

# Kronic in the Clinic

## Synthetic cannabinoids: Prevalence, patterns of use, motives and effects in treatment seeking cannabis users

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### Introduction

Synthetic cannabinoids are part of a new class of emerging psychoactive substances creating challenges for health care and policy makers. Formally identified in 2008, the lab-made chemical compounds are typically infused with organic matter to aid ingestion by smoking. Often referred to in Australia as 'Kronic', they were promoted as herbal or legal highs, as their distinctive chemical structure initially circumvented existing drug laws.

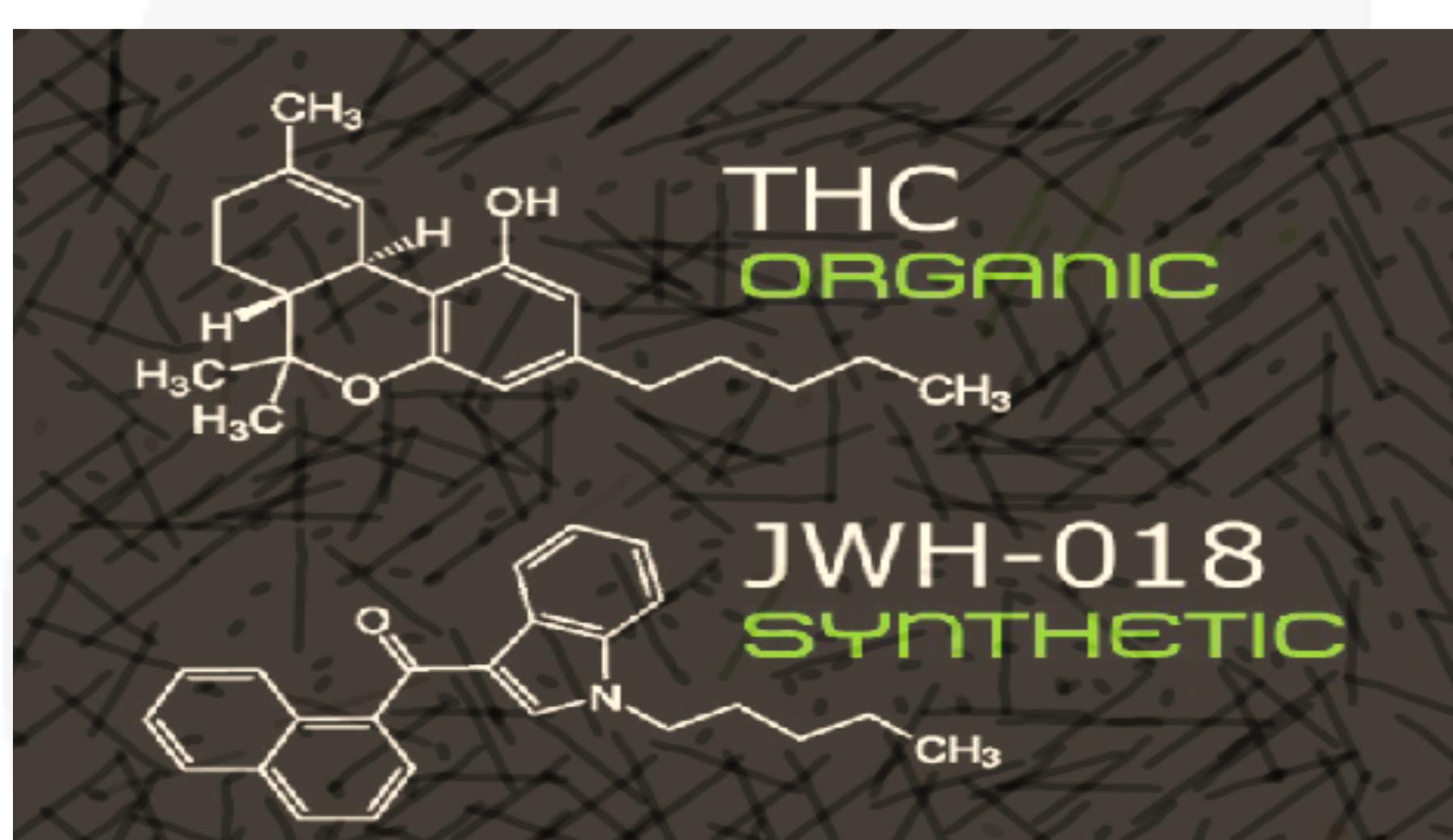
Synthetic cannabinoids mimic the euphoric effects of cannabis and share common neurobiological properties with plant-based cannabinoids. This, together with the strong prevalence of synthetic cannabinoid consumption among cannabis users, makes cannabis an ideal reference point to understand the effects and interest people have in these newer style substances.

