

The Use of Drugs within the Techno Party Scene in European Metropolitan Cities

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Key Words

Drug use · New drugs · Party drugs · Synthetic drugs ·
Drug use in Europe · Adolescent drug use

Abstract

In 1998, a total of 3,503 visitors of techno parties in Amsterdam, Berlin, Madrid, Prague, Rome, Vienna and Zurich were interviewed. With this data, a subtly differentiated portrait of the techno party visitor was drawn, especially with a view to his/her involvement in the scene and the use of psychotropic substances. First of all, the results show that the use of illegal substances such as cannabis, ecstasy, amphetamines and cocaine is relatively widespread in the examined techno party scenes. A central characteristic of the drug use could be described as the polydrug occasional user model characterised by the occasional use of diverse substances that are usually taken together. The significance of the findings is discussed with regard to the practice of drug prevention.

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Introduction and Subject of the Study

At the beginning of the 1990s, the 'techno' phenomenon emerged in many European countries as a new dance and music culture, with a constantly growing number of adolescents taking part in it. For example, the Love Parade in Berlin records ever-increasing numbers of attendees, and other European cities are the scenes of similar dance events. Thus, a specific consumption/leisure industry (music, magazines, clubs, travel, etc.) has been established. According to the last Shell Youth Study [1], 12% of all German adolescents between the ages of 12 and 24 describe themselves as techno fans, and another 21% of this representative sample (n = 2,101) identify with the techno culture.

Since the emergence of the new electronic music, techno parties have been closely associated with the drug ecstasy, especially in the mass media. Since the first published research work on drug use in the techno scene, it has been clear that visitors of techno parties have a considerably greater experience with ecstasy use than the general population of a corresponding age. Ecstasy and its derivatives are usually referred to in the context of 'new synthetic drugs'. However, the best-known ingredient, MDMA, cannot strictly be described as new, as the sub-

stance was developed at the beginning of the century.¹ What is new is the form of use and the context of its use.

Following the rediscovery of MDMA, attributed to the enthusiastic experimenter Alexander Shulgin, an American chemist, the new old drug was first used in therapy and within the framework of self-discovery workshops [2]. It remains unclear how the change from the psychological scene to its wide use as a party drug came about. In fact, the effect spectrum of this drug is obviously well suited to serve the ecstasy needs of a new youth culture.

The connection between ecstasy and the techno scene has been investigated by many studies [3–5]. During an extensive inquiry in the Berlin area in the context of investigations for 'Drug Affinity among Youths within the Techno Party Scene' [5], 1,674 visitors of techno clubs and raves were interviewed concerning their drug use habits. The results showed that half of the interviewed persons had had experience with ecstasy. Compared with a representative German survey [6], 47.7% of persons in the techno scene in the age group between 21 and 24 years had had experience with ecstasy as opposed to 5.7% in the general population.

The same studies, which confirmed the endemic spread of ecstasy in the techno scene by epidemiological research, also showed that the use of ecstasy was closely related to the use of other drugs, mainly speed, LSD and cocaine². As early as 1992, Solowij et al. [7] were able to prove an increase in drug consumption patterns, including a greater number of drugs, in the Sydney party scene. The research study 'Ecstasy-Infoline' on the use of ecstasy in the Berlin techno scene, completed in 1995 [8], likewise showed that most of the interviewed persons occasionally also used amphetamines, hallucinogens and/or cocaine, which was likely to increase the amount and frequency of ecstasy consumption and other drugs. Another notable fact is that cannabis, with a yearly prevalence of 70%, is the most frequently used drug, although, of course, its significance is not limited to the techno scene.

In summary, the results of the present study not only show a significantly greater prevalence of ecstasy use among German techno party attendees, but, in addition, show that the use of cannabis, speed, hallucinogens and cocaine is, likewise, significantly more widespread than in the general population of a corresponding age. The tech-

no culture being established in diverse parts of Europe, the techno party scene has developed as a mainly European phenomenon. The conception or development of adequate preventive strategies on a national and an international level must be based on a precise knowledge of drug use in individual metropolitan cities and the culturally conditioned differences. Moreover, against the background of considerably increased health risks, especially regarding the drug use habits of the techno fans, it is necessary to identify the patterns of consumption. At the same time, the use of mixed substances will be examined from the viewpoint of its epidemiological significance.

Based upon the initial situation thus described, an exploitative research strategy was chosen that served the methods of quantitative social research. The following points had to be clarified:

- Determination of the prevalence of drug use in the techno party scenes in European metropolitan cities. The goal was to determine the prevalence of drug use in the techno party scenes of Amsterdam, Berlin, Madrid, Prague, Rome, Vienna and Zurich and to establish differences pertaining to the different cities.
- Analysis of the correlation between participation in the techno culture and drug use. The relationship between a deep involvement in the techno party scene and the extent of drug use had to be examined, as well as substance-specific differences.
- Exploration of the patterns of consumption in the European techno party scene. An analysis of consumption habits within the techno scene was to be carried out. For example, the frequency of use, the number of substances currently used and, in particular, the mixtures of substances used were examined.

Methodology

The goal of this study was the investigation of drug use in the techno party scene of European metropolitan cities. A methodology had to be developed which assured efficient data collection based on a questionnaire, as well as heterogeneity and comparability of the samples recruited in the metropolitan scenes.

In formulating the questions, a modified survey instrument was employed that had already been used for the study 'Drug Affinity among Youths within the Techno Party Scene' (n = 1,674) [5] at large techno events (e.g. the Love Parade) and in Berlin techno clubs. The questionnaire covered three areas of characteristics, as set out in table 1.

The involvement in the techno party scene was registered according to the current going out frequency (how often one went to techno events, as well as the length of time spent there). The two scales were jointly defined as 'behaviour-related involvement'. The second set of questions consisted of items that permitted registration of the inter-

¹ Ecstasy had already been produced and patented by the company of E. Merck in 1914, but was never put on the market.

² In the study of Tossman and Heckmann [5], the lifetime prevalence of the use of speed was put at 44.4%, of hallucinogens at 37% and of cocaine at 30.7%.

Table 1. Surveyed areas of characteristics

Involvement in the techno party scene	party-going frequency how long one stayed out
Drug use	experience with drug use age when first used frequency of use regularity of use last used (up to the present) mixed use other factors
Sociodemographic characteristics	age gender school qualification others

Table 2. Number of participants in the study (n = 3,503), according to each city studied

Amsterdam	Berlin	Madrid	Prague	Rome	Vienna	Zurich
496	501	500	505	496	505	500

viewee's lifetime, yearly and monthly prevalence of drug use. In the final section of the questionnaire, sociodemographic data were gathered that allowed a description of the survey sample. The form had to be translated into four different languages: Italian, Spanish, Czech and Dutch.

The aim of the present study was the documentation of drug use within a specific youth scene. If the results gathered from the random samples are to be generalised in order to make statements about the population labelled 'members of the techno party scene', then, ideally, the entire population of the techno party scene should be known in order to systematically draw a representative sample from it. If this demand for representation could not be met, alternative strategies had to be chosen in order to obtain the research sample. In 'Selection strategies for obtaining random survey samples' (p. 70), Kleiber and Pant [9] suggest the inclusion, as far as possible, of diverse groups from the entire investigated population in the study.

Naturally, this strategy implies 'selection effects'³ whose dimensions and directions remain unknown. That is, the composition of the investigated sample does not correspond to the entire population. For this reason, it is hereby expressly stressed that, because of the elimination strategies carried out in extracting the samples, the results presented in this paper refer exclusively to the investigated group and *not* to the corresponding entire population (techno party

scene). Consequently, the goal of this work – to give evidence concerning drug use behaviour within the techno party scene – has been only partially realised. Nevertheless, subtly differentiated descriptions of sub-groups within the techno scene can thus be given, especially with regard to their affinity for drug use. For this project, 'variation of intake into the field of investigation' must be the adequate method of choice.

In order to obtain approximately comparable samples in the different metropolitan cities, a standardised strategy of recruitment (number and heterogeneity of the places of the survey, time of the investigation) was realised. In each of the seven participating cities, 500 visitors of techno parties were to be chosen by chance and investigated by means of the questionnaire. In this way, 3,503 visitors of techno events in seven metropolitan cities were recruited for the study (table 2).

Results

Sociodemographic Characteristics of the Entire Survey

In the following section, the most important sociodemographic characteristics of the survey participants in the seven metropolitan cities will be shown. First of all, the entire survey will be presented in order to illustrate the differences and similarities of the interviewed persons in the various cities.

In total, 3,505 attendees at techno events in European cities were obtained for the survey. Of these, 38.2% (n = 1,334) were female, so that, proportionally, more males (61.8%, n = 2,161) were included in the survey. Although a similar female/male ratio is found in most surveys within the techno party scene [12], it does not follow that this gender ratio is representative for the entire techno party scene population, partly because of selection factors pertaining to data collection.

The youngest survey participant was 12 and the oldest 49 years old. The median age was 21.6 years (MD = 21, standard deviation = 4.6), females being on average 1 year younger than males. Concerning the age distribution (fig. 1), most participants belonged to the age group 18–21 years (44.7%). Fourteen percent were under 18 years of age and every fourth participant was between the ages of 22 and 25 years. Only 16.4% of all the participants in the present study were over 25 years of age.

In order to get a better picture of the social situation of the survey participants, additional relevant variables were gathered (table 3). Of the 3,503 interviewed visitors of techno parties, one third were attending school or university at the time of the survey. This can be described as age-appropriate activity corresponding to the average participant's age of approximately 21 years. Almost half of the interviewed persons (44.2%) were employed and only

³ That does not mean that representative population surveys show no selection effects. It is more likely that drug prevalence in representative studies is underestimated because active drug users refuse to take part in that type of survey [10].

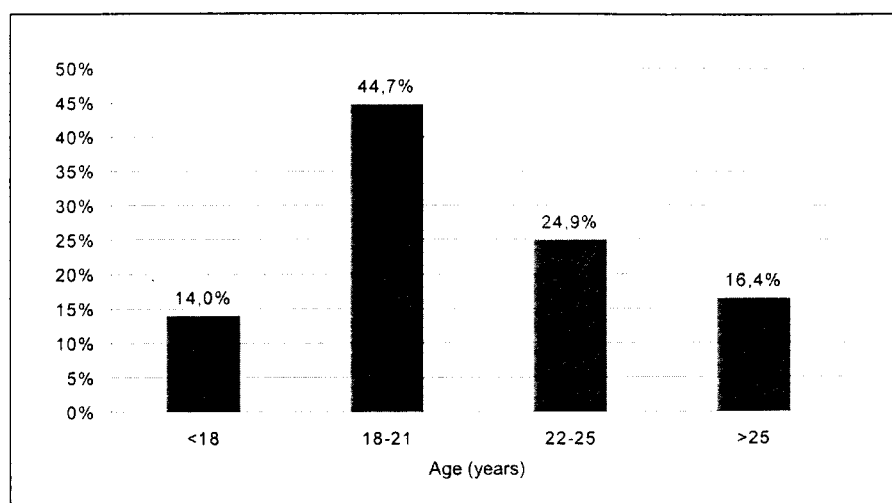


Fig. 1. Age distribution in the entire survey (n = 3,505).

