commission concluded that this effect was greatly exaggerated [5]. In the United States in the 1930s, newspaper stories of cannabis users becoming mad and homicidal appeared (‘reefer madness’), and were taken to Congress by the Federal Bureau of Narcotics [6]. However, by the 1960s, the issue of cannabis and mental health problems was no longer receiving as much attention in the United States and other Western countries as it had previously [7].

More recently, there has been a surge of interest world-wide in the link between cannabis and mental health—particularly psychosis [8][9]. Prior to the late 1980s, it was not possible to establish whether cannabis contributed significantly to mental health problems due to the inadequate methodology of the studies conducted [10]. In 1987, the first large cohort study (i.e. a well defined sample studied over time) assessing the link between cannabis and psychosis was published [11]. The current interest in the link between cannabis and mental health is due in part to the release of similar high quality cohort studies [12][13][14][15], and has focused attention on cannabis here in Australia and overseas. The UK Home Office ordered an investigation into the links between cannabis and mental health in order to determine whether cannabis should be re-categorised into a more serious drug class [9]. The United Nations Office on Drugs and Crime recently paid special attention to cannabis in their 2006 World Drug Report [16].

Australia’s first National Cannabis Strategy was endorsed by all Australian Government and State and Territory Health and Law Enforcement Ministers on 15 May 2006. [17] The following year, the Australian Government established the National Cannabis Prevention and Information Centre (NCPIC). NCPIC is run by a consortium of key organisations, led by the National Drug and Alcohol Research Centre, and is situated at the University of New South Wales. The aim of this centre is to reduce the use of cannabis in Australia by preventing

uptake and providing the community with evidence-based information and interventions. Key strategies include a multimedia (website, pamphlet, bulletin, and other resources) based approach to dissemination of evidence-based information on cannabis; an intersectoral workforce training program; intervention development and evaluation; and the provision of a free national Cannabis Information and Helpline (1800 304050) for cannabis users, their families and the community.

1.2 Cannabis and mental health: Put into context

Despite a number of recent reviews assessing the link between cannabis and mental health [18][19][20], there is still confusion among the general public and policy makers alike. The aim of this monograph is to attempt to provide clear information about cannabis and mental health. It does not simply review research on cannabis and mental health. Although the monograph provides an overview of what the research says about the link, it will place this research in a broader context. Some of the questions this monograph will aim to answer include:

- Does cannabis use lead to mental health problems, and if so, which ones?
- If someone smokes cannabis are they at risk of developing mental health problems that would not otherwise have occurred?
- What is the contribution of cannabis to mental health problems compared to other drugs and alcohol?
- How does cannabis compare to other mental health risk factors?
- What is the population impact of cannabis with respect to mental health?
- What are the policy implications of the relationship between cannabis and mental health?

This monograph was written primarily for use in public policy to provide a clear understanding of what the research says about the link between cannabis and mental health in order to guide policy. The monograph may also be useful for those working in the field of alcohol and other drugs, the media, politicians and interested members of the general community. This monograph focuses on the mental health effects of cannabis use; for a review of other aspects of cannabis use, supply and harms, as well as a discussion of the legislative status of cannabis in Australia, see the recent National Drug Strategy monograph *Cannabis in Australia: Use, supply, harms and responses* [21], or *The health and psychological effects of cannabis use* [22]. Another recent text is *Cannabis use and dependence: Public health and public policy* [2]. Potential harms other than adverse mental health outcomes that are also associated with cannabis use and may be more common include dependence, social and interpersonal problems, educational and vocational failure and cognitive dysfunction. These harms should be recognised as important alongside the mental health harms, in spite of the greater amount of attention focused on the latter [23].

It is essential to state how the literature to be reviewed has been evaluated. Studies in this review were evaluated against the conventional criteria of strong covariance (cannabis use and the disorders occur together), temporal precedence (cannabis use precedes the onset of mental health disorders), absence of alternative causal mechanisms (nothing else causes cannabis use and/or the disorders) and coherence with current knowledge (the way in which cannabis affects mental health disorders is consistent with what we know about both) [24].

Studies are then further assessed for methodological adequacy. In brief, important factors that have been considered include the population from which the samples have been drawn and the sample size, whether alternative causal mechanisms for the mental health disorder were controlled for, the appropriateness of the measurement tools used and the types of outcomes that the study evaluated. Finally, we attempted to estimate the magnitude of the effect of cannabis use on the occurrence of mental health disorders to place it in the context of other public health concerns.