



## Emergency Department Physicians' Knowledge of Synthetic Cannabinoids

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### Abstract

**Aim:** Substances containing synthetic cannabinoid are known with different names in various countries and abuse of these substances increase day by day. Different combinations of these substances make difficult to predict clinical effects. In this study, the aim is to evaluate the awareness of emergency department physicians on the clinical presentation of people using these substances.

**Materials and Methods:** A questionnaire was applied to 100 physicians in emergency departments; the survey did not involve any scales but only contained the following three options: "Yes," "No," and "No idea."

**Results:** The average age of physicians was 34,5±6,8 and the average work experience in the emergency department was 6,4±5,2 years. The proportion of research assistants was 42%; 29% of the physicians were experts while the other 29% were practitioners. The rate of the physicians with true knowledge about varied clinical appearances of drug abuse was 68%. The percentage of physicians who had no idea about the variable contents of this substances was 44%. 80% of the physicians knew that it is necessary to report these cases as "Criminal cases."

**Conclusion:** Due to the rapid increase in the use of substances containing synthetic cannabinoid, physicians should consider welcoming new information and improve their knowledge on these substances and their properties.

**Keywords:** Substance Dependence; Hospital Emergency Service; Legal Medicine.

### Acil Servis Hekimlerinin Sentetik Kannabinoidler Hakkındaki Bilgi Düzeyi

#### Özet

**Amaç:** İçerisinde sentetik kannabinoid bulunan maddeler çeşitli ülkelerde değişik adlarla bilinmekte ve bu maddelerin kötüye kullanımı giderek artmaktadır. Farklı kombinasyonlar klinik etkilerin tahmin edilmesini güçleştirmektedir. Çalışmada, acil servis hekimlerinin, bu maddeleri kullananlardaki klinik görünüm hakkında seçilen konularla ilgili farkındalığını değerlendirmek amaçlanmıştır.

**Gereç ve Yöntemler:** Acil servislerde çalışan 100 hekime konu ile ilgili olarak hazırlanmış, herhangi bir ölçek içermeyen, 'evet' 'hayır' ve 'fikrim yok' cevaplarını içeren anket uygulandı.

**Bulgular:** Hekimlerin yaş ortalaması 34,5±6,8, acil servisteki çalışma yılı ortalamaları 6,4±5,2 yıl olarak tespit edilmiştir. Araştırma görevlilerinin oranı %42, uzmanların %29, pratisyenlerin oranı da %29'dur. Hekimlerin klinik görünümün değişkenlik gösterdiğini doğru bilme oranı %68'dir. İçeriklerinin değişken olduğu konusunda fikri olmayan hekim oranı %44'tür olup "Adli vaka" olarak bildirmenin gerekli olduğunu %80 hekim bilmektedir.

**Tartışma:** Sentetik kannabinoid içeren maddelerin kullanımında görülen hızlı artış nedeniyle hekimlerin bu maddeler ve özellikleri konusunda bilgilerinin artırılması gerektiği düşünülmektedir.

**Anahtar Kelimeler:** Madde Bağımlılığı; Hastane Acil Servis; Adli Tıp.

## INTRODUCTION

After the discovery of the cannabinoid receptors in the 1980s, many medical cannabinoid receptor agonists have been produced (1). Apart from its medical use, the abuse of this substance has growingly increased especially among adolescents (1, 2). These substances which include synthetic cannabinoids (SC) and have been the subject of substance abuse are known as "Spice" in Europe, "C2" in the US, and "Bonzai" or "Jamaica" in Turkey (1). Different combinations that change from brand to brand and according to various series make it difficult to predict the clinical effects (3).

In this study, we aimed to evaluate the awareness of emergency department physicians, who are the most

likely physician group to come across people using SC-containing substances (Bonzai and the like), on several topics concerning the clinical appearance related to SC-based substances and use of such substances.

## MATERIALS and METHODS

We started the study after getting the approval of the Clinical Research Ethics Committee, School of Medicine, Eskişehir Osmangazi University. The physicians taking part in the survey were informed verbally and through email. 100 physicians who work in emergency services were given a 14-question questionnaire without any scales but answer options of "Yes," "No," and "No idea." The questionnaires were given either face to face or via e-mail. The data obtained were evaluated on PASW Statistics 18 statistical software package.

## RESULTS

The average age of physicians included in the study was  $34,5 \pm 6,8$ , the youngest being 24 and the eldest being 56. The distribution of practitioners according to gender is shown in Table 1. The average work experience of the emergency room physicians was  $6,4 \pm 5,2$ . The academic titles of the physicians enrolled in the study are shown in Figure 1.



Figure 1. Distribution of physicians according to their titles.

Table 1. Distribution of physicians according to gender.

Gender	%
Male	63
Female	37
Total	100

Table 2. Answers provided for the questionnaire.

QUESTIONS	Yes (%)	No (%)	No idea (%)
that they contain cannabis	30	48	22
that these substances are available on the market since the beginning of the 2000s	60	9	31
that their structure is not clearly known in terms of dosage and ingredients	44	21	34
that they are produced by adding on vegetative contents	57	18	25
that they have the same combinations as those already on the market	8	46	46
that they cause changes in clinical presentation	68	11	21
that they bring about decreased psychomotor activity in acute intoxications	41	35	24
that tachycardia was the most common symptom	63	7	30
that they cause increase in hallucinations and dreams	57	11	32
that they do not cause tolerance or withdrawal because they contain organic substances	4	51	45
that their metabolisms is not clearly known	40	14	46
that they can all be detected in routine blood, urine and other related tests	17	48	35
that it is difficult to analyse contents and variables	39	17	44
that it is in physicians' power to report these cases as forensic cases	11	80	9

There was no significant difference between the titles of the physicians (specialist, general practitioner, or research assistant) in terms of the answers they gave to the question whether clinical manifestations vary in people who use these drugs ( $p=0,076$ ;  $p>0,05$ ). Having agreed that clinical presentation of these patients vary, the majority of physicians in all three groups gave the correct answer to this question.