6.4% were unemployed (at school, etc.). With regard to professional training status, 41.3% already had professional training. It is true that just as many had no professional training, but these were, on average, 4 years younger.

Although many of the adolescents and young adults were already in employment, the vast majority (59.1%) still lived with their parents. This was due to the fact that many survey participants were still in training and did not have access to an income that would allow them to be self-sufficient.

In summary, and based on the sociodemographic characteristics registered, the adolescents and young adults obtained for the survey clearly represented, within the framework of the present study, a socially inconspicuous section of the population.

Comparison of Sociodemographic Characteristics

In the following sections about drug use, the collected data will be compared with regard to the investigated metropolitan cities. Therefore, at this point, the samples will be examined for similarities and differences in the sociodemographic characteristics.

The gender ratio found in the entire survey (males = 61.8%, females = 38.2%) varied only slightly in the individual city surveys; except for Prague, the percentage of males was always decidedly higher than that of females. As regards the mean ages, the sample from Prague was the youngest, with an average of 20.1 years, while the techno fans interviewed in Amsterdam were the oldest in the entire survey, with an average age of slightly less than 24 years. These results are summarised in figure 2.

Table 3. Social situation of the participants in the entire survey (n = 3,503)

	Proportion of the entire survey, %	Absolute frequency
<i>Present activity</i>		
School/university	31.6	1,440
Working	44.2	1,530
Unemployed	6.4	220
Other	4.0	140
<i>Professional training</i>		
Has a profession	41.3	1,420
Is being trained in a profession	42.8	1,481
<i>Living situation</i>		
With parents	59.1	2,041
Alone	17.9	620
Sharing with others	10.1	348
With partner	9.3	320
Other	3.6	127
<i>Partner situation</i>		
Steady relationship	46.0	1,583
No steady relationship	54.0	1,857

A comparison of the age group distribution (fig. 3) shows that the same ratio more or less prevails in all the samples. The 18–21 age group is the most widely represented, followed by the 22–25 age group. Relative to the higher age average, Amsterdam had the smallest under 18 group, but those over 25 years of age were especially well represented there. Though the Madrid sample, with a mean age of 21.7 years, was not above average, the under

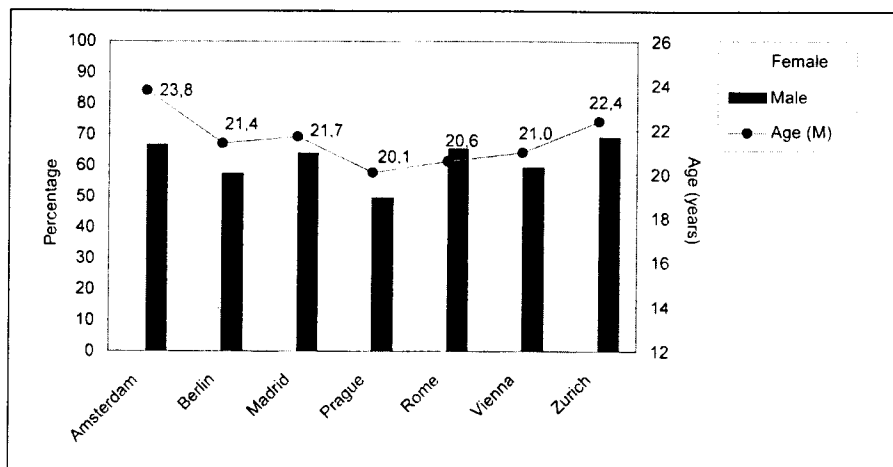


Fig. 2. Comparison of gender ratios and age groups. M = 21.6 years.

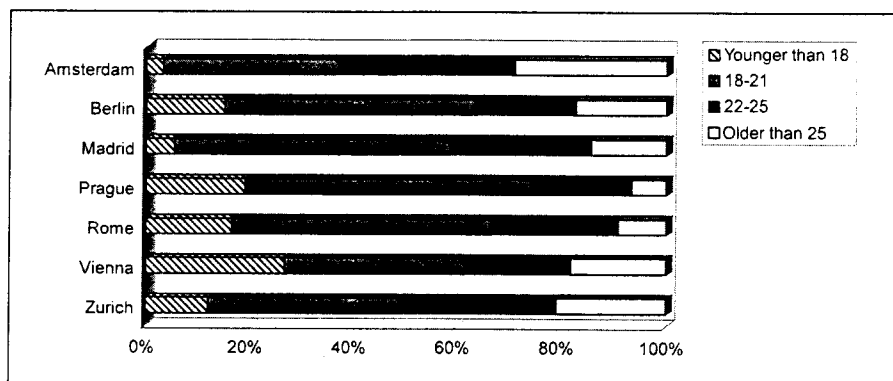


Fig. 3. Distribution of age groups in the component samples.

18 group was somewhat underrepresented. While the youngest average age was found in Prague, the greatest percentage of under 18 year olds was found in Vienna. The most balanced sample was collected in Vienna.

With regard to living conditions, most of the interviewed persons of all the samples were still living with their parents. In Madrid, Prague and Rome, an especially large number lived at home, possibly due to cultural conditions. In Amsterdam, Berlin, Vienna and Zurich, a comparatively large number of persons lived alone or in shared living quarters. Regarding the partner situation, there were no major differences between the metropolitan cities. It is noteworthy, however, that the percentage of steady relationships was highest in Prague and Vienna, precisely where the average age was lowest.

Involvement in the Techno Party Scene

As already mentioned, the degree of involvement in the techno party scene was deduced by using two measurements, going out frequency and length of time spent

out, and it was recorded to allow the registration of details concerning behaviour-related involvement. The results of these measurements will be presented first and separately in order to allow comparisons.

Going Out Frequency. The interviewed persons were asked to indicate how often they had gone to techno events on average during the previous 3 months. It was assumed that the degree of involvement in the techno scene was related to the frequency of attendance. By limiting the reference frame to the previous 3 months, it was possible to obtain a recent behaviour statement with a favourable effect on the reliability factor. This method allows for changes in the going out behaviour, but the primary interest was to have a concrete period to start with. For going out frequency, four categories were set up, ranging from 'less than once a month' to 'more than twice a week'.

At the time, one third of the surveyed techno population went to techno events either less than once a month or up to three times a month. Every fourth person asked

Fig. 4. Going out frequency in the context of gender.

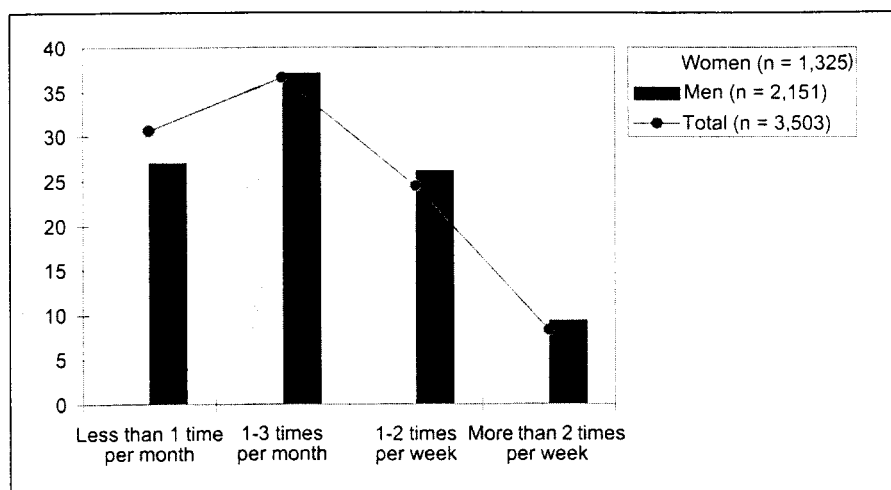
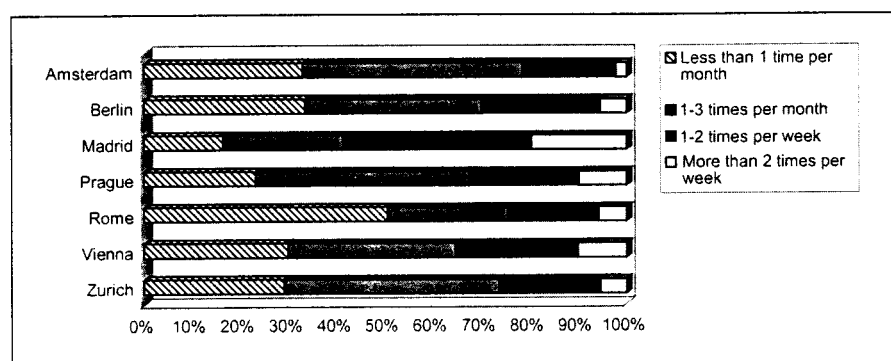


Fig. 5. Comparison, by metropolis, of going out frequency.



stated that they went out at least once or twice a week, and a minority of 8.3% went to techno parties more than twice a week. For the majority, techno parties were clearly just one going out option. Nonetheless, a fourth of those interviewed spent up to 2 days a week – presumably on the weekend – at this sort of party. The tendency to go to techno parties was often comparatively lower for females than for males. However, the gender difference in the going out frequency categories was insignificant. These results are summarised in figure 4.

Figure 5 compares the going out frequency with regard to the individual metropolitan cities. While in Rome, about half of the interviewed persons stated that they went to techno parties less than once a month, this was true for only 14% in the sample from Madrid. There, in comparison, many adolescents and young adults went to techno events more than twice a week. On the other hand, the average variance in going out frequency between Amsterdam, Berlin, Prague, Vienna and Zurich was not important enough to speak of an absolute difference in going out behaviour.

Length of Time Spent Out. Further information concerning involvement in the techno party scene can be gained by measuring the length of time spent out. It can be assumed that the involvement of an individual in the techno party scene is related to the time investment in an evening or on a weekend. Going out was defined as the time span between leaving the house and going to sleep. This time span was deliberately chosen in order to encompass not only the time spent in techno clubs or similar events, but also the time before and after spent in cafés, bars and ‘chilling out’.

