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A cannabis reader: global issues and local experiences

Perspectives on cannabis controversies, treatment and regulation in Europe

8 VOLUME II

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Chapter 15
Has treatment demand for cannabis-related disorders increased in Germany?

Keywords: cannabis – epidemiology – Germany – treatment – treatment demand

Setting the context

In Europe around 65 000 treatment demands were reported in 2005 where cannabis was cited as the primary reason for entering treatment ([1]). Cannabis use is the primary reason for entering drug treatment in about 20 % of all cases and 29 % of new treatment demands, making it the next most commonly reported drug in European treatment centres, after heroin. There are interesting variations between countries, with cannabis being cited by less than 5 % of all clients reported as entering treatment in Bulgaria, Lithuania, Poland and Romania and by more than 30 % in Hungary and France. For the remaining countries, in 12 European countries, the proportion of cannabis clients is between 5 and 20 % and in seven it is between 21 and 29 % (EMCDDA, 2007).

What has fuelled anxiety among policymakers is not that treatment demands are unmanageable. A figure of 65 000 treatment demands is a relatively small proportion of current cannabis users (13.4 million last month cannabis users in Europe), amounting to less than one in every 200 last month cannabis users. Moreover, the risk of entering treatment would seem to increase as cannabis use becomes more intensive. Cannabis clients in treatment in Europe can be divided into three groups: those who use it occasionally (34 %), those using it once to several times a week (27 %) and those using it daily (39 %). On a more general level, the 65 000 cannabis treatment demands may be compared with the 130 000 treatment demands for opioid use, from an estimated population of 1.3–1.7 million problem drug users in Europe: a demand rate of approximately 1 in 10. Additionally, given the resource-intensive treatment required by opioid clients, as opposed to the outpatient/short intervention norm for cannabis (see Rödner Sznitman, this monograph), it is clear that drug treatment should reflect the proportional risks of different licit and illicit substances.

([1]) Source: EMCDDA Statistical Bulletin 2007. Data available from 21 countries.

That said, a worrying trend is that, between 1999 and 2005, the total numbers of both new and all reported cannabis treatment demands in Europe have approximately trebled. And while the most recent data suggest that this trend may be stabilising in some countries, the fact remains that an increasing number of cannabis clients are entering drug treatment services. While cannabis-specific treatment options are available in Europe today, many drug treatment services have been developed to target 'problem drug users'; that is, those injecting opioids or reporting long-term dependence with amphetamines, crack and cocaine. The surge in demand for cannabis treatment thus implies a need to develop or adapt existing services towards cannabis client profiles (see Montanari, Griffiths and Taylor, this monograph).

The rise in treatment demands is not easy to explain on a European level. Nonetheless, some countries have sought to examine, and re-examine, the nature of cannabis treatment demand in more detail. One of these countries is Germany. This chapter suggests that the reported 500 % increase in cannabis treatment demand between 1992 and 2003 in Germany reflects a genuine increase in clinically diagnosable cases of cannabis use disorders. Alternative hypotheses to explain a rise in treatment demand — which might have included changing drug policy priorities, misdiagnosis, 'coercion' into treatment via referrals, new reporting mechanisms and data collection — were not considered significant. The chapter also reveals the type of problems experienced by those in treatment for cannabis problems in Germany.

Such a far-reaching 'revisit' of treatment demand data is useful for building a clearer picture of treatment populations, for validating results, for challenging assumptions and for checking the quality of data. One cause for optimism is that such 'deep', secondary analyses of treatment demand are increasingly common across Europe, enabling higher responsiveness to changing drug consumption patterns, both for cannabis and other drugs.

Further reading

EELDA (2006–2007), EELDA cannabis treatment section, evidence-based electronic library for drugs and addiction http://en.eelda.org/index.aspx?o=1028

Elliott, L., Orr, L., Watson, L. and Jackson, A. (2002), *Drug treatment services for young people: a systematic review of effectiveness and the legal framework*, Effective Interventions Unit, Scottish Executive Drug Misuse Research Programme, Edinburgh.

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Mental Health Council of Australia (2006), 'Preventing and treating co-occurring cannabis abuse and mental illness', Chapter 7 in *Where there's smoke… Cannabis and Mental Health*, Mental Health Council of Australia, Deakin.

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Steinberg, K. L., Roffman, R. A., Carroll, K. M., Kabela, E., Kadden, R., Miller, M., Duresky, D. and the Marijuana Treatment Project Research Group. (2002), 'Tailoring cannabis dependence treatment for a diverse population', *Addiction* 97(1): 135–142.

See also the grey literature list in the Appendix to Volume 1 of this monograph.

Has treatment demand for cannabis-related disorders increased in Germany?

Roland Simon and Ludwig Kraus

Summary

First indications in Germany suggested an increase in treatment demand for primary cannabis-related problems. These led the German National Addiction Aid Statistics (DSHS) and a research study (CARED) to analyse treatment demands. The results showed an increase of roughly 500 % in treatment admissions in outpatient treatment for this group in Germany between 1992 and 2003. Three-quarters of these cases fulfilled the clinical criteria of a cannabis-related disorder as defined by ICD-10 (F12.1, F12.2x). The remaining cases did not reach this level of clinical significance, but might indicate minor cannabis-related problems. Where multiple diagnoses exist, no indication was found that cannabis was assigned as primary drug incorrectly. As the increase in treatment admissions was similar for most types of referrals, changes in treatment admissions were very likely not caused by changing treatment availability or external pressure but by a genuine increase in treatment need. While last year prevalence of cannabis use increased considerably in the population between 1992 and 2003, treatment admissions in outpatient centres grew even faster, and it will be necessary to adapt the treatment system in Germany to this increasing group of clients.

Introduction

While for decades cannabis use has not been perceived as a problem by many addiction therapists and researchers, recent results from basic research as well as from clinical and social epidemiology support a more cautious position, which assumes a higher risk potential of cannabis, at least for some subgroups of users (Hall and Solowij, 1997; INSERM 2001; Witton, this monograph, vol. 2). Hall, Degenhardt and Teesson (2004), for example, reported that while there is no support for the hypothesis that cannabis causes psychotic disorders, there is evidence that cannabis use can precipitate schizophrenia and that cannabis use exacerbates psychoses. Patton et al. (2002) found a fourfold increase in the risk of depression and anxiety disorders among girls using cannabis on a daily basis.

First indications that outpatient treatment demands for primary cannabis-related problems might increase were reported by the German National Addiction Aid Statistics

(DSHS) in 2000 (Welsch, 2001). An increase in treatment demand could reflect the parallel rise in treatment need resulting from an increase in cannabis use as reported by population surveys (Kraus, Augustin and Orth, 2005). It is well known that drug treatment in Germany primarily focuses on injecting heroin users. Changes in treatment needs for cannabis-related problems would, therefore, require modifications in the type and organisation of treatment services provided. Increases in treatment demands within this group would also have implications for cannabis policy.

A number of possible factors that may have influenced treatment statistics were analysed to validate the assumption of a genuine and not artificial increase in treatment demand for cannabis-related disorders in outpatient care. The data analysed were derived from the DSHS, results from a recent epidemiological survey (Kraus and Augustin, 2005) and from a study on cannabis-related disorders (CARED), conducted between 2001 and 2004 (Simon et al., 2004). Artificial effects might have arisen from invalid diagnoses assigned by therapists in their daily work. As most of the staff have social work or psychology as a professional background, but no medical training, incorrect diagnoses might be assigned to clients. Other external factors might have explained the increase in treatment demand, such as increases in availability or accessibility of treatment, or increased judicial referrals into treatment. The main questions to be addressed were:

- Had there been an increase in treatment demand for primary cannabis-related problems?
- Were diagnoses for cannabis-related problems valid?
- Were there other external or confounding factors that could have caused the observed increase?
- How was the increase in treatment demand related to drug use trends in the population?

Methodology

German Addiction Aid Statistics (DSHS)

In Germany, national monitoring of drug treatment is based on the German core item set (Kerndatensatz, referred to below as 'KDS'). Within the 'client and treatment' module, the complete set of items from the EMCDDA's treatment demand indicator (TDI) protocol are used (EMCDDA, 2000). Drug use is assessed on the basis of ICD-10 criteria (WHO, 1994). Under the KDS, diagnoses can be made for each psychoactive substance (ICD-10, F10–F18), provided the criteria of harmful use or dependence syndrome are fulfilled. In case of multiple diagnoses the diagnosis related to the drug that causes the most severe problems ('primary drug') is selected as the 'main diagnosis'. The choice of diagnosis must be based on the intensity and frequency of use of the drug as well as on its negative consequences. Full operationalisation of such classifications, however, is

not part of the KDS standards. In addition, for the classification of clients the code F19.x (multiple drug use) was generally avoided in the German monitoring system when the study took place.

Aggregate data from the treatment centres are collected on an annual basis and were reported by the German Addiction Aid Statistics (DSHS) for the years 2001 to 2003 (Welsch, 2002; Welsch and Sonntag, 2003, 2004), while EBIS statistics were reported for the years before 1999 (e.g. Türk and Welsch, 2000). Analysis started in 1992 because changes in classification of disorders and substances were introduced in that year. In addition, data from the new Länder [2] of the former German Democratic Republic were included in the common statistics from 1992 onwards, making comparisons with data from earlier years impossible.

The CARED study

The study on cannabis-related disorders (CARED) was conducted in a random sample of 52 outpatient treatment centres participating in the DSHS. All of them used a common technical system for data collection (EBIS). All clients ($n = 223$), who had been treated in these centres during the year 2001 and who fulfilled the criteria of a 'cannabis client' (referred to below as 'CC'), were included in a paper-based retrospective survey. Inclusion criteria were:

1 A diagnosis of 'harmful use' or 'dependence syndrome' related to cannabis (ICD-10, F12.1 or F12.2) provided by the DSHS
2 Cannabis being the only or the primary drug ('main diagnosis').

A second group ($n = 51$) of 'cannabis clients' (CCs), who had been in treatment between December 2002 and October 2003 in the same units, was assessed during treatment using a computer-based clinical interview. Diagnoses were based on ICD-10 and DSM-IV as assessed by DIA-X (Wittchen and Pfister, 1997). The participation rate in the first group was 40 %. For the second group a rate could not be calculated as the total number of cannabis clients in treatment during this time period had not been reported by the treatment facilities. As part of the CARED study, therapists ($n = 183$) from the participating centres were also asked in a questionnaire about details of the process of assigning diagnoses and their experience with cannabis clients.

[2] Germany is divided into 16 federal states, or *Bundesländer*. The six Länder of the former East Germany that joined in 1990 are Berlin, Brandenburg, Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt and Thüringen.

Results

Increase in treatment admissions

The absolute number of clients starting outpatient treatment with a primary cannabis-related problem (CCs) was examined for the years 1992–2003, as well as the proportion of this group among the total group of clients. In 2003, 699 treatment centres reported main diagnoses for 106 816 clients to the national treatment monitoring system (DSHS), of whom 10 169 or 9.5% were diagnosed as CCs. This group comes third behind alcohol (59.6%) and opiates (19.8%). The absolute number of CCs increased over this 12-year period and the proportion within the treated clients reached 9.5%, starting at only 2.1% in 1992 (Table 1).

Participation in the DSHS being voluntary, the number of reporting facilities varied over time, ranging from 170 in 1992 to 699 in 2003. In order to make absolute numbers of cases comparable between reporting years, the number of clients reported was extrapolated to the total number of 1 049 outpatient treatment centres in Germany as reported for 2001 (Bundesministerium für Gesundheit, 2002) ([3]).

The estimated total numbers of admissions for all outpatient treatment centres in Germany show an increase in CCs of nearly 600% between 1992 ($n = 2\,561$) and 2003 ($n = 15\,261$). A breakdown by gender, which was possible for the years 1999–2003, indicates similar developments for male and female clients. The proportion of women among CCs increased slightly from 16.8% in 1999 to 18% in 2003 (Figure 1). Thus, between 1992 and 2003 a clear increase in total treatment admissions was found in Germany for clients with a primary cannabis-related problem.