Physicians' replies to the questions (as "Yes," "No," and No idea") are presented in Table 2.

For the question investigating if the substances at hand contained cannabis, 30% of the physicians answered that they did while 48% said that they did not; the remaining 22% stated that they did not have any idea. A selection of the answers given is provided below: whether these substances have been on the market since beginning of the millennium: 60% of the physicians answered "Yes" while 31% selected "No;" whether they had a clear idea about the dosage and content of these substances: 44% answered "No" while 21% said "Yes" and 34% claimed that they had no idea; whether these substances were prepared by adding to certain vegetable content: 57% answered "Yes" while quarter of the physicians claimed that they did not have any idea; whether SCs on the market had the same contents as the medical ones: 8% answered "Yes," 46% thought they had different combinations, and the remaining 46% said that they had no idea; whether SC-based clinical pictures vary: 68% answered "Yes" while 21% selected "No idea;" whether there is a decreases in the psychomotor activities in the acute period: 41% answered "Yes" while 24% had no idea; whether tachycardia was among the most common effects: 63% selected "Yes" while 30% had no idea; whether hallucinations lead to suicide: 57% answered affirmatively while 32% selected "No idea;" whether these drugs lead to tolerance and withdrawal: 4% answered "Yes" while 51% selected "No;" whether the metabolism of these drugs are known: 40% answered "Yes;" whether all these drugs can be observed in laboratory environment: 17% answered "Yes" while 48% answered "No;" whether the substances hinder urine analysis: 39% selected "Yes;" whether physicians have the initiative to report SC users as criminal cases: 80% answered "No."

There was no significant difference among doctors in their response to the question whether these substances can be detected in the common blood, urine, and relevant other tests ( $p=0,673$ ;  $p>0,05$ ). It has been found that, having selected "No idea," specialists, research assistants, and practitioners have insufficient information about the matter. It was also discovered that 27% of general practitioners gave the incorrect answer to the

question whether people using aforementioned substances should be reported as "criminal cases." There was no significant difference between experts, research assistants, or practitioners in terms of the answers they gave to this question ( $p=0,076$ ;  $p>0,05$ ). It was clear that all three group of doctors were not well-informed about the metabolism of these substances.

## DISCUSSIONS

SCs have been available on the market since 2004. Considering the possibility that people using these substances will first present at the emergency services, we included 100 doctors working in several emergency services. 58% of these physicians were general practitioners or emergency service experts while the remaining 42% were made up of research assistants. In a similar study conducted among 73 physicians by Lanka et al., 64% of the physicians were resident physicians (physician assistants) (4).

These substances are made ready for use by spraying onto vegetable contents (1, 2, 5, 6). 25% of the physicians who participated in the study claimed that they had no idea about this fact. This percentage is lower than Lanka et al.'s study investigating if physicians were aware that these substances were synthetic drugs (4). Chronic use of these drugs leads to psychiatric symptoms in addition to dependence and withdrawal syndrome (1, 6). In acute intoxication, unlike cannabis, stimulant and sympathomimetic effects are more common (1, 7). The most common physical effect is tachycardia (8). Additional studies have shown that, apart from tachycardia, tachypnea, hypertension, mydriasis, agitation, and cerebellar symptoms are also among common symptoms (9-11). Having observed that 30% of the physicians who participated in our study did not have any idea about this matter, physicians working in emergency services should be more knowledgeable about the common physical effects of these substances.

Different combinations and heterogeneous structures due to the differences between brands and series introduced to the market cause complex clinical effects and make them difficult to diagnose (3,12). Hallucination and dream related suicides due to use of these drugs have been reported (1, 12). Similarly, studies have shown that panic, anxiety, and paranoia are among the most common symptoms arising after use of these substances (13); agitation, psychosis, hallucinations, and state of delusions state have also been reported (6, 9, 14-16). Lanka et al.'s study reports that 47% of physicians noted that they did not expect effects like anxiety, sedation, and psychosis (4). This rate was similar to the rate of answers given about suicide cases by the physicians who took part in our study.

This study has shown that 40% of physicians were accurately informed about the fact that the metabolism of SCs in the human body, are yet fully unknown. Due to their unknown metabolism and new analogues constantly introduced to the market, it is difficult to identify these substances (3). Although some of these

substances can be determined in laboratory tests, not all chemicals used in these drugs can be identified (1). It was observed that 17% of the physicians participating in the study shared the misperception that all of these substances can be determined in current blood, urine, and related tests. However, the Ministry of Health has declared in only 2014 that state hospitals cannot yet apply strict routine screening tests concerning SCs (12).

20% of the physicians in our study were found to be inaccurately informed about reporting people using such drugs as criminal cases. Turkish penal law, Article 191, dictates that use of such drugs is a crime while Article 280 clearly states that health professionals will be punished with imprisonment if they do not report or delay reporting people using drugs despite the presence of indication of drug use they may come across on duty (17). Furthermore, in cases identified as having legal nature, legal notice obligation is carried out by the delivery of general forensic examination forms to authorised personnel. If police officers are not available in the emergency room, practitioners are expected to report to police headquarters, gendarmerie, or the public prosecutor; more to the point, notification statements made by phone should be recorded (18, 19).

Due to the differences in the clinical presentation and negative test results of patients using these drugs as well as rapid popularity of SCs among young people, physicians should be informed about SC abuse and the properties of these substances.

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