For the analysis, the seven-step rating scale regarding the length of time spent out was grouped into four categories: up to 8 h, between 8 and 16 h, between 16 and 24 h and more than 24 h. The results from the entire survey population and with comparisons as to gender are presented in figure 6. Most of those interviewed ‘only’ stayed out for 8–16 h when they went to techno events. Thirteen percent of the techno population surveyed stayed out between 16 and 24 h, and one tenth of those interviewed stayed at techno events longer than 24 h. Not only did

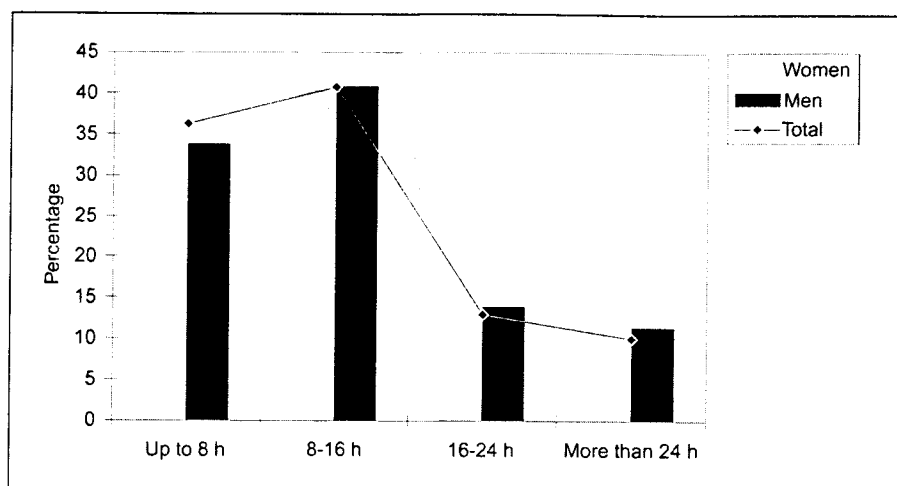


Fig. 6. Length of time spent out in the context of gender.

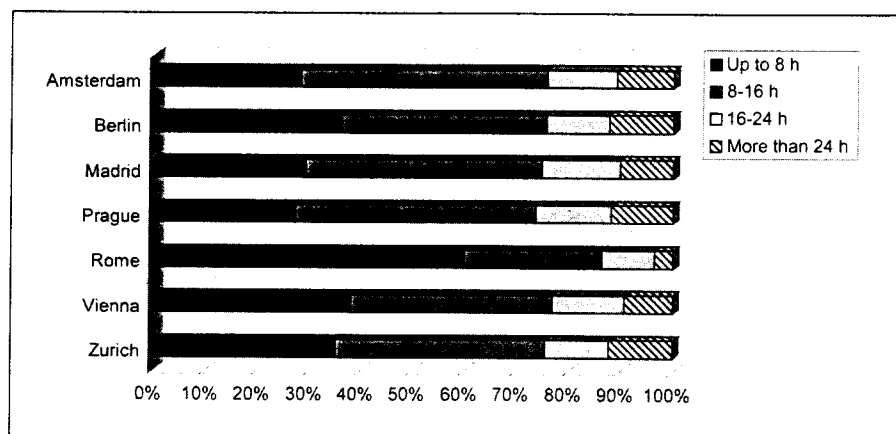


Fig. 7. Comparison, by metropolis, of length of time spent out.

male techno fans go out more often, as is indicated above, but they also had a tendency to stay longer at the events.

A comparison between metropolitan cities (fig. 7) clearly indicates that, with the exception of Rome, the differences in the categories of length of time spent out are minimal. In Rome, the majority of those interviewed (60%) stayed out for only 8 h when they went to techno events.

Drug Use in the Techno Party Scene in European Metropolitan Cities

In order to make a statement about drug affinity among adolescents within the techno party scene in European metropolitan cities, different parameters must be examined. First, the degrees of prevalence in the entire survey, as well as in the samples from individual metropolitan cities, need to be considered. Then, further analyses must be made, aimed at exploring user samples within the techno party scene. An important question will be

which patterns of multiple consumption in the framework of techno events are of significance. Before comparing drug use in the techno party scene in European metropolitan cities, the correlation between drug use and the context of consumption should first be analysed. Based on a theoretical presumption, the variables of gender, age and the degree of involvement in the techno party scene will be placed in relation to drug use.

Diverse legal and illegal substances will be examined in this study, with an emphasis on the latter. A few introductory definitions are necessary in this regard. Ecstasy will be used as a generic term for a range of substances contained in pill form with no indication given on the pill as to which substance is contained or in what dosage, though MDMA is the most important ingredient. In the chemical analyses of pills found on the market, other ingredients were always found that had a similar effect to MDMA or no effect at all [13, 14]. Therefore, in the present study, the use of ecstasy could not be confirmed through any 'ob-

Fig. 8. Lifetime, yearly and monthly prevalence of legal substance use (n = 3,503).

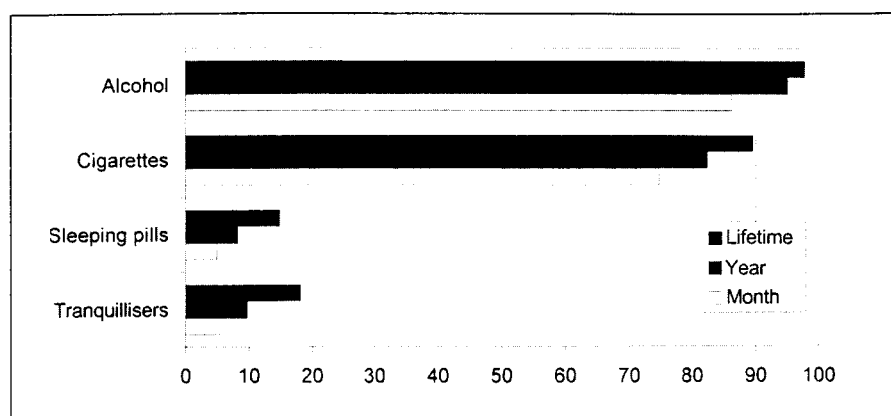
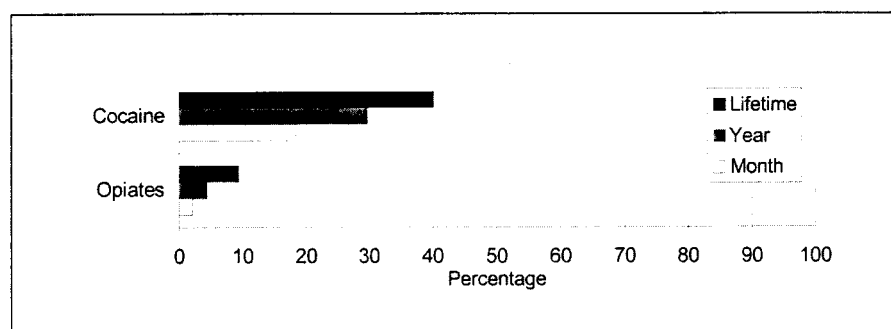


Fig. 9. Lifetime, yearly and monthly prevalence of illegal drug use (n = 3,503).



jective' laboratory results; we had to rely on the inquiries made by the survey participants.

Amphetamines and other stimulants will hereafter be referred to as speed, since this is the name commonly used in the scene for amphetamines and was thus also used in the questionnaires. Here also, no objective laboratory results are provided; we had to rely on the information gathered by the users.

Prevalence of Drug Use

Prevalence is a common measure of epidemiological investigation. This measure will be taken within a specific time frame in order to register the distribution of an observed phenomenon within a defined population. In the following sections, various measures will be examined in order to ascertain the distribution of drug use at the time of the survey, including the lifetime, yearly and monthly prevalences for the use of psychotropic substances. The lifetime prevalence includes all persons who have used the substance at least once in their life. The yearly or monthly prevalence covers, respectively, at least one occasion of use within the time frame of the last 12 months or the last 30 days. The latter will be referred to as 'current' use.

Prevalence of Drug Use in the Overall Sample Survey. First, the prevalence in the entire survey sample was investigated. As regards legal substances, the values in evidence are shown in figure 8. Almost every survey participant had experience with alcohol and almost 90% with cigarette smoking. As regards yearly and monthly prevalences, they are lower, but still at a high level. The prevalence of experience with sleeping pills and tranquillisers was 14.9 and 18.1%, respectively. Currently (in the preceding month), however, 4.9% had taken tranquillisers and 5.5% had used sleeping pills. With regard to the use of illegal substances, the prevalences found are shown in figure 9.

Eighty percent of the interviewed persons attending techno events had had experience with cannabis. In the preceding year, 71.4% had used cannabis, and 58.6% had used it in the preceding month. Every other survey participant in the entire survey had used ecstasy at least once, but 'only' one fourth had used it in the preceding 30 days. The lifetime prevalence of the use of speed, hallucinogens and cocaine was somewhat lower, but still at a comparatively high level. Only the use of opiates, with a lifetime prevalence of 9.4%, was significantly lower than the use of the above-mentioned substances.

Table 4. Lifetime prevalence of legal substance use in the metropolises (%)

	Amsterdam	Berlin	Madrid	Prague	Rome	Vienna	Zurich
Alcohol	99.0	99.0	98.6	99.6	90.5	98.2	99.2
Cigarettes	91.5	89.4	87.0	93.9	81.6	91.5	91.4
Tranquillisers	12.7	20.7	24.3	27.1	9.7	15.5	16.8
Sleeping pills	11.5	12.5	19.8	28.9	6.7	12.5	12.2

Table 5. Lifetime prevalence of illegal substance use in the metropolises (%)

	Amsterdam	Berlin	Madrid	Prague	Rome	Vienna	Zurich
Cannabis	91.7	78.6	87.0	88.2	65.5	71.5	85.8
Ecstasy	83.4	44.6	64.1	38.2	30.5	37.5	51.8
Speed	61.3	46.1	51.7	46.1	21.1	36.2	38.6
Hallucinogens	66.8	41.6	55.8	48.7	21.1	34.9	54.4
Cocaine	59.6	33.2	68.3	21.3	31.5	29.0	37.8
Opiates	6.0	7.0	6.1	20.6	3.9	10.7	11.4

In order to check whether the drug use habits of the adolescents and young adults within this study were different from those of the general population, a comparison of representative data is required. Representative studies, however, have only been carried out at national levels. Therefore, in the following sections, the prevalence of drug use within the individual metropolitan cities will be presented and, finally, comparisons with the selected representative data will be carried out.

Prevalence of Drug Use in the Metropolitan Cities. With regard to the results concerning the prevalence of drug use in metropolitan cities, a few qualifying observations must be made. As was stated above (see Methodology), in anticipation of the survey, criteria were developed for the standardisation of data collection in all the metropolitan cities. We cannot be sure to have been successful in obtaining a representative sample of the techno party scene in each of the cities involved. Therefore, doubts remain as to whether direct comparisons between the component samples are absolutely reliable. A subtly differentiated interpretation of the prevalence of drug use in the metropolitan cities can only be realised when the influence of relevant factors is examined and the samples are homogenised within those contexts (see Pattern of Drug Use in European Metropolitan Cities below). An interpretation of the rank placement of the substances in the various metropolitan cities is, however, reliable, as the absolute differences are not relevant there. The following

tables are, therefore, to be regarded as a description of the drug use within the samples. Analogous to the approach used for the entire random survey, a distinction will be made between legal and illegal substances when comparing the metropolitan cities.

As expected, nearly all of the interviewed persons attending techno parties had experience with alcohol, and almost 9 out of 10 persons had smoked cigarettes at least once. As regards tranquillisers and sleeping pills, a greater divergence was discovered. Whereas in Rome, only every tenth person interviewed had experience with tranquillisers, every fifth participant in Berlin and every fourth participant in Prague had used these drugs at least once. In Rome, only 6.7% had experience with sleeping pills, whereas in Prague, almost one third of all those interviewed had used these at least once. As regards the use of legal medicines, the highest prevalence was found in the Prague survey and the lowest in Rome. These results are summarised in table 4.

The lifetime prevalence for the use of illegal drugs is given in table 5. Concerning the degree of user experience, cannabis ranged highest and opiates lowest in all four samples. Ecstasy, speed, hallucinogens and cocaine occupied diverse rank orders in the different metropolitan cities, though cocaine was usually second lowest. It is interesting to note that cocaine ranged second in the use of illegal drugs in Rome and Madrid; in Madrid, two thirds of the survey participants had had experience with co-

Table 6. Monthly prevalence of illegal substance use in the metropolises (%)

	Amsterdam	Berlin	Madrid	Prague	Rome	Vienna	Zurich
Cannabis	66.5	54.9	66.0	69.5	44.4	45.3	63.6
Ecstasy	57.1	22.6	33.4	19.2	16.3	12.1	27.8
Speed	19.0	23.6	16.4	19.8	9.9	16.2	17.6
Hallucinogens	16.5	13.2	15.8	21.6	8.1	12.1	18.6
Cocaine	27.0	10.2	46.6	6.1	17.7	9.7	12.0
Opiates	0.6	0.8	1.2	5.7	1.0	3.0	2.2

Table 7. Comparison of the present study survey versus a representative survey [16] regarding lifetime prevalence (%) of the use of illegal substances in Amsterdam

	Age group					
	16–19 years		20–24 years		25–29 years	
	present study (Amsterdam) (n = 85)	representative inquiry [16] (n = 205)	present study (Amsterdam) (n = 226)	representative inquiry [16] (n = 238)	present study (Amsterdam) (n = 123)	representative inquiry [16] (n = 423)
Cannabis	94.1	33.0	92.9	49.9	91.1	53.6
Ecstasy	81.2	7.3	87.6	13.1	81.3	16.2
Speed ¹	60.0	3.8	64.0	2.5	65.6	1.2
Hallucinogens	61.2	10.1	69.3	12.3	67.2	13.7
Cocaine	50.6	4.4	65.2	10.1	59.5	10.9

¹ In the representative inquiry, 'performance-enhancing drugs'.

caine. In Amsterdam, the sample consisted of a comparatively high percentage of drug users, while the adolescents and young adults in Rome had comparatively little drug experience. The Prague sample had again a rather high percentage of participants with opiate experience.

The current drug use is shown in table 6 by an overview of the monthly prevalence. Prior to establishing prevalences of drug use based on the representative data from the different countries, the problems concerning sample recruiting must be addressed. As will be shown below, the prevalence of drug use correlates with the age of the interviewed person. When comparing the random samples, they should contain identical distributions of ages if differences regarding drug use are put down to the analysed parts of the samples.

For reasons related to the problem just mentioned, the survey samples gathered in the metropolitan cities were modified to allow at least a minimum of comparison with available representative data. However, comparison with representative surveys was not possible for each metrop-

olis. It is true that the Madrid data could be contrasted with the data from the 'Extended Annual Report on the State of the Drug Problem in the European Union' [15]; however, not all the substances included in the present study were included therein, and the only representative data available from Italy was limited to the 15- to 16-year-old group. No comparable representative data were available from Prague. Therefore, in the following analysis, only the samples from Amsterdam, Berlin, Madrid, Vienna and Zurich will be compared with representative studies, to which the age ranges in the samples from the metropolitan cities will be adapted in order to minimise differences due to methods.

For Amsterdam, the study 'Licit and Illicit Drug Use in Amsterdam III: Developments in Drug Use 1987–1997' [16] was used, and a comparison with the differentiated age ranges was made. Altogether, 3,798 inhabitants over 12 years of age were interviewed in Amsterdam. The results of the comparison for Amsterdam are shown in table 7. Even if a slight inaccuracy has to be allowed for

Table 8. Comparison of the present study sample versus a representative sample [17] regarding lifetime prevalence (%) of illegal drug use in Germany (12 to 25 year olds)

	Present study (Berlin) (n = 415)	Representative survey (East) [17] (n = 1,000)	Representative survey (West) [17] (n = 2,000)
Cannabis	79	12	21
Ecstasy	44	4	5
Speed	46	5	3
Hallucinogens ¹	41	2	2
Cocaine	31	<0.5	2
Opiates ²	5	<0.5	<0.5

¹ In the BzgA study [17], only LSD was asked about.

² In the BzgA study [17], only heroin was asked about.

Table 9. Comparison of the present study survey versus a representative survey (15 to 39 year olds) [18] regarding lifetime prevalence (%) of use of illegal substances in Switzerland

	Techno study (Zurich) (n = 497)	Representative survey [18] ¹ (n = 5,709)
Cannabis	85.9	26.7
Ecstasy	51.9	2.2
Speed	38.6	1.2
Hallucinogens	54.5	2.7
Cocaine	37.8	3.3
Opiates ²	11.3	1.0

¹ Calculations based on the Swiss Health Survey 1997/98.

² Heroin was included in the representative survey.

differences in method, a substantially higher level of drug experience can be seen among those interviewed in the present study. Though the prevalence of cannabis experience was 'only' up to three times higher in the present study sample, the prevalence of ecstasy experience in the 16- to 19-year-old group was 11 times higher than in Amsterdam's general population. The prevalence of the use of speed, hallucinogens and cocaine was also considerably higher.

In the reference study, the lifetime prevalence of opiate use was calculated only for the entire survey (n = 3,798). In the present study, 6% reported opiate experience, as opposed to 21.1% in the general population. However, the considerably higher opiate experience in the general population can be traced back to the fact that codeine was included in the reference survey but was not specifically

mentioned in the present study. Experience with heroin, with a prevalence of 1.7% in the reference study, is also distinctly lower. Therefore, techno fans were also more experienced with opiates. This difference is, however, less important than in the case of ecstasy, speed, hallucinogens and cocaine. Despite the marked differences, it must be emphasised that the general population of Amsterdam can be described as relatively experienced with drug use. For example, at least half of all 20 to 29 year olds had already had experience with cannabis, and this number, as can be seen in the following comparisons, must be rated as high.

In order to assess the prevalence in the Berlin sample, the regularly repeated survey 'Drug Affinity among Youths within the Federal Republic of Germany' [17] was consulted, which had last been carried out in 1997. As this study considered only 12 to 25 year olds, the techno sample was brought into line with this. In addition, East and West Germany were presented separately in the German reference survey. Table 8 shows the results of the comparison for Germany. Even if the youngest age group was somewhat underrepresented in the present study vis-à-vis the reference survey, a comparison of both surveys shows that drug experience in the techno sample was many times higher than in the reference survey. Whereas every fifth person interviewed in West Germany had had experience with cannabis, cannabis experience was reported by an absolute majority of the techno fans. And while experience with ecstasy, speed, hallucinogens and cocaine was also considerably higher, this great difference was not evident regarding experience with opiates.

In order to gain access to the data collected in Zurich, representative data were drawn from the Swiss Special Office for Alcohol and Other Drug Problems [18]. Though the Swiss data included information on the spread of drug use among 11 to 15 year olds, the techno random samples included only 8 adolescents within this age range. Therefore, the data for 15- to 39-year-old adolescents and adults were used for comparison so that only slight modifications had to be made. The results of the comparison are shown in table 9.

The Zurich results corresponded to those of the other investigated metropolitan cities; the interviewed techno fans showed a drug experience that was many times greater than in the corresponding general population. In particular, the experience with ecstasy, speed (amphetamines), hallucinogens and cocaine was distinctly greater than in the reference study. The percentage of techno fans with opiate experience was also remarkably high. Though this percentage was also higher in the other investigated cities

than it was in the reference surveys, in Zurich, however, it was, relatively speaking, especially high. Information brochures, which concentrate only on the 'classic' party drugs, probably underestimate this; in Zurich, opiates can no longer be counted among those substances that can be ignored.

Concluding Assessment of the Results. In summary, the random samples collected at techno parties in European metropolitan cities record a considerably higher prevalence of illegal drug use than the national representative investigations. While cannabis – with a lifetime prevalence of up to 90% – is the most widely used substance in the techno party scene of every metropolis, metropolis-specific differences are seen with regard to the harder illegal drugs. For example, in Amsterdam, ecstasy is the substance with the second highest prevalence, and in Berlin, it is speed. Hallucinogens have the second highest prevalence in Prague and Zurich, and in Rome and Madrid, cocaine follows closely on cannabis. Opiate use ranges lowest in all the metropolitan cities. However, in Vienna, Zurich and especially in Prague, it is distinctly more prevalent than in the other metropolitan cities.

On the whole, the random samples with the highest level of drug experience were recruited in Amsterdam and the lowest in Rome. Whether the differences in the metropolitan cities can be attributed to location – that is, cultural differences – can only be judged after various factors have been analysed and the statistical differences in the random samples have been clarified.

Pattern of Drug Use

In the following analyses, current drug use habits will be examined for subtle differences. Current drug use, within the framework of this study, will be defined as use of a substance within the preceding month/the last 30 days. Current drug use patterns will help to measure the 'frequency of use' and describe the 'number of currently consumed substances'. Finally, the most frequently encountered combinations of drugs used will be considered in a specific 'mixed use' pattern.

Frequency of Use. The frequency of drug use is one of the defining characteristics of drug use models. It is used to find out whether a drug is used occasionally or is part of the everyday life of the user. To give a better idea of this characteristic, the number of days were bound together in categories. Apart from cannabis, the majority of the 3,503 interviewed persons had consumed no illegal drugs in the 30 days preceding the survey. With regard to ecstasy, speed, hallucinogens or cocaine, they were used most probably within the previous 1–4 days; concerning ecsta-

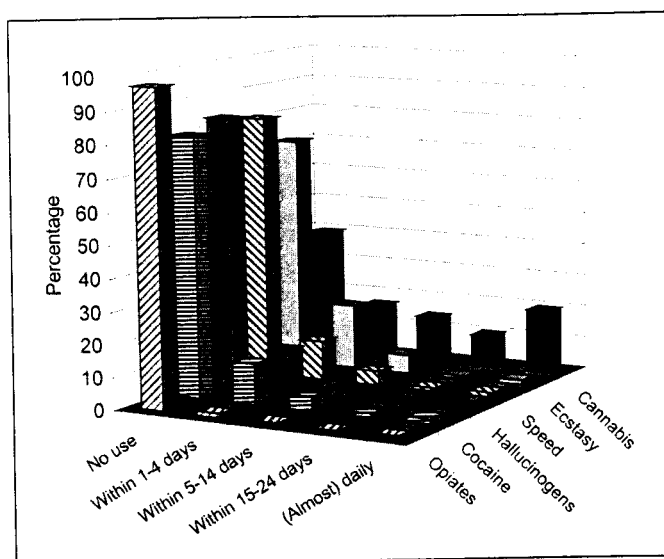


Fig. 10. Frequency of illegal drug use in the preceding month.

sy, at least 20% of the interviewed persons indicated this frequency of use. The use of this substance was probably predominantly restricted to weekends. Opiates were currently used by only a minority, and from an epidemiological point of view – at least for this analysis – they can be ignored. Particular attention has to be given to the use of cannabis. It is true that almost 40% of the interviewed persons had not currently used it, but almost 20% of all the survey participants in the seven metropolitan cities used cannabis (almost) daily. This result should, in any case, be taken into consideration with regard to preventive measures. These results are shown in figure 10.

Number and Combinations of Currently Consumed Substances. With regard to health-related behaviour, not only data on the frequency of drug use are important but also on the number of drugs involved in the drug use pattern. Each additional substance adds a qualitatively new risk potential, so that the dangers to health are diversified when contrasted to those associated with the exclusive use of only one substance. One third of the interviewed adolescents and young adults in the techno party scene in European metropolitan cities had used no illegal drugs in the preceding month. Further, 28.3% had used one single drug and 15.6% had used two different substances. However, out of all of the interviewed persons, 20.8% – i.e. every fifth person – had used three or more drugs within the past 30 days. These results are shown in figure 11.

Mixed Use. The data on the prevalence of drug use in the techno party scene lead to the conclusion that the

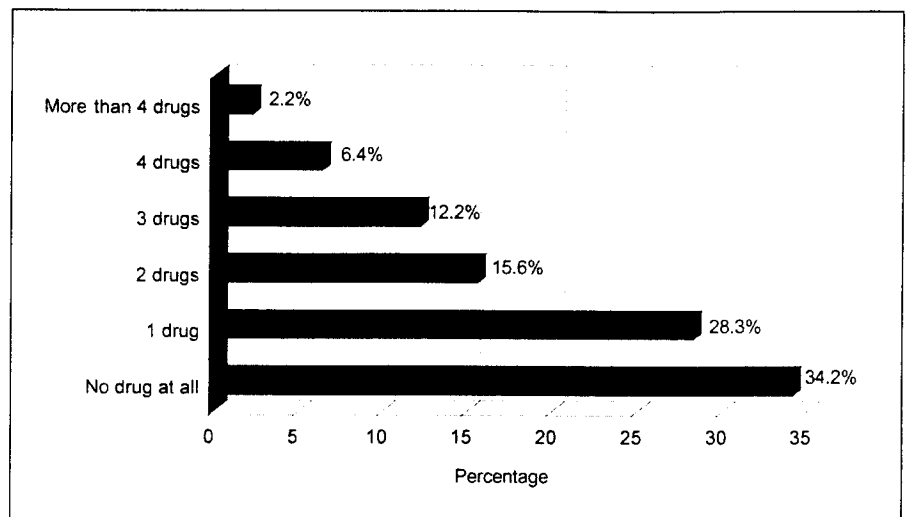


Fig. 11. Number of drugs used in the preceding month (n = 3,503).

Table 10. Mixed use of ecstasy and other substances (%) (n = 1,594)

	Six hours <i>before</i> and/or <i>after</i> the use of ecstasy	Six hours <i>before</i> the use of ecstasy	Six hours <i>after</i> the use of ecstasy
Cannabis	70.7	55.5	55.9
Alcohol	66.2	57.3	42.2
Speed	29.3	19.4	20.3
Cocaine	25.2	16.2	18.1
Hallucinogens	12.4	7.0	8.7
Opiates	2.9	1.4	2.1

simultaneous use of a greater or lesser number of psychotropic substances within the context of techno parties is a widespread phenomenon. In the following analyses, mixed drug use will be more closely examined. For empirical as well as for methodological reasons, it will be explored in correlation with the use of ecstasy. The previous analyses have shown that every second survey participant has already had experience with ecstasy, that the sole use of ecstasy is rather rare within a current drug use pattern and that ecstasy plays a role in almost all the drug use patterns that are particularly in vogue. Mixed substance use, as a concept, occurs when at least two substances with a range of psychotropic effects are taken within so narrow a time span that the effects of the drugs (can) overlap. In order to limit the space for interpretation, it was agreed that the term 'mixed use' was applicable in relation to ecstasy when another psychotropic substance was taken within 6 h before or after ecstasy.

In order to get an initial overview of the mixed use phenomenon, the prevalence of single substance use before and after, as well as before and/or after ecstasy was examined (table 10). Alcohol was included in the analysis, since it is also a potent psychotropic substance. With regard to consumption patterns, ecstasy users obviously have certain preferences, as the drugs otherwise show equal degrees of likelihood. More than two thirds of ecstasy users had additionally used cannabis within the defined time span. Only slightly fewer of the interviewed persons had additionally consumed alcohol, and approximately 30% had taken speed along with ecstasy. Cocaine was used as a supplement by at least every fourth ecstasy user. Decidedly fewer ecstasy users had taken hallucinogens as a supplement, and even fewer had additionally used opiates. Concerning the timing of the supplemental usage, it is noticeable that the likelihood of the other drugs being used before or after ecstasy was almost the same. Alcohol was consumed just slightly more often before taking ecstasy,

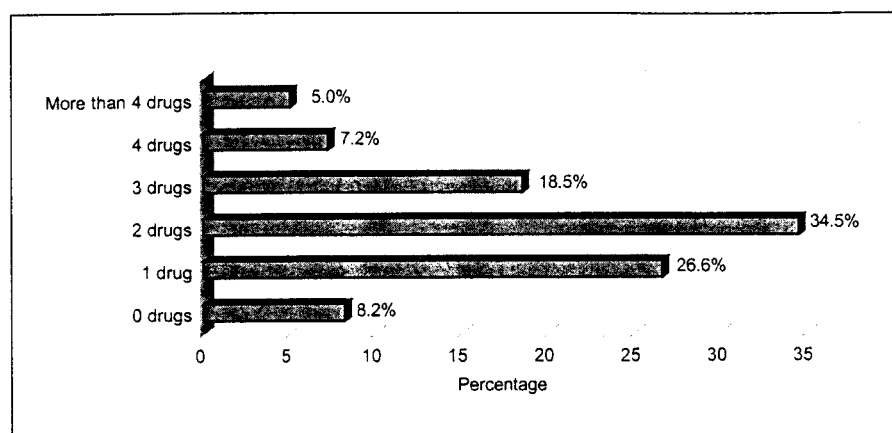


Fig. 12. Number of additional drugs used in the 6 h before and/or after using ecstasy (n = 1,594).

whereas speed and cocaine were more likely to be used afterwards.

Another important point in the context of mixed use in relation to the type of drug is the number of different substances used in close succession. Analogous to how drugs are currently used, the number of additional substances used while taking ecstasy was examined (fig. 12). Only 8.2% of the ecstasy users, or 130 persons, had not used an additional substance the last time they had taken ecstasy. These data show that over 90% of ecstasy users indulge in mixed consumption. While 26.6% are 'satisfied' with only one additional drug, one third took two, and at least 30.7% used three or more additional psychotropic substances. The most probable ecstasy consumption pattern is, therefore, the simultaneous use of two additional substances.

As combinations with many different substances are possible, the question is now which substances are combined, by preference, with ecstasy. In the overview in table 11, the most common drug combinations are listed according to rank. The most widespread combinations of mixed drug use again mirror the notable prevalence of mixed use with cannabis and alcohol. The finding that the additional use of cocaine and speed is comparatively widespread is particularly notable. Hallucinogens, in the context of mixed use with ecstasy, play a relatively small role.

In summary, it can be ascertained that cannabis and alcohol have a higher probability of being consumed in addition to ecstasy, and that speed and cocaine, to some extent, are to be counted in the expanded repertoire of mixed drug use. All substances had an equal probability of being used before or after the consumption of ecstasy. One third of the interviewed persons practised a mixed

Table 11. Ranking list of the most commonly cited combinations of mixed use with ecstasy¹ (n = 1,594)

	% ²	n
1 Ecstasy/cannabis	12.2	195
2 Ecstasy/alcohol	8.2	130
Ecstasy	8.2	130
3 Ecstasy/cannabis/alcohol/cocaine	7.8	125
4 Ecstasy/cannabis/alcohol/speed	5.9	94
5 Ecstasy/cannabis/alcohol/cocaine/speed	4.5	71
6 Ecstasy/cannabis/alcohol	4.0	63
Ecstasy/cannabis/speed	4.0	63
7 Ecstasy/speed	3.1	50
8 Ecstasy/alcohol/cocaine	2.1	34
9 Ecstasy/alcohol/speed	1.8	29
10 Ecstasy/cannabis/alcohol/hallucinogens	1.7	27

¹ In the 6 h before and/or after the use of ecstasy.

² Percentage of the sample of ecstasy users.

use of three or more different substances. Considering that these drugs are very different substances as regards the range of their effects as well as their risk potentials, this practice of drug use involves a heightened acute health risk as well as the danger of developing a multi-drug dependency.

Correlations with Drug Use

In the following section, we will discuss correlations between the use of substances within the techno party scene in European metropolitan cities on the one hand, and the gender and age of the party attendees on the other. Moreover, the present study examines the connection

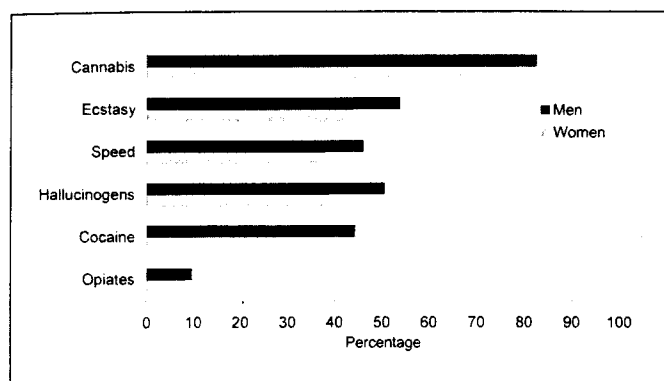


Fig. 13. Drug use (lifetime prevalence) and gender (n = 3,503).

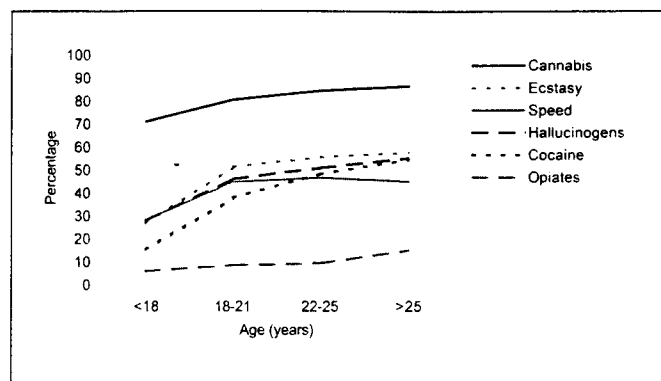


Fig. 14. Drug use (lifetime prevalence) and age (n = 3,503).

between involvement in the techno party scene and drug use.

The involvement of the survey participants has already been described in previous sections. Both the frequency of going out and the length of time spent out vary in this survey sample, females being somewhat less involved on average. In the following analyses, the measures of involvement and their correlation with drug use as well as their degrees of influence will be examined.

Drug Use and Gender. In figure 13, the lifetime prevalences of illegal drug use for males and females are presented separately. With reference to individual substances, the male survey participants show a significantly higher lifetime prevalence than the females, with the exception of opiates. Substance-specific differences can also be seen. For instance, the gender-specific differences concerning cannabis experience are much smaller than in the case of ecstasy, speed, hallucinogens and cocaine.

Drug Use and Age. In order to examine the correlation between age and drug use, the age range categories already given in the survey description were employed. In figure 14, the drug experience of the interviewed adolescents and young adults of varying ages is presented based on the cross-sectional survey. The graphic clearly shows that the percentage of those with drug experience increases with the age of the survey participants. A greater increase in drug experience with ecstasy, speed, hallucinogens and cocaine can be seen, in particular, between the ranges of 'under 18 years' and '18–24 years'. The probability of first use of these drugs is highest at this age. After that, the rates of increase decline. Among the eldest survey participants, experience with speed again declines slightly. As the mean age for first use of cannabis is 15.8 years, the highest rate of increase is not included in this illustration,

which thus begins at a comparatively high level. With regard to opiates, the steepest increase in user experience occurs at over 25 years of age.

In order to examine at what age the use of substances is particularly relevant, the monthly prevalence of individual substances was related to age. However, opiates were not included because of their relatively low significance in the present study (fig. 15). With regard to the increase and decrease in drug use, subtly differentiated statements must be made about each of the substances and age ranges. On the whole, persons between 18 and 21 years of age were more involved in illegal drug consumption than the younger survey participants. After 18, however, the prevalence of current drug use varied only slightly. It is very obvious that drug use in the techno party scene is not dependent upon age, which is contrary to all results drawn from representative, general population studies. In the general population, the probability of current drug use begins to decline somewhere after the age of 20 in direct correlation to age [6].

Drug Use and Involvement in the Techno Party Scene. In the exploratory study 'Drug Affinity among Youths within the Techno Party Scene' [5], a more significant correlation between the extent of drug use and behaviour-related involvement could be demonstrated among adolescents and young adults who were interviewed chiefly in Berlin. According to this study, drug consumption increased in parallel with going out frequency and the length of time spent out. In the present study, we investigated whether this relationship is also true for the European survey sample and to what degree the two measurements, taken individually, correlate with drug use. Figure 16 shows the monthly prevalence of each illegal drug in relation to the going out frequency. Though the monthly prev-

Fig. 15. Drug use in the previous month and age (n = 3,503).

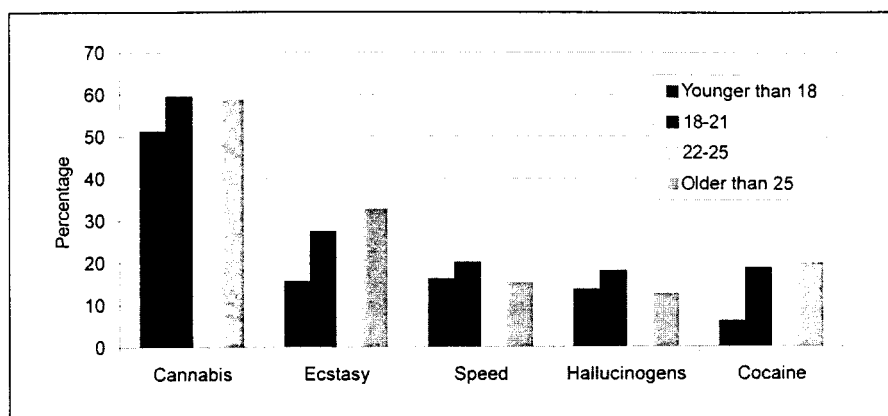
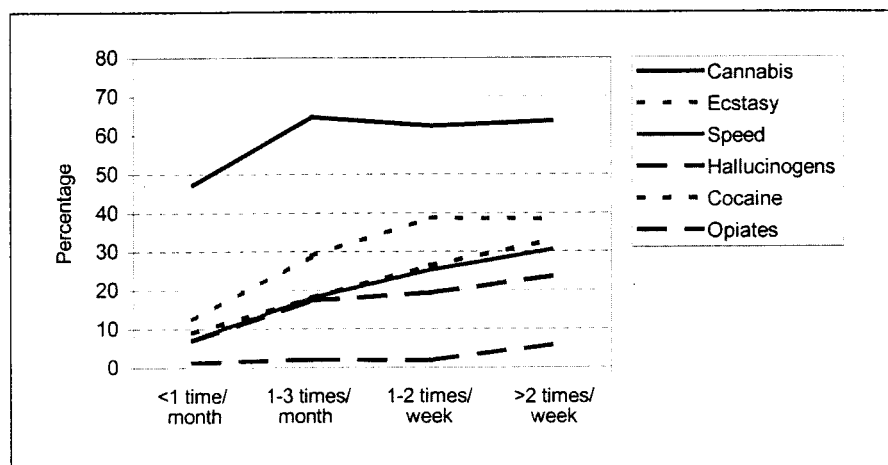


Fig. 16. Drug use in the previous month and going out frequency (n = 3,503).



alence of drug use and going out frequency show a direct correlation, the results require a more differentiated examination. No significant correlation was found between the frequency of techno party attendance and the probability of cannabis consumption.

With regard to ecstasy, amphetamines, hallucinogens and cocaine, a highly significant correlation exists between the frequency of techno party attendance and the use of these substances. A 'sharp bend' in the increase can be noticed with regard to ecstasy, certainly concerning the group who go out once or twice a week. An even higher going out frequency evidently has no added effect on the probability of ecstasy use, but it does have an effect on the use of speed and cocaine. The monthly prevalence of both these substances undergo almost linear changes in keeping with going out frequency. The use of hallucinogens also rises. Still, in comparison with the above-mentioned drugs, the increase in hallucinogen consumption is distinctly lower in relation to a going out frequency higher than 1-4 times a month. The prevalence of opiate use

increases only slightly with deeply involved techno fans and remains on the whole at a low level.

The correlation between the length of time spent out and the monthly prevalence of drug use is presented in figure 17. Two results can be read from figure 17: (1) the length of time spent out affects drug use in a similar way as the going out frequency, i.e. the longer a person usually stays out, the more likely drug use becomes, and (2) this correlation is even clearer than in the comparison of the use of speed in metropolitan cities (see below). It is true that the prevalence rate increases by smaller stages the longer the time spent out. The final level, however, turns out to be higher than in the case of increased going out frequency.

Pattern of Drug Use in European Metropolitan Cities

In the preceding chapters, different variables were individually examined, from which an effect on drug use was deduced. This method has, however, a decided disadvantage; for instance, gender differences may be due to

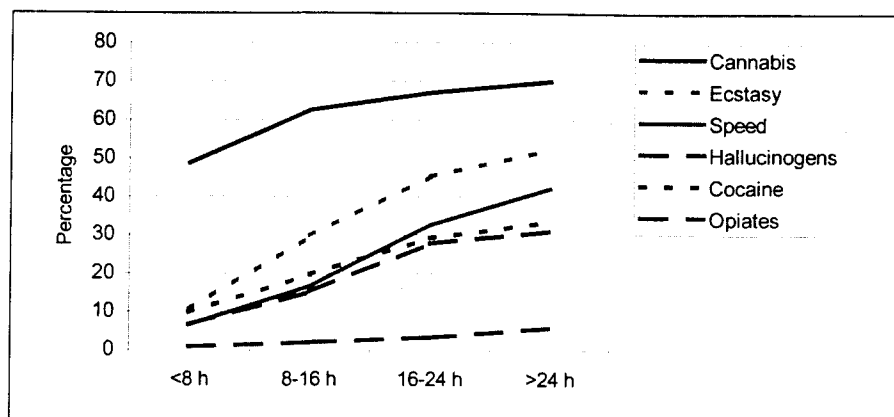


Fig. 17. Drug use in the previous month and length of time spent out (n = 3,503).

Table 12. Example of a (shortened) SPSS issue (dependent variable = drug use in the preceding month)

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
City			292.4889	6	0.0000	0.2927	
Vienna	-0.5774	0.1447	15.9146	1	0.0001	-0.0652	0.5614

the fact that men go out more often than women, and the going out frequency has a strong correlation to drug use. In this case, the perceived gender differences actually have to be attributed to going out frequency. If the focus is on gender influence in relation to drug use, then this influence will have to be purged of the effect of going out frequency. Such a purge can be effected with the dependent variable 'drug use', for example, on the basis of a multiple linear regression. If gender is taken as a regressive equation in which the going out frequency is already found, then the effect of the going out frequency will be purged. If this method is applied to the comparison of metropolitan cities, the following will occur: if the variable 'metropolis' is taken in a regression in addition to the already analysed variables, then the metropolis effect will thus be purged.

Another problem arises, as the dependent variable 'prevalence of drug use' is encoded with just the binary code: 0 (no drug use) and 1 (drug use). For this reason, a modified form of multiple regression will be necessary, i.e. the so-called logistical regression. Then, the quantity to be explained can be measured as a discrete or categorial variable [19].

In table 12, an example of a (shortened) SPSS issue is given in order to clarify what results the logistical regression yielded and how these are to be interpreted. In the

above example and in the results that will subsequently be given, the values in the columns with the heading Exp (B) are of interest. In the Vienna row, the value Exp (B) = 0.5614 means that, regarding cocaine, the ratio of drug users to non-drug users in Vienna is 0.5614 times – i.e. about one half – as large as the corresponding ratio in Europe⁴. Formally expressed, Exp (B) would be written as follows:

$$\text{Exp (B)} = \frac{\frac{\text{probability of drug use in Vienna}}{\text{probability of no drug use in Vienna}}}{\frac{\text{probability of drug use in Europe}}{\text{probability of no drug use in Europe}}} = 0.5614$$

For the expression Exp (B), the term odds ratio is usually used⁵. Thus, the 'ratio of drug users to non-drug users' will be referred to simply as the 'odds ratio'.

Drawing from the results of the variables examined above, the actual metropolis effect was investigated by purging it of the influences of age, gender, going out fre-

⁴ 'Europe', in this case, is formed of all the metropolitan cities included in the calculations. Therefore, Europe is identical to the entire survey.

⁵ This expression would often (though not altogether correctly) be interpreted as follows: the probability of using cocaine in Vienna is smaller by a factor of 0.5614 than in Europe.

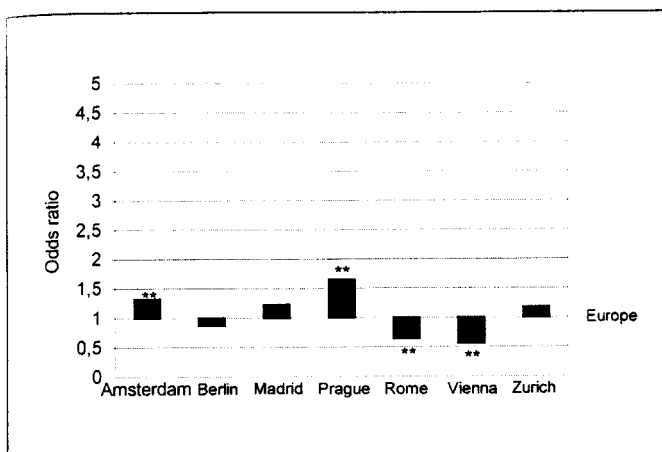


Fig. 18. Comparison of the use of cannabis in the metropolises. ** $p = 0.01$.

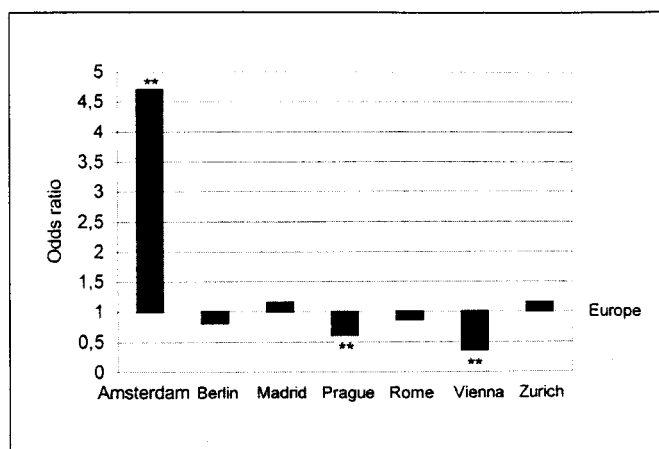


Fig. 19. Comparison of the use of ecstasy in the metropolises. ** $p = 0.01$.

quency and the length of time spent out. In the following presentation, the odds ratio values were removed and significant values were labelled either $p = 0.05$ or 0.01^6 . With regard to the use of cannabis, the divergences from the European ratios are presented in figure 18. In Amsterdam, Prague, Rome and Vienna, the ratio of cannabis users to non-users differs significantly from the ratio prevailing in Europe. In this regard, no statistically important difference appears when Berlin, Madrid and Zurich are compared to the overall survey sample. In Prague and Amsterdam, the ratio of cannabis users to non-users is larger than in Europe by factors of 1.6 and 1.3, respectively, while in Rome and Vienna, the percentage of users is significantly smaller. On the whole, however, the variances in the overall survey sample can be interpreted as moderate.

On the other hand, concise differences appear regarding the user ratios for current ecstasy consumption (fig. 19). In Amsterdam, the odds ratio with regard to ecstasy is 4.7 times higher than in Europe. In Berlin, Madrid, Prague, Rome and Zurich, the ecstasy consumption does not differ significantly from that of the whole survey sample. In Prague and Vienna, however, the user to non-user ratio is significantly smaller than in Europe.

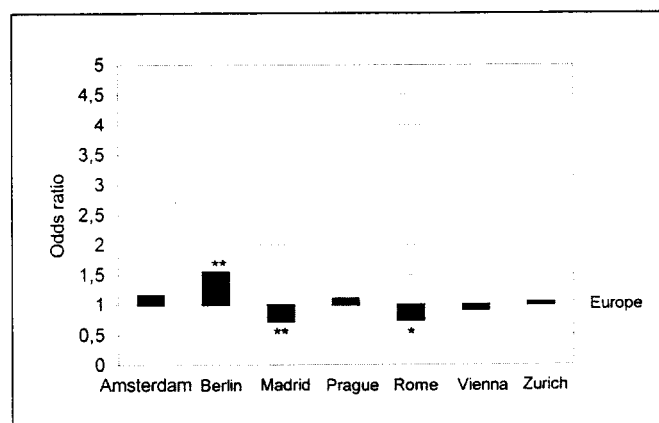


Fig. 20. Comparison of the use of speed in the metropolises. * $p = 0.05$, ** $p = 0.01$.

The comparison of probabilities of the use of speed is shown in figure 20. Only in Berlin, Madrid and Rome were the user ratios of speed significantly different from those in Europe. While the percentage of speed users was greater in Berlin by a factor of 1.5, it was significantly smaller in Madrid and Rome.

Similarly, minimal differences were found with regard to the current use of hallucinogens (fig. 21). Compared with the overall survey sample, Prague has the highest odds ratio of all the investigated metropolitan cities, not only for cannabis but also for hallucinogens. Zurich was also significantly above the European average. In Rome and Vienna, the current percentage of hallucinogen users

⁶ The result tables (SPSS issues) are given in the study of Tossmann et al. [20]. The beauty of these models, that is, the reliability with which the actual force of the dependent variable can be prognosticated with the model, can be seen from the probability of accuracy in discovering the current drug users and non-drug users.

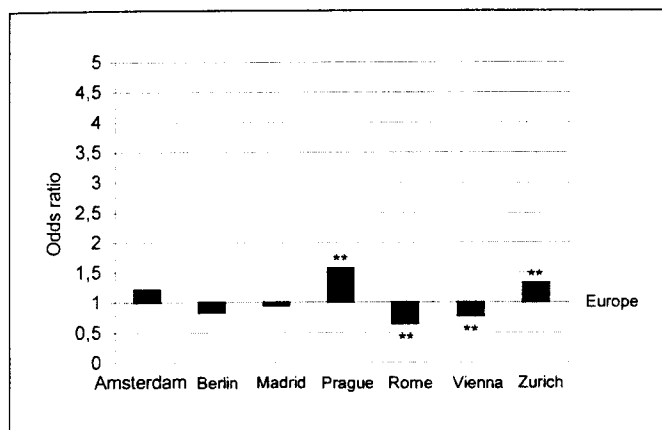


Fig. 21. Comparison of the use of hallucinogens in the metropolises. ** $p = 0.01$.

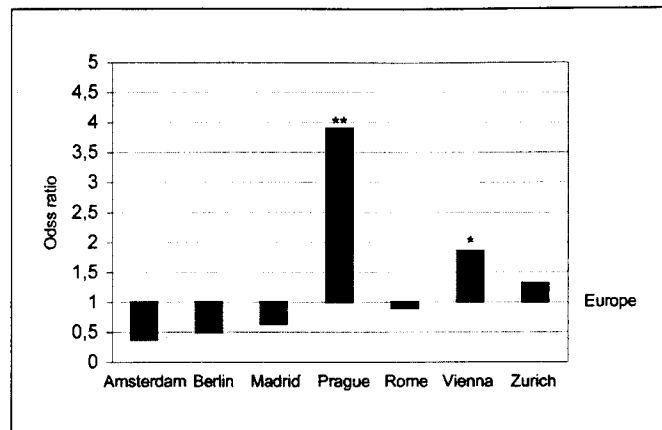


Fig. 23. Comparison of the use of opiates in the metropolises. * $p = 0.05$, ** $p = 0.01$.

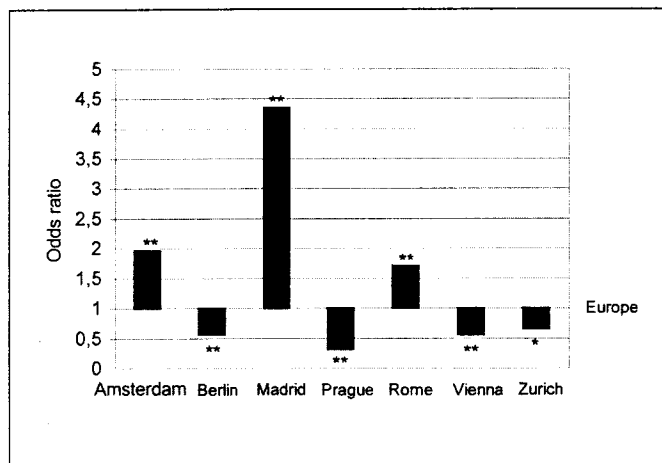


Fig. 22. Comparison of the use of cocaine in the metropolises. * $p = 0.05$, ** $p = 0.01$.

is notably smaller than in Europe. The absolute differences in comparison to Europe are, however, relatively small. For Amsterdam, Berlin and Madrid, these differences are of no significance.

Regarding the use of cocaine, an essentially heterogeneous picture of the differences is presented (fig. 22). As a consequence of the heterogeneity of cocaine use in Europe, each metropolis significantly differs from the survey as a whole. In Madrid, the ratio of cocaine users to non-users is 4.4 times higher. In Amsterdam and Rome, the odds ratio for current cocaine use is also distinctly higher. The proportionally smallest group of cocaine users is found in Prague, which is probably related to the dimin-

ished purchasing power in Prague or perhaps the reduced availability of the drug.

Regarding the use of opiates, however, Prague presents an entirely different picture (fig. 23). The ratio of current opiate users to non-users is almost 4 times greater in Prague than in the overall survey. In Vienna, the odds ratio for opiates is larger by a factor of at least 1.9 than the European average. This number is surprising, because the ratio of users to non-users regarding other substances is without exception smaller in Vienna than in Europe. Amsterdam, which was above average with regard to the other drugs investigated, surprisingly ranges lowest with regard to opiates. This deviation, however, is of no significance.

Discussion

The research presented here deals with the question of drug use in the techno party scene of European metropolitan cities. A subtly differentiated portrayal of the techno party visitor has been drawn, especially with a view to his/her involvement in the scene and the use of psychotropic substances.

The specific segment of the current youth leisure culture that was examined presents itself as totally unexceptional with regard to its sociodemographic characteristics. Attending techno parties appears to be a completely normal youth leisure option in keeping with the times. The vast majority of party-goers are integrated in the world of family, school, job training or work, and most of them are found at techno parties exclusively on weekends. It is also

clear that the techno party scene presents a rather open social milieu; that is, the party-going public, as regards its scene involvement, is quite heterogeneous. Correspondingly, the subjective definition of 'techno' may vary; for one person, techno 'represents a lifestyle' [see ref. 5, p. 64], while for another person, techno is simply a type of music he or she occasionally enjoys dancing to.

An important goal of the present study is the prevalence estimation of specific patterns of drug use in the techno party scenes in Amsterdam, Berlin, Madrid, Prague, Rome, Vienna and Zurich. Due to factors regarding research technique, the survey samples are not representative of the respective techno party scenes. Highly varied target groups were recruited for examination so that at least an extensive section of the scene and one as complete as possible was involved in the examination, even if they were not representative. Thus, from June to December 1998, a total of 3,503 visitors of a total of 45 techno events were recruited in all seven metropolitan cities to take part in the metropolis study.

Although we took care, together with our co-workers, to develop as systematic and standardised a method as possible for recruiting the techno event visitors, it was not possible to remove all methodological and conceptual problems. While the techno party scene constitutes a highly internationally oriented European youth culture movement of the 1990s, cultural and, particularly, infrastructural differences can be observed. In Amsterdam, Berlin and Zurich for example, a relatively large and diverse infrastructure of clubs can be found in which techno music is played exclusively. In Rome, techno events take place on a more occasional basis in the larger discotheques for up to 5,000 customers. In Madrid, the difference between techno and 'normal' music is not so strictly observed. Although clubs in which techno music is played are found in each metropolis, it must nonetheless be assumed that the techno party scenes are sometimes differently structured.

The results of the research show first of all that the use of illegal substances is relatively widespread in the techno party scenes of the European metropolitan cities examined. While the proportion of current illegal drug users is clearly under 20% among 15 to 25 year olds in the general population of all European countries, at least every second visitor of techno parties in the investigated metropolitan cities was currently using drugs. In Amsterdam, Berlin, Madrid, Prague, Rome, Vienna and Zurich, the participation in techno parties and dancing to techno music appears to be closely linked with the use of cannabis in particular, and with ecstasy, amphetamines and cocaine.

A greater differentiation of the techno party scene shows that the prevalence of drug use stands in a reciprocal relationship to the size of the event. Random samples obtained from large techno events such as Berlin's Love Parade or the Street Parade in Zurich clearly evidence a lesser degree of drug use than in the smaller, sometimes illegal, techno clubs which were investigated. This phenomenon can surely be explained by the fact that large, wide-ranging techno events also attract young people from the periphery of the techno scene.

The central characteristic of the drug use in the techno party scene of all the investigated European metropolitan cities could be described as a polydrug occasional user model, which can be explained as follows. If visitors of techno parties are differentiated according to their consumption patterns, three specific groups appear: (1) the drug-abstinent adolescent (lifetime), which made up barely 20% of the total random sample; (2) the cannabis user who never uses any other illegal substance (17%), and (3) the third and largest group, characterised by polydrug user behaviour [21]. When looking closely at the frequency of consumption, it must be recognised that it is comparatively low for the overwhelming majority of the interviewed drug users. The polydrug occasional user model is distinguished by the occasional use of diverse substances that are usually (!) combined with one another. Mixed drug usage, i.e. the use of diverse substances within a brief period of time (i.e. within 6 h), appears to be a typical characteristic of user behaviour in all the examined techno scenes of the European metropolitan cities.

Concerning the correlation between scene involvement and drug use, the frequency of party visits as well as the length of time spent there has to be registered first. The results show that the correlation of both these features of techno party scene involvement are highly significant in measuring the prevalence and frequency of drug use. An even more significant correlation as regards drug use can be found with the circle of friends of the survey participants. With regard to all substances, the higher the percentage of personal friends who use a specific substance, the greater is the probability of that drug being used.

In all the metropolitan cities of this survey, a close connection with the techno party scene appears to be related to a large extent with drug use behaviour. The probability of drug use and the frequency of its usage increase with the frequency and length of time spent at techno events. However, this must be interpreted with great care: The correlative relationship between the participation in techno parties and drug use should, under no conditions, be misunderstood as a causal explanation. In this context,

Forsyth et al. [22] also pointed out that a strong relation between techno as a music preference and the probability of illegal drug use could be established among 12- to 15-year-old school children in Scotland ($n = 1,523$). However, neither listening to techno music nor visiting techno parties can be considered a causal explanation for drug use. On the contrary, these results must be interpreted in the light of current theories regarding drug use.

When recurring to the theories of psychological development, it becomes clear that the predominant phase of adolescence is typically marked by experimentation with numerous lifestyles. The use of drugs in this regard is as common as the tendency to prefer cathartic pursuits of leisure [23]. Drug use is, therefore, not a result of visits to techno parties, but rather a possible concomitant phenomenon.

It was established by this study that the probability and the frequency of illegal drug use increases with the extent of connection with the scene. Therefore, the question of causality arises again: does a going out pattern of greater frequency and longer duration lead to increased drug use, or does a tendency to drug use carry along with it a stronger scene orientation? Many sociological and socio-psychological research works of the last 20 years have clearly indicated the influence of peers on drug use. Only more recent research has been able to show that the psychosocial influence is not one-sided [24]. That is, a selection effect takes place, and adolescents actively create the influence milieu they move in by their choice of persons and groups.

What are the consumption patterns found in the techno party scenes of the various metropolitan cities? First of all, cannabis products such as marijuana and hashish are the most widespread substances used by the visitors of techno parties in all metropolitan cities. For 20% of all the 3,503 interviewed persons, an (almost) daily use of cannabis could be established. Contrary to what might be expected, a relatively high probability of cannabis use was discovered in the techno party scene in Prague.

The greatest difference between the metropolitan cities was found with regard to the use of cocaine, opiates and ecstasy. Cocaine use is most widespread in the metropolitan cities of Madrid and Rome, whereas the use of opiates is especially prevalent in Prague. It must be pointed out, however, that opiates have far less significance than 'classical' party drugs such as ecstasy, speed and cocaine within the European techno scene. The use of ecstasy is especially widespread in Amsterdam, whereas this substance is comparatively less likely to be used in the eastern metropolitan cities of Prague, Berlin and Vienna.

What is the significance of these results for drug prevention? For the first time, politically responsible persons and field workers of all western European countries with an epidemiological trend towards the use of synthetic drugs have combined forces to demand a critical stocktaking of current drug prevention measures in order to develop new programmes. A group of experts contracted by the European Monitoring Centre for Drugs and Drug Addiction to survey the current prevention programmes in the EEC came to the conclusion that 'most Member States run, or are planning to run, activities specifically related to synthetic drugs. In general, the number of activities organized follows the rough prevalence of synthetic drug use. (...) The education of legislators, policy-makers and planners about the complexities of recreational and dance drugs will become an increasing priority in the future' [see ref. 25, pp. 90-91].

Even though there is a wide consensus in many European countries concerning the need for specific drug prevention measures, deficiencies on the programming level can still be detected. The concepts of school drug prevention should also be reconsidered in view of the new drug situation.

A further implication of this study concerns drug prevention measures focusing on specific target groups. The lifestyle and milieu of the target group should be taken into account, and, as far as possible, target groups should take part in working out these measures. However, target group orientation, in this case, also means that the onset of programmes should be at the location of target groups, either by mere information (leaflets, information stands, etc.) or by more complex services involving diverse scene-familiar co-operation partners. In the past few years, drug prevention initiatives have emerged which are located in the techno party scene, and which are orientated towards the world of the party population. The activities are varied according to the defined target group and the aims to be accomplished. Primary preventive projects pursue the aim of supporting the drug-abstinent ravers in their rejection of party drugs, whereas projects directed towards active drug users focus on harm reduction. Usually, the aim of harm reduction projects is the dissemination of drug use-related information. Although these programmes have a high rate of acceptance in the techno party scene, there is no proof as yet as to whether the dissemination of information is behaviour relevant or adequate as a secondary prevention measure. Künzel et al. [4] have ascertained that the level of subjective information concerning drugs and the risks involved is very high even among the high-risk drug users.

Concerning the current state of secondary prevention programmes, a need for further development (both quantitative and qualitative) must be admitted. Even if drug use in adolescence is usually neither an expression of a problematic situation nor has negative health consequences, it must be assumed that, in connection with spe-

cific 'heavy' patterns of drug use (i.e. high frequency, mixed use, etc.) and the corresponding vulnerability, specific 'drug problems' can arise. Experience shows, however, that this risk group is hardly reached by the traditional youth or drug help services.

References

- Jugendwerk der Deutschen Shell (ed): Jugend '97. Zukunftsperspektiven, gesellschaftliches Engagement, politische Orientierungen. Opladen, Leske und Budrich, 1998.
- Gouzoulis-Mayfrank E, Hermle L, Kovar K-A, Sass H: Die Entaktogene Ecstasy (MDMA), 'eve' (MDE) und andere ringsubstituierte Methamphetaminderivate. *Nervenarzt* 1996; 67:369-380.
- Ayer S, Gmel G, Schmid H: Ecstasy und Techno - Eine Befragung in der französisch-sprachigen Schweiz. *Sucht* 1997;3:182-190.
- Künzel J, Kröger C, Bühringer G, Tauscher M, Walden K: Repräsentative Befragung von Mitgliedern der Techno-Szene in Bayern: IFT-Bericht Bd. 94, München, IFT Institut für Therapieforchung, 1997.
- Tossmann HP, Heckmann W: Drogenaffinität Jugendlicher in der Technoparty-Szene: Ergebnisbericht. Köln, Bundeszentrale für gesundheitliche Aufklärung (BZgA), 1997.
- Herbst K, Kraus L, Scherer K: Repräsentativerhebung zum Gebrauch psychoaktiver Substanzen bei Erwachsenen in Deutschland: Schriftliche Erhebung 1995. Bonn, Bundesministerium für Gesundheit, 1996.
- Solowij N, Hall W, Lee N: Recreational MDMA use in Sydney: A profile of 'Ecstasy' users and their experiences with the drug. *Br J Addict* 1992;87:1161-1172.
- Tossmann HP: Ecstasy-Konsummuster, Konsumkontexte und Komplikationen. Ergebnisse der Ecstasy-Infoline. *Sucht* 1997;43:121-129.
- Kleiber D, Pant A: HIV - Needle-Sharing - Sex. Eine sozialespidemiologische Studie zur Analyse der HIV-Prävalenz und riskanter Verhaltensweisen bei i.v.-Drogenkonsumenten. Bonn, Schriftenreihe des Bundesministeriums für Gesundheit, Band 69a, 1996.
- Kuebler D, Hausser D: The Swiss Hidden Population Study: Practical and methodological aspects of data collection by privileged access interviewers. *Addiction* 1997;92:325-334.
- Kraus L, Bauernfeind R, Herbst K: Hat sich das Alter des Erstkonsums illegaler Drogen verschoben? Survivalanalyse retrospektiver Querschnittsdaten 1980-1995. *Z Klin Psychol* 1998;27:20-29.
- Van de Wijngaart G, Braam R, de Bruin D, Fris M, Maalsté N, Verbreack H: Ecstasy and the Dutch Rave Scene - A Socio-Epidemiological Study on the Nature and Extent of, and the Risks Involved in Using Ecstasy and Other Party Drugs at Dