Axel Perkonig
Roselind Lieb
Hans-Ulrich Wittchen

Max Planck Institute of Psychiatry,
Clinical Psychology and Epidemiology
Unit, Munich, Germany

Substance Use, Abuse and Dependence in Germany

A Review of Selected Epidemiological Data

Key Words

Substance use, abuse
Nicotine
Alcohol
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Psychotropic medicines
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Abstract

To provide background information about previous findings about the prevalence of use, abuse and dependence of various substances (nicotine, alcohol, prescription and illicit drugs) findings of available epidemiological studies in Germany from the 1980s and 1990s are summarized and critically evaluated. Focusing on findings of substance use surveys in adolescents and young adults the review indicates: (a) a considerable number of large scale questionnaire surveys in general population samples documenting the frequency of use and patterns of use of most substances; (b) indications of increasing rates of drug use particularly in East Germany; (c) high rates of illicit drug use, mainly of cannabinoids, but also stimulants and hallucinogens, among young age groups. No data are available from substance use surveys or from clinical epidemiological studies allowing the determination of how frequent substance abuse and substance dependence diagnoses are in the general population or in adolescents and young adults. Priorities for future research to ameliorate this unsatisfactory situation are outlined with emphasis on research in adolescents and young adults.

Introduction

The primary objective of epidemiological surveys [1] is to determine morbidity and to describe morbidity according to place, time, and subjects characteristics. This paper reviews epidemiological studies conducted in the 1980s and 1990s in Germany with emphasis on studies that also provide prevalence estimates for adolescents and young adults. The review covers studies providing estimates of

substance disorders, such as diagnoses of alcohol abuse and dependence, as well as studies reporting data about the frequency of use of substances. We included studies published up to 1995 whose aim was to assess the prevalence of substance use in the West or East German population. Thus, we excluded the quite considerable number of cross-sectional and longitudinal studies focusing on risk factors and developmental patterns obtained in convenience or geographically not representative samples or those not using other key elements of epidemiological research [2, 3]. Before discussing the available findings in more detail some critical methodological issues should be addressed.

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Axel Perkonig
Max Planck Institute of Psychiatry
Clinical Psychology and Epidemiology Unit
Kraepelinstrasse 2, D-80804 München (Germany)
Tel. +49 89 30622 546, Fax +49 89 30622 544

Case Finding Methods

The basic requirement of any epidemiological study aside from using proper sampling and analysis is a clearly defined, reliable and valid case definition. Case definition refers to the way investigators measure the respective diagnostic features or classes under study. Diagnostic criteria and classes refer to either the use of the International Classification of Mental Disorders (such as the 10th revision of ICD-10, WHO 1991 [4]) or the Diagnostic and Statistical Manual of Mental Disorders (DSM-III, APA 1980 [5] or subsequent revisions, see chap. 3 for details). Both systems have undergone substantial revisions during the past decade, with increasing stringency of the respective explicit diagnostic criteria and diagnostic algorithms [6]. There are several ways in which a case definition and especially the assignment of a diagnosis can be made, each with its own specific advantages and disadvantages. Traditionally, the gold standard of epidemiological studies is the use of experienced clinical experts investigating the total population or representative samples thereof and assigning diagnoses based on a traditional clinical interview. In assigning diagnoses for the most severe forms of mental disorders, especially severe psychotic disorders, this approach evidently seems to be quite reliable and valid if need for service or treatment is the key issue to be studied. However, in the assessment of frequently less severe disorders, especially anxiety, somatoform, depressive and substance use disorders known to be prevalent in the general population, clinical expert ratings alone have been found to be quite unreliable, due to the lack of specific criteria and the variability in which clinicians make decisions. Furthermore, these types of epidemiological studies usually lack a detailed and reliable symptom assessment. A second, more reliable way in terms of diagnosis to study prevalence is the use of diagnostic or symptom checklists. After appropriate training, this approach ensures that the investigating clinician is reminded and forced throughout his clinical cross-examination to address and code all relevant topic areas. However, for most disorders this approach has been shown to provide not sufficiently high reliability estimates on the symptom level. This disadvantage of checklists can be corrected by using structured clinical diagnostic interviews that specify not only the way each symptom is assessed, but also the way in which the diagnosis is computed at the end of the interview. Examples for this type of interviews are the SCAN and the SCID discussed by Lachner et al. [1998, this issue]. Probably the most reliable and most appropriate epidemiological assessment tools for most mental disorders (except for psychotic and organic mental disorders)

are the standardized diagnostic interviews, such as the CIDI, the DIS or the AUDADIS. These instruments completely standardize the assessment in terms of questions, coding and the mostly computerized diagnostic analysis at the end. After appropriate training the high degree of standardization also allows the use of this type of interview by non-clinicians and allows direct comparisons across studies, regions, countries and cultures [7].

An alternative, frequently used survey strategy is questionnaires (see review by Freyberger and Stieglitz [8]). These questionnaires can either be personally administered, mailed or administered by telephone. They can be quite efficient in providing information relating to various aspects of morbidity, such as assessing quantity and frequency, attitudes and behaviors. However, they do not allow the reliable derivation of clinical diagnoses and syndromes, for example according to the criteria of ICD-10 or DSM-IV.

Epidemiological Studies on Substance Use and Abuse in Germany

Epidemiology research on substance use and disorders in Germany over the past two decades was primarily conducted by using questionnaire approaches assessing the frequency of substance use, its association with sociodemographic characteristics along with information about availability, patterns of use, motivations and attitudes. The primary aim of these descriptive representative surveys was to describe the frequency of drug and alcohol use and its determinants and has been expanded in the last few years into more comprehensive assessments covering medically prescribed drugs and health status variables as well as risks and complications [9]. In contrast to the wide variety of available questionnaire studies, only very few studies with significant limitations have been conducted by clinical experts or standardized diagnostic instruments to assess the prevalence of substance use disorders.

Findings from Questionnaire Surveys in General Population Samples Aged 18–59 Years

Numerous studies providing questionnaire data of the use of substances in general population samples are available, many of which are only available in the form of reports such as those by survey institutes, federal or state agencies (e.g. Infratest [10–13]; 1982, 1986, 1990, 1993, Institut für Jugendforschung, see Reuband [9]; Bundesministerium für Gesundheit BMG [14–16]), but not as peer-reviewed publications. As direct comparisons be-

Table 1. Methods and sample sizes of the BMG studies on substance use

Year	Methods	Region	Age range	Sample size	Completion rate
1986	mailed	West	12–29	5,501	63.7
1990	mailed	West	12–39	19,208	63.8
		East		2,424	65.4
1992	mailed	East	12–39	4,455	54.3
1994	telephone	West	18–59	2,027	78.3
		East		473	66.3
1995	mailed	West	18–59	6,292	64.8
		East		1,541	66.0

Table 2. Prevalence of use of illicit substances in East and West Germany [16]

	West, %			East, %		
	total	men	women	total	men	women
Total illicit drugs	14.6	19.3	9.9	4.0	6.0	2.0
Cannabinoids	13.9	18.4	9.4	3.6	5.8	1.4
Other illicit drugs	5.4	7.5	3.4	1.6	2.1	1.1
<i>By type of illicit drug</i>						
Cannabinoids	13.9	18.4	9.4	3.6	5.8	1.4
Stimulants	2.8	3.9	1.7	0.7	0.6	0.9
Ecstasy	1.6	2.4	0.7	0.7	1.3	0.1
LSD	2.1	2.8	1.2	0.3	0.4	0.2
Heroin	0.6	0.8	0.4	0.1	0.1	0.1
Methadon	0.3	0.4	0.1	0.0	0.0	0.0
Other opiates	1.2	1.7	0.7	0.2	0.4	0.0
Cocaine	2.2	3.2	1.2	0.2	0.3	0.1
Crack	0.2	0.4	0.1	0.1	0.1	0.0
Inhalants	0.9	1.2	0.6	0.4	0.7	0.1
<i>Any illicit drug by age group¹</i>						
18–20	24.8			14.2		
21–24	27.4			25.1		
25–29	25.5			4.5		
30–39	17.2			1.4		
40–49	10.7			1.2		
50–59	2.5			0.3		

¹ Data only available for the total population.

tween the studies are difficult because of the use of different instruments, we will discuss in more detail the findings of the largest available set of data, namely the federal commissioned surveys, focusing for the purpose of this supplement on the 1995 data [16]. This study is the fifth in a series of studies commissioned by the government

Table 3. Comparison of lifetime and 12-month use rates 1990 to 1995 [16]

	West, %			East, %		
	1990	1994	1995	1990	1994	1995
<i>Lifetime</i>						
Cannabinoids	16.7	18.9	21.0	1.0	4.3	6.4
Total illicit drugs	18.4	19.6	21.8	1.1	5.1	7.1
<i>12 months</i>						
Cannabinoids	4.9	4.4	8.8	0.7	1.5	3.5
Total illicit drugs	5.1	4.5	9.5	0.8	1.5	3.5

and conducted by various survey institutes (Infratest, Institut für Therapieforchung) since 1986 (table 1).

Illicit Drugs

In 1995, assessed by a mailed questionnaire, 19.3% of the male Western and 6% of the male Eastern German population aged 18–59 years reported that they had used illicit drugs at least once in their life. This suggests that illicit drug use is still considerably lower in East Germany. For women the rates were 9.9% (west) and 2% (east). As table 2 suggests, cannabinoids were found to be the most frequent type of substance used (lifetime use prevalence: West 13.9%, East 3.6%), followed by stimulating substances (cocaine and amphetamines) and hallucinogens. The prevalence of use of opiates is quite low with estimates of 0.3–1.2% in the Western and 0.1–0.2% in Eastern states. Rates for men are consistently and markedly higher than for women. Furthermore, younger age groups (18–29) report the use of illicit substances almost twice as frequently as subjects aged 30–59 years in both West and East Germany.

The 12-month rates of 1995 (percentage of users indicating the use of a substance within the past 12 months) are about one third lower in East compared to West Germany, the former also having about half the number of the lifetime rates. In almost 90% of all lifetime users drug use was limited to hashish/marijuana. A more detailed inquiry into patterns of use also suggest that there is considerable polydrug use, especially in those reporting the use of hard drugs and in those reporting regular use. In almost two thirds of lifetime users the substance was consumed only occasionally.

The comparison of lifetime and 12-month use rates for all illicit drugs and for cannabis in table 3 for 18- to 39-year-olds reveals that there is a slight and continuous

Table 4. Current average amount of alcohol used in grams of absolute ethanol (averaged over 30 days by quantity and frequency and alcohol content) [16]

Pure alcohol/day	Total		Age groups (West)					
	West	East	18–20	21–24	25–29	30–39	40–49	50–59
<i>Men</i>								
0	16.3	12.8	31.1	18.9	14.3	12.2	16.4	17.2
1–10	31.5	23.6	40.7	34.5	33.3	34.6	27.8	27.3
11–20	19.3	20.1	6.4	19.0	22.0	19.2	20.3	19.9
21–40	17.8	23.1	11.4	14.8	17.1	18.0	20.0	18.7
41–60	7.7	11.3	5.9	4.7	7.6	8.5	7.5	8.7
61+	7.4	9.2	4.5	8.1	5.7	7.4	8.0	8.2
<i>Women</i>								
0	30.0	20.8	38.1	32.5	30.4	26.5	29.6	30.9
1–10	49.2	53.9	48.8	51.6	49.8	54.7	44.5	46.8
11–20	10.8	14.7	4.1	10.3	9.7	9.4	13.3	12.4
21–40	6.5	7.2	6.2	4.0	8.0	6.0	8.0	5.8
41–60	2.1	2.1	2.3	1.6	1.3	1.9	3.1	2.1
61+	1.4	1.3	0.5	0.0	0.8	1.5	1.5	2.0
<i>Harmful use</i>								
Men (>40 g/day)	15.1	20.5	10.4	12.8	13.3	15.9	15.6	16.8
Women (>20 g/day)	10.0	10.6	9.0	5.6	10.1	9.4	12.6	9.9

increase in illicit rates in West Germany with a considerable increase in East Germany. This comparison should be made cautiously, however, because of the varying methodologies used (telephone versus mailed questionnaire, different questions and age groups, see Schumann and Kraus [17], the differing response rates as well as the obviously different sampling schemes and weighting procedures.

Although these surveys offer additional data about the motivations for starting, the discontinuation as well as the consequences of drug use and drug availability, these survey data unfortunately do not allow indications of prevalence estimates for abuse and dependence diagnoses according to international diagnostic classification systems.

Alcohol

The 1995 BMG survey offers detailed information about consumption patterns as well as estimates for harmful use of alcohol defined as an intake of at least 40 g pure alcohol for men and 20 g pure alcohol per day for women. Table 4 summarizes total rates (by gender) in East and West Germany as well as by age group for West Germany, for the amount of alcohol in terms of gram of pure alcohol consumed. These data are based on quantity and frequency descriptions of various types of alcohol over the past 30 days for which the absolute alcohol content is roughly known. The total over 30 days was averaged to represent daily consumption of gram absolute ethanol. Beer is by far

the most frequent beverage consumed, followed by wine and spirits.

Table 4 indicates a considerably lower alcohol consumption for women than for men, and slightly higher rates in East Germany. The prevalence of abstainers in West Germany (men: 16.3%; women: 30%) is higher than in East Germany (men: 12.8%; women 20.8%). Abstainer rates are highest among 18- to 20-year-olds and decrease overall, with some fluctuations, with increasing age. Harmful use of alcohol in terms of the average daily amount of alcohol consumed during the past month was 15.1% for men and 10.0% for women in West Germany. Rates for harmful use increased by age group from 10.4% (9.0% for women) among 18- to 20-year-olds to 16.8% (women: 9.9%) among 50- to 59-year-olds in West Germany.

Psychotropic Medicines

In 1994, 12.2% of the sample reported the intake of psychotropic medicines, either prescribed or not prescribed (e.g. sedatives, analgesics, sleeping pills, stimulants, appetite suppressants) with a frequency of at least once a week in the last month. The rates were similar for West (12.5%) and East Germany (11.2%). Women reported higher use rates than men. Consumption of psychotropic medicines increased with age, the highest rates being found in the 40-year-olds and over. In 1995, 16% (women: 19.3; men: 12.8%) of the respondents had con-

Fig. 1. One-month prevalence rates (%) of use of psychotropic medicines among adults in 1994 and 1995 [15, 16].

sumed psychotropic medicines at least once per week during the last month. As in the 1994 survey, women (19.3 and 19.4%) had higher rates of psychotropic medicine use than men (13.0 and 11.9%) (fig. 1). It is noteworthy, however, that among respondents aged 18–20 years, 11.4% of men and 10.7% of women in West Germany reported regular use of psychotropic medications with a similar frequency in the age group 21–24 years; however, a marked sex difference was apparent (men: 6.2%; women: 14.8%) that continued to be present among all higher age groups. No data are available about clinically significant abuse and dependence syndromes.

Tobacco

In 1995, 35.8% of respondents in West and 36.9% in East Germany described themselves as being smokers, 25.9% (West) and 23.1% (East) indicated having been smokers in the past and 38.3% (39.9% East) described themselves as having never smoked regularly. Figure 2 indicates that the 1995 current smoker prevalence rates are slightly higher than those for 1994, with a continuing sex difference.

Fig. 2. Prevalence rates (%) of nicotine use (current smokers) among adults in 1994 and 1995 [15, 16].

ter for Health Education (Bundeszentrale für gesundheitliche Aufklärung BZgA 1994 [18]) conducted a representative survey in 3,000 subjects in 1994. Table 5 briefly summarizes the core findings [18] that are by and large in agreement with the findings of the survey cited above. 58% of the respondents reported drinking beer, wine or spirits at least once during the past week. Consumption rates for men were considerably higher than those for women. It seems noteworthy, that in East Germany spirits and mixed drinks are more frequent than in West Germany. 26% of 14- to 24-year-olds indicated that they smoked regularly. The rates were slightly higher in West Germany (27 vs. 23%) and men were more frequently (29%) regular smokers than were women (23%). Eighteen percent of those aged 14–24 years reported the use of illicit drugs at least once in their lifetime. Women were less likely than men (12 vs. 23%) to have used illicit drugs. In West Germany the prevalence of lifetime use was more than three times higher (21%) than rates for East Germany (6%), with cannabinoids being by far the most frequently used type of illicit drug.

Results of Psychiatric Epidemiological Studies

Compared to other countries, in Germany only very few psychiatric epidemiological data from general population samples are available for the estimation of the prevalence of abuse of, and dependence on substances. Table 6 shows that there have been four studies, all using different instruments (except the Upper Bavarian Stud-

Substance Use Findings from Questionnaire Surveys among Adolescents and Young Adults

For the purpose of this supplement it is also of interest to briefly summarize findings for substance use specifically among 14- to 24-year-olds. To study the use of substances in adolescents and young adults, the Federal Cen-

Table 5. Prevalence of substance use among 14- to 25-year-olds in Germany [18]

	Proportion (%) of respondents reporting						
	total	West Germany			East Germany		
		total	men	women	total	men	women
Use of alcohol at least once a week							
Beer	31	32	51	12	28	48	5
Wine	10	10	10	11	10	7	14
Spirituous liquors	7	6	9	3	10	17	2
Alcoholic mixed drinks	10	8	11	6	15	19	10
Current smokers	26	27	29	24	23	28	17
Lifetime use of illicit drugs	18	21	27	14	6	10	2

Table 6. Epidemiological studies of prevalence of mental disorders including substance use disorders (SUD) in Germany

Study	Diagnosis	Sample size age group	Time frame	Prevalence of SUD, %		
				alcohol	drug	any SUD
Dilling et al. [19] Traunstein (Bavaria) 1975–1978	ICD-8 clinicians	n = 1,536/15+ aged 15+	1 week	3.5	0.3	3.8
Fichter et al. [20] Traunstein follow-up 1980–1983	ICD-8 DSM-III clinicians	n = 1,385/20+ n = 1,495/20+ aged 20+	1 week 5 years	5.9	1.4	4.0 7.3
Tress and Schepank [21] Mannheim 1979–1985	ICD-8 clinicians	n = 600 aged 25–45	1 week	1.3	0.2	1.5
Wittchen and von Zerssen [22] West Germany 1981	DSM-III clinicians DIS (interview)	n = 1,366 aged 25–64	6 months lifetime	1.2 13.0	0.6 1.8	1.6 13.5

ies), designs, samples and with an overall quite modest sample size. Dilling et al. [19] studied the frequency of mental disorders in a small town rural region of Upper Bavaria. The point prevalence of dependence for alcohol and drugs according to ICD-8 was estimated to be 3.8% in this region at the time of the study. 1.9% were diagnosed with mild dependence and 1.8% as having severe dependence [23]. Fichter et al. [20] in a follow-up investigation of the same sample 5 years later estimated a higher prevalence of an overall 4.0% according to ICD-8, 75% of which already had alcoholism or drug dependence in the initial wave. The percentage of chronic cases with alcoholism or drug dependence was 40.6%. 43.8% were rated as completely or partially remitted. According to DSM-III criteria the 5-year prevalence estimate of alcohol dependence was 0.9%, and 5.0% for alcohol abuse. Drug

abuse and dependence was estimated with a prevalence rate of 1.4%. In another survey, Tress and Schepank [21] reported similarly low prevalence rates of substance disorders with 1.5% having definite severe and 2.5% mild dependence symptoms. Another study in Mannheim revealed that 6.4% of all psychiatric cases in general practices were diagnosed by the interviewer to have alcoholism or drug dependence according to ICD-8 [24]. Considerably higher lifetime estimates of 13% for alcohol dependence and 1.8% for drug dependence were found by Wittchen and von Zerssen [22] in the Munich Follow-up Study, using standardized diagnostic interviews according to DSM-III criteria in a representative sample of 1,366 respondents of West Germany, aged 25–64 years. The 6-month rates, however, were considerably

Table 7. Prevalence studies of substance use disorders (SUD) with standardized interviews according to operationalized diagnoses in various countries

Study, year	Country/site	Sample size	Time frame	Prevalence, %		
				any SUD	alcohol SUD	drug SUD
Eca, 1980–1984 Regier et al. [27] Anthony and Helzer [28] Helzer et al. [29]	5 sites in USA	18,572	1 month	3.8	2.8	1.3
			6 months	6.1	4.8	2.0
			lifetime	16.7	13.5	6.2
	New Haven		1 month		3.2	1.1
			1 year		6.1	2.6
			lifetime	15.0	11.3	5.9
	Baltimore		1 month		4.7	1.4
			1 year		7.7	2.9
			lifetime	17.0	15.2	5.8
	St. Louis		1 month		2.5	1.5
			1 year		7.5	2.2
			lifetime	18.1	15.9	5.6
	Durham		1 month		2.7	0.6
			1 year		5.1	1.6
			lifetime	12.8	10.7	3.8
	Los Angeles		1 month		3.7	1.7
			1 year		7.0	2.9
			lifetime	18.5	15.0	7.6
NCS, 1990–1992 Kessler et al. [30]	USA	8,098	1 year	11.3	9.7	3.6
			lifetime	26.6	23.5	11.9
Puerto Rico, 1984 Canino et al. [31]	Puerto Rico	1,551	6 months		4.9	2.7
			lifetime		12.6	7.0
Canada, 1983–1986 Bland et al. [32, 33]	Edmonton	3,258	point	3.9	3.4	1.1
			6 months	6.3	5.4	1.7
			1 year	9.1	7.9	2.6
			lifetime	20.6	18.0	6.9
Korea Lee et al. [34, 35]	Seoul	3,134	lifetime	31.8	21.7	0.9
New Zealand, 1986 Wells et al. [36]	Christchurch	1,498	point	6.9	6.5	0.8
			6 months	9.1	8.3	1.5
			1 year	10.5	9.3	2.3
			lifetime	21.0	18.9	5.7
Taiwan, 1982–1985 Hwu et al. [37]	Taipei	5,005	1 year		19.2	0.6
			lifetime		48.5	1.0

lower with 1.2% for alcohol and 0.6% for drug dependence. As one potential reason for these lower 6-month estimates the authors suggested that subjects with substance dependence seemed to be more likely to admit to past than to current symptoms and concluded, based on a case-by-case review, that most of the cases with a lifetime

diagnosis could be regarded, at best, as partially remitted [25].

Dilling et al. [19] in the Traunstein Study also assessed patterns of use of psychotropic medicines. They found that 8.1% of all respondents had taken at least one psychotropic medicine during the 7 days prior to the interview

(irrespective of whether prescribed or not). As expected, the highest consumption rate was found among those suffering from psychiatric illness. Fichter et al. [20] reported 1-month rates of psychotropic medication use and estimated that 18.1% had taken psychotropic medicines during the previous 2 weeks. This estimate, however, does not include hypnotics and sedatives estimated with a frequency of 4.8%.

Studies on Substance Use Disorders in Other Countries

Several large-scale epidemiological studies have been conducted to assess the lifetime and 12-month prevalence of substance use disorders in several countries on the basis of DSM-III diagnostic criteria and by using standardized diagnostic interviews, such as the Diagnostic Interview Schedule (DIS) [26]. Thus, results from these studies can be compared across regions. Moreover, these studies provide detailed information about specific types, symptoms and the age of onset of clinically significant substance use disorders. As shown in table 7, the lifetime prevalence of substance use disorders has been estimated with rates ranging between 16.7 and 31.8%. Highest rates have been found in the Korean Study and in the US National Comorbidity Survey (NCS), where approximately 1 in every 4 respondents reported a lifetime history of one substance use disorder (not including nicotine dependence). However, the NCS results are based on the newer DSM-III-R criteria and the use of the CIDI as the diagnostic instrument, whereas the results of all other studies are based on the DSM-III and the DIS as the diagnostic procedure. As can be seen in table 7, lifetime estimates for alcohol disorders range from 12.6 to 48.5%. Current rates as defined as 6- or 12-month diagnoses ranged from 4.8 to 19.2%. Similarly, rates of drug use disorders were also considerably high with lifetime estimates ranging from 0.9 to 11.9%.

Thus, in all countries prevalence estimates for substance use disorders are not only considerably higher than those found in Germany, but overall they were also among the most frequent types of mental disorders [38, 39]. It can be assumed that these tremendous country differences are due to the very different case finding methods as well as the diagnostic classification system used (DSM-III compared to ICD-8).

Discussion

Our review clearly shows that there are a substantial number of studies conducted over the past decade in general population samples demonstrating that the use of nicotine, alcohol as well as licit and illicit drugs is widespread. Furthermore, these studies have not only identified age-group- and gender-specific correlates of use for most types of substances, but have also provided considerable evidence for differences between regions, specifically between East and West Germany, as well as changes over time [40–42].

Although one might still argue about the methodological quality of these studies in terms of completion rates, consistency of instrument used, the poorly documented psychometric properties of assessment tools as well as the sampling methods and the lack of sophistication in the analyses, these studies, given their sample size and the relative consistency over time, nevertheless provide important and essential data about how widespread psychotropic substance use is in Germany.

Use of illicit drugs is particularly prevalent among adolescents and young adults with some indications that use rates are rising – slightly in West Germany and more strongly in East Germany [3]. Although these substance use studies additionally provide a wide variety of information concerning motivation patterns, consequences and associated risk factors, they do not allow any reasonable estimate about how frequently these substances are abused, how many subjects have developed a dependence syndrome and, ultimately, which number of cases have developed a clinically significant abuse or dependence disorder.

These essential questions can also not reliably be answered by consulting the very few psychiatric epidemiological studies available, assessing the prevalence of mental disorders including substance abuse and dependence. All these studies were conducted in the 1980s and thus tell us nothing about the 1990s. All were too small to provide sufficiently stable prevalence estimates for substance use disorders especially for young adults due to very small base rates, and only one has reported prevalence data for substance use disorders as defined in one of the more recent diagnostic classification systems such as DSM or the ICD-10. Taking methodologically sound studies in other countries [38] as a yardstick, the fairly low estimates of these psychiatric epidemiological studies also raise serious doubts about the credibility of prevalence rates for substance use disorders reported. Apart from the Munich Follow-up Study [22], the German prevalence studies have estimated rates for alcohol and drug use dis-

orders that are only a fraction of those estimated for most other western industrialized countries. This calls into question the sensitivity with which these studies identified substance use disorders.

As the basis of descriptive and causal epidemiological studies is to measure morbidity by using sufficiently detailed and reliable diagnostic assessment tools, this unsatisfactory situation clearly signals the urgent need for large scale epidemiological studies in Germany. Such studies should focus, in addition to assessing quantity and frequency of substance use, specifically on estimating the prevalence of substance specific symptoms of abuse and dependence in various subgroups of the population, their age of onset, associated vulnerability and risk factors as well as psychosocial and medical consequences of substance use disorders. Other important issues resulting from clinical observation as well as the substance use surveys [43] is the examination of the interrelationship of use, abuse and dependence of various types of psychotropic substances, as well as their relationship to other mental disorders (comorbidity).

The literature review also revealed a deficit of studies investigating typical developmental patterns from use to abuse and to dependence especially in adolescents and young adults. This lack is obviously not due to the difficulties of longitudinal studies in adolescence in general, because there are substantial numbers of such studies [42, 44]. Rather, the deficit stems from not using instruments allowing the assessment of clearly specified diagnostic criteria for abuse and dependence. It is frequently assumed that many adolescents show only transient patterns of drug abuse and stop using drugs spontaneously without any formal intervention. However, no data from retrospective or prospective longitudinal studies in representative samples of the population are available investigating this key issue in more detail in order to determine those factors increasing the likelihood for transitions from first use to regular use as well as from use to manifest forms of substance use disorders. Such substance-specific information is essential for early prevention of substance use disorders.

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