Additionally, there is little recent Australian research that has investigated how motivations to use these products has changed with increasing awareness of their harms and legislation aimed at curtailing their supply.



### Method

An electronic search of English literature between 2004 and January 2015 was conducted using Medline. The search term used was synthetic cannabinoids (main phrase) with all animal studies rejected. This was supplemented by citations referenced in the sourced literature. 175 studies were identified.



### Key Findings

The review explores the literature surrounding synthetic cannabinoids, making comparisons to cannabis.

**Neurobiology:** Unlike Δ9-THC in cannabis, which are partial agonists with a moderate binding affinity for endocannabinoid receptors, synthetic cannabinoids are commonly high-affinity full agonists<sup>1</sup>. Being artificially produced, they also lack protective components similar to Cannabidiol in cannabis<sup>2</sup>. These factors lead to more potent outcomes and increased withdrawal symptoms in regular users<sup>3</sup>.

**Effects:** Although euphorically similar to cannabis, synthetic cannabinoids have shorter lasting effects and display a diverse range of negative outcomes including dependence, seizures and death<sup>4</sup>. Inconsistent effects are common and appear to be caused by variations in their composition and manufacture.

**Prevalence:** Cannabis is the most widely used illicit drug by Australians, with 10.2% reporting previous year use in 2013 and 1.2% reporting synthetic cannabinoids use<sup>5</sup>. Their popularity appears dependant on the population under study. Being male and a drug user (most notably cannabis) are the highest predictors of synthetic cannabinoid use<sup>6,7</sup>.

**Availability:** Like cannabis, synthetic cannabinoids have been easy to procure. Overseas research suggests most buy these substances from friends, retail outlets or dealers, despite internet driven demand and online availability<sup>8</sup>. Only 4% of Australian ecstasy and psychostimulant users report web-based purchasing<sup>9</sup> however more research is required to clarify current accessibility trends. Regulatory changes in Australia and overseas appear to have curtailed availability however novel synthetic cannabinoids continue to be detected by European Monitoring Centre for Drugs<sup>10</sup>.

**Motivations:** Recreational and medicinal motives are commonly reported reasons to use cannabis<sup>11</sup>. Synthetic cannabinoid users report similar motivations with additional unique endorsements including non-detection in drug screening, legal status and marketing<sup>4</sup>. Curiosity and the desire to experiment and experience different psychoactive effects are also highly rated motivations<sup>6,7</sup>.

**Regulation:** A consequence of cannabis prohibition is substance displacement, which has resulted in the widespread availability of synthetic cannabinoids in countries with prohibitive drug policies<sup>12</sup>. Regulation of these synthetic substances in Australia has been labelled as reactive, disjointed and not evidence based<sup>13</sup> and has lead directly to the release of new, untested and unknown synthetic cannabinoids<sup>14</sup>.

### Discussion

It is evident after reviewing the literature that there is a need to investigate the prevalence and patterns of synthetic cannabinoid use among target populations such as heavy or frequent cannabis users.

While regulatory changes appear to have had some effect on prevalence, the review highlights the lack of current information surrounding the impacts of regulation on synthetic cannabinoid availability and motivations to use them.

Research is currently underway recruiting treatment seeking cannabis users from drug and alcohol clinical services of five Local Health Districts across NSW. The study aims to:

- Make comparisons between users and non users of synthetic cannabinoids;
- Examine motivations for use, physical & mental health effects, experiences and outcomes in synthetic cannabinoids users;
- Availability and market characteristics; and
- Explore impact of regulatory changes on synthetic cannabinoid use, harms experienced and health service utilisation.

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