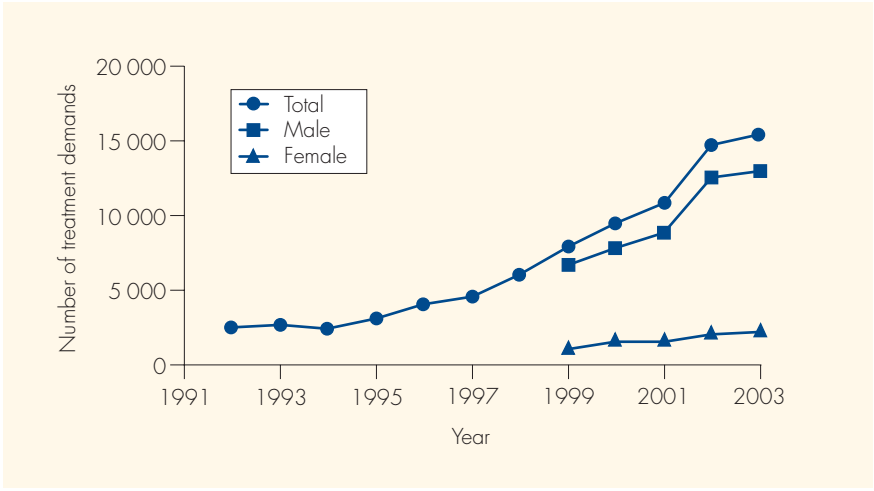
([3]) Two limitations need to be mentioned with regard to the calculations. The total number of facilities only includes units which are financially supported by the Länder, which results in an underestimation of total demand for Germany as a whole. The majority of units in Germany, however, are funded by the Länder (Welsch and Sonntag, 2004) and, thus, the resulting total should not be significantly below the real number of CCs. In the same way, using the number of units for 2001 as an estimated total, as opposed to the annual figures, might cause errors. Exact data were available only for the years 1996–2003. Inspection of this period shows no major trend in number of reporting units and, apart from the year 2002, the totals range between 951 and 1 049 units. No general legal or financial changes took place during this period that might have changed the number of treatment units. Given all these facts, the number of facilities in 2001 may serve as a proxy for this calculation.

Table 1: Number and proportion of cannabis clients within outpatient treatment: admissions 1992–2003 reported by participating centres

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total number	19980	34344	49577	57712	57252	58642	64201	65910	57621	51842	73897	106816
Cannabis clients												
Number	415	709	1028	1368	1281	1977	2623	3343	3625	3700	6368	10169
%	2.1	2.1	2.1	2.4	2.2	3.4	4.1	5.1	6.3	7.1	8.6	9,5
Number of reporting centres	170	282	396	459	432	435	461	446	401	368	454	699

Sources: EBIS reports 1994–2001 (Türk and Welsch, 2000); German Addiction Aid Statistics (Welsch, 2001, 2002; Welsch and Sonntag, 2003, 2004).

Figure 1: Admissions of clients with primary cannabis-related problems in German outpatient treatment centres, 1992 to 2003



Source: EBIS reports 1994–2001 (Türk and Welsch, 2000); German Addiction Aid Statistics (Welsch, 2001, 2002; Welsch and Sonntag, 2003, 2004).

Validity of diagnoses

Diagnosis according to ICD-10

The validity of the observed trend in treatment admissions strongly depends on the quality of diagnoses based on the DSHS. This system requires an ICD-10-based classification of substance-related disorders. As part of the CARED study the diagnoses assigned by the treatment centres' staff were validated by comparing them to diagnoses reassessed by standard instruments (CIDI, DIA-X). For this purpose, questionnaires ($n = 223$) and clinical computerised interviews ($n = 51$) were conducted and diagnoses assigned in compliance with the ICD-10 criteria.

In validation studies the results of a diagnostic instrument (test) are generally compared with an observed outcome (e.g. disease). Presented in a two-by-two table, results can be assessed for (i) correct classifications, that is, cases that were correctly identified to have or not to have the disease, and (ii) incorrect classifications, that is, cases that were incorrectly classified by the test instrument as having the disease (false positives) and those cases that were incorrectly classified as not having the disease (false negatives). In this validation, the test instrument was defined as the 'gold standard' (i.e. for ascertaining the presence or absence of cannabis-related disorders) and the diagnoses selected by the treatment centres as the instrument to be validated. Since the monitoring

system only reports positive cases of CCs, the resulting validation is incomplete: only those cases can be observed that were correctly or incorrectly (false positives) classified by therapists as having the disease (cannabis-related disorder). Self-evidently, the cases that were correctly or incorrectly (false negatives) classified by the therapists as not having a cannabis-related disorder were not observable.

Table 2 shows the results of the validation analysis. Overall, 25.6% of the clients were classified as not having a diagnosis of either harmful use or dependence if assessed by interview. Looking at the results from the opposite direction, 74.4% of the cases were found to fulfil criteria of a clinical diagnosis.

Compared with the original diagnoses of dependence, where 62.5% of the diagnoses were consistent, assessments were less in accordance with ICD-10 criteria if the client had received the diagnosis 'harmful use' (14.3%). Clients with an original diagnosis of 'harmful use' received more frequently a diagnosis of 'dependence' than a diagnosis of 'harmful use' (42.9%). Overall, distinguishing between 'dependence' and 'harmful use' in standard diagnostics is much less reliable than the general decision, whether CCs meet clinical criteria or not. On the whole, this might partly be a result of problems with the two-dimensional concept of 'abuse' or 'harmful use' and 'dependence' (Fulkerson et al., 1999).

For more than 74% of the CCs, validation showed that clinical criteria with respect to cannabis were fulfilled, and either 'harmful use' (F12.1) or 'dependence syndrome' (F12.2x) was the resulting diagnosis. Up to one-quarter of the CCs reported by outpatient treatment centres might have cannabis-related problems that are below clinical relevance. Discriminating between 'harmful use' and 'dependence', however, does not work well in practice, a problem that can be attributed, at least to some degree, to the intrinsic weakness of the concepts themselves.

Table 2: Diagnoses in standard monitoring of treatment centres compared to diagnoses based on questionnaires or clinical interviews (ICD-10)

	No diagnoses (%)	Harmful use ICD-10 (%)	Dependence ICD-10 (%)
Validation diagnoses based on			
Questionnaire ($n = 136$)	14.1	17.0	69.6
Interview ($n = 39$)	25.6	15.4	59.0

Source: Simon et al. (2004).

Main diagnosis and other psychoactive substances

CCs classified with a cannabis-related diagnosis need not only fulfil ICD-10 criteria. Cannabis should also be the *main* substance in cases where other substance-related diagnoses are present, and the possibility that cannabis is used as a 'label' for clients with other problems should be ruled out. In order to examine this question, the validation analysed the prevalence of other substance-related diagnoses in the group of CCs, and the criteria used to determine the main diagnosis.

This analysis of multiple diagnoses of primary cannabis clients revealed that no other substance-related disorders were found in almost two-thirds of the clients. A combination of cannabis- and alcohol-related disorders was found in 21.2% of clients. While in most cases alcohol was involved, disorders related to stimulants without alcohol problems accounted for roughly 16% of multiple diagnoses (Table 3).

Therapists reported that the decision about the main diagnosis was based on the consequences (65.7%), patterns (59.3%) and frequency of cannabis use (41.3%). This is in line with the criteria that are also defined in the KDS for this classification. As no exact algorithm has been defined by the standards, validation cannot go beyond this basic check.

A considerable number of CCs (nearly two out of three) showed an exclusive cannabis-related diagnosis. The substance which plays the most important role after cannabis in the group of CCs is alcohol. It is not very likely that a cannabis-related diagnosis is used to hide alcohol problems. In the diagnostic process, therapists apply criteria as defined by ICD-10 and the national KDS. Thus, the classification of cannabis as a

Table 3: Multiple diagnoses amongst cannabis clients (tobacco-related diagnoses excluded)

	Questionnaire based ($n = 184$)	Interview based ($n = 33$)
Substance-related diagnoses	%	%
Cannabis only	33.7	63.6
+ alcohol	15.2	21.2
+ amphetamines/ecstasy	12.0	6.1
+ cocaine	3.8	0.0
+ alcohol + amphetamines/ecstasy	7.6	6.1
+ alcohol + cocaine	2.2	3.0
+ alcohol + amphetamines/ecstasy + cocaine	8.2	0.0
Other combinations	17.4	0.0

Source: Simon et al. (2004).

main substance seems to be based on empirical evidence and appropriate procedures. While single cases of misclassifications may be possible, CCs may not be judged as mislabelled in relation to other psychoactive substances.

Main diagnosis and other mental disorders

The same type of misclassification as discussed for substance-related diagnoses could also take place in relation to non substance-related mental disorders. In such cases, the main problem of the clients in treatment might for example be psychosis, while cannabis problems might be only marginal. In order to analyse this question, prevalence of such diagnoses amongst CCs, as well as the correlation between disorders and the severity of cannabis-related disorders was analysed. Data are sourced from the clinical interviews of the CARED study which assessed a number of mental disorders (last 12 months) which are well known to be correlated with cannabis consumption (Hall and Solowij, 1997).

For CCs a number of such disorders was found. Close to 40 % showed mood disorders, most often dysthymia (17.3 %). More than one-third of the clients showed phobic disorders, and one out of eight showed anxiety disorders. There was a high rate of social phobia (17.3 %) and nearly 11 % of the clients suffered from psychotic disorders. Diagnoses F06.X were exclusively based on organic factors, including acute effects of drugs (Wittchen and Pfister, 1997). The majority of psychotic disorders and about one-third of the anxiety disorders and affective disorders were, therefore, more closely linked to drug use and may have been only of a short-term nature (Table 4).

Besides psychotic disorders, all diagnoses showed a high correlation with the severity of the cannabis diagnosis. Only a few cases of 'phobia' and 'mood disorder' were found where a cannabis-related diagnosis could not be validated. For these cases the basic problem might not be a cannabis-related disorder but another psychiatric problem (Table 5).

There is considerable prevalence of other psychiatric disorders amongst clients, which reflects a close relationship between cannabis use and psychiatric comorbidity found elsewhere (Hall and Solowij, 1997). As the majority of cases are linked to a validated classification of 'cannabis dependence', no misclassification arises from this, but rather these cases show additional problems which need to be taken into account and treated for this group of clients.

Table 4: Other mental disorders according to DSM-IV (clinical interview, $n = 51$)

Group of disorders	DSM-IV code	Diagnoses	%
Psychotic disorders			10.9
	F06.0	Psychotic disorder with hallucination	4.3
	F06.2	Psychotic disorders with delusion	7.8
	F23	Short psychotic disorders	2.2
Mood disorders/depression			39.1
	F06.32	Affective disorders with characteristics of depression	10.9
	F32.x	MDD, single episode	4.4
	F33.x	MDD, multiple episodes	13.0
	F34.1	Dysthymia	17.3
Anxiety disorders			15.2
	F06.4	Anxiety disorder	4.3
	F06.42	Panic attacks	10.9
	F41.0	Panic attacks without agoraphobia	2.2
	F41.1	Generalised anxiety disorder	0.0
Phobia			37.0
	F40.0	Agoraphobia without panic attacks	10.9
	F40.01	Panic disorders with agoraphobia	13.0
	F40.1	Social phobia	17.3
	F40.21	Animal phobia	6.5
	F40.22	Environmental phobia	6.5
	F40.23	Blood phobia	6.5
	F40.24	Specific phobia	4.3

Source: Simon et al., 2004.

Table 5: Groups of other mental disorders (DSM-IV) and cannabis diagnosis (ICD-10) (clinical interview, $n = 46$)

		Cannabis-related diagnoses		
Disorders (DSM-IV)	Total (%)	None (%)	Harmful use (%)	Dependence (%)
Psychotic disorders	10.9		16.7	14.8
Mood disorders	39.1	7.7	33.3	55.6
Anxiety disorders	15.2			25.9
Phobia	37.0	23.1		51.9

Source: Simon et al. (2004).

Other factors

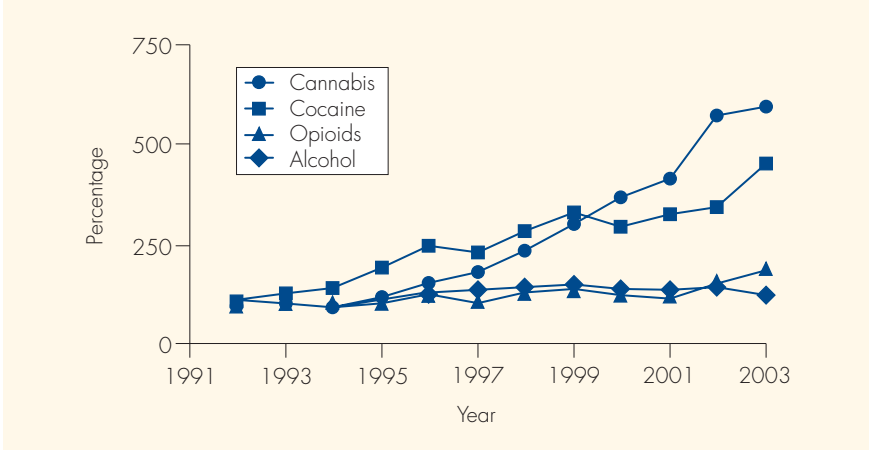
Two external factors were discussed, which might have influenced the increase in CCs: one relates to a general increase in treatment admissions, the other to changes in referral procedures.

Overall increases in treatment admissions

Possible explanations for the increase in cannabis-related treatment admissions could be an overall improvement in (i) treatment availability; (ii) accessibility; or (iii) quality of services provided. For the years under inspection no general changes in drug policy, treatment standards or funding conditions could be observed in Germany, which may have increased the availability of or accessibility to treatment for drug users. So, the increase in cannabis-related treatment admissions cannot be attributed to these external factors.

This position is supported by data on treatment admissions for other substance-related disorders involving other drugs. A general positive shift in treatment quality or availability would most likely have increased the number of clients for all different substances alike. However, as shown in Figure 2, relative to the year 1992, the number of cannabis clients in 2003 increased sixfold, the number of clients with stimulants-related problems more than fourfold, while the number of clients with alcohol- and opioid-related problems — the main focus of treatment services up to that time — only showed a slight increase.

Figure 2: Client admissions in outpatient treatment by main drug, 1992 to 2003 (1992 = 100%)



Source: EBIS reports 1994–2001 (Türk and Welsch, 2000); German Addiction Aid Statistics (Welsch, 2001, 2002; Welsch and Sonntag, 2003, 2004).

This clear increase found for CCs clearly exceeds the general trend for total treatment admissions and exceeds all other substances besides ecstasy. Apart from the fact that the absolute numbers of ecstasy-related disorders are still small, ecstasy was frequently miscoded by the treatment centres under 'other substances', which might have inflated the rates artificially. This means that there is no indication of a general increase in treatment availability. Staff measured in full-time staff member equivalents between 1996 and 2003 only increased by 1.2%, which also makes it clear that treatment availability did not change dramatically during the reporting period.

Changes in referral procedures

An increase in treatment admissions might also be the consequence of changes in referral procedures. If, for example, the Narcotic Drugs Act was enforced more rigorously than before, treatment admissions would rise without any changes taking place in the underlying medical or psychological treatment needs in the population. In order to examine this type of effect, data on treatment referrals from the years 1998 to 2003 were examined.

In 2003 more than 70% of all clients entered treatment through three main pathways: 20% were 'internally motivated' (self-motivated) and came directly to the treatment facilities; 25% were motivated by family or friends and 27% were referred through judicial or police authorities. While compared with 1998 the total number of cannabis clients in 2003 increased by 118%, the number of clients who came directly into treatment increased by 96%, referrals through justice or police by 109%. The biggest increase was due to referrals through other counselling services (Table 6).

Table 6: Access to outpatient treatment for cannabis clients

	Compared with 1998 (= 100%)				
Referrals into treatment	2000	2001	2002	2003	Referrals in 2003 (%)
No referrals/direct access	129	141	161	196	21.5
Relatives/friends	141	153	178	195	24.5
Job/school	118	151	175	214	6.4
GP/psychotherapist	127	158	195	195	3.4
Hospital	158	182	240	236	1.7
Inpatient addiction facility	141	86	166	244	1.9
Drug counselling	149	137	239	338	1.5
Other counselling services	296	412	514	514	8.8
Justice/social administration	105	114	196	209	26.3
Others	161	207	275	286	4.1

Sources: EBIS reports 1994–2001 (Türk and Welsch, 2000); German Addiction Aid Statistics (Welsch, 2001, 2002; Welsch and Sonntag, 2003, 2004).

The hypothesis that the increase in treatment admissions of CCs was caused to a large extent by increasing pressure from law enforcement and social administration is not supported by these data. Instead, treatment admissions have increased more or less at the same extent for a number of types of referring institutions. The biggest increase was found for referrals by other counselling services, which might indicate better networking that facilitated access to drug treatment for cannabis users though these channels.

Trends in treatment demand and prevalence of cannabis use in the population

Survey data indicate that the observed increase in treatment admissions for cannabis-related disorders was accompanied by a constant increase in the prevalence of cannabis use in the general population. Between 1992 (15%) and 2003 (33%), lifetime prevalence of cannabis use was found to have significantly increased by a factor of two. In the same time, last year prevalence (4% in 1992, 12% in 2003) increased by a factor of three (Kraus, Augustin and Orth, 2005).

Population estimates of recent users (last 12 months) aged 18–29 years derived from cross-sectional surveys in 1990/92, 1995/97, 2000 and 2003 were compared with the estimated number of cannabis clients for the respective years. Survey data for 1990 were taken as proxy for 1992. The number of recent cannabis users increased from 935 000 in 1992 up to 2 105 000 in 2003. In the same period the number of clients treated for cannabis-related problems within a 1-year reporting period (admissions plus takeover from the year before) increased from 4 353 to 25 485 cases. The ratio of recent users in contact with outpatient treatment did not remain constant but increased at a disproportional rate. While, in 1992, 4.7 clients per 1 000 recent users were admitted for treatment, in 2003 12.1 users had entered treatment (Table 7).

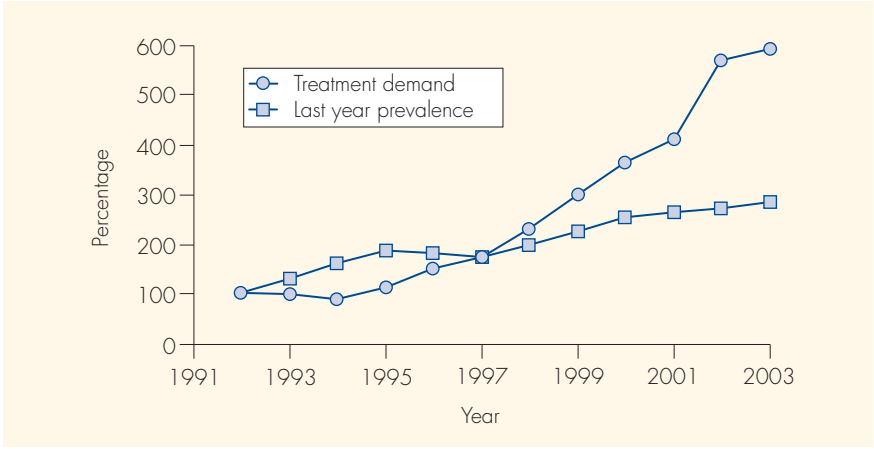
Another way of comparing trends of recent cannabis use and treatment admissions is shown in Figure 2. Normalising the numbers of cannabis users and treatment

Table 7: Estimated number of annual cannabis users and clients

	1992	1995	2000	2003
Cannabis users (12-month prevalence, 18–29 years)[a]	935 000[b]	1 590 000	1 918 000	2 105 000
Cannabis clients[c]	4 353	5 246	16 112	25 485
Number of clients per 1 000 users	4.7	3.3	8.4	12.1

[a] *Source*: Kraus, Augustin and Orth, 2005.
[b] 1990 survey.
[c] *Source*: EBIS reports 1994–2001 (Türk and Welsch, 2000); German Addiction Aid Statistics (Welsch, 2001, 2002; Welsch and Sonntag, 2003, 2004).

Figure 3: Prevalence of last year cannabis use and cannabis clients since 1992



Source: EBIS reports 1994–2001 (Türk and Welsch, 2000); German Addiction Aid Statistics (Welsch, 2001, 2002; Welsch and Sonntag, 2003, 2004).

admissions for the year 1992 to an index value of 100, the changes for the consecutive years can be presented as percentages relative to the year 1992. While treatment admissions increased by 500%, the prevalence of recent use increased by only 190% (Figure 3).

Both analyses show that the number of clients with primary cannabis-related problems in treatment (CCs) grew faster than the prevalence of recent cannabis use in the population. A direct comparison, however, is too simple a model, since a delay of 8 years on average between start of use and entering treatment needs to be considered (Strobl et al., 2007).

Conclusions

A clear increase in treatment admissions for primary cannabis-related disorders in outpatient treatment was found in Germany between 1992 and 2003. The number of cases increased roughly by 500%. Three-quarters of persons with cannabis-related diagnoses in the treatment statistics were diagnosed appropriately as cannabis-related disorders fulfilling clinical criteria. The remaining cases may have had cannabis-related problems, but did not reach the level of clinical significance. In cases where multiple diagnoses exist, information on the diagnostic process as well as prevalence of such diagnoses showed no indication that cannabis was assigned as main drug incorrectly. For logical reasons there is also no reason to call into question cannabis as main diagnosis for the majority of cases.

Other factors which might have influenced treatment admissions have not been analysed here. In particular, a change in the perception of risks linked to cannabis might have increased cannabis users' willingness to enrol in treatment. This, and other, hypotheses might be evaluated by future research. While in Germany and other countries cannabis-related problems were historically seen as minor and of limited relevance for public health, public debate in recent years has begun to take this topic more seriously. It will be necessary to find a new balance for a treatment system that was tailored in the past mainly to serve the needs of injecting users of heroin. In this respect, the outcome of the CARED study is in line with the results of a city-based evaluation of treatment services in Hamburg (FOGS, 2006) as well as a regional study on treatment provision in Munich (Perkonigg et al., 2004). Given the high and partly still rising prevalence of cannabis use in many European countries, this might become a problem for other countries as well (EMCDDA, 2005, 2007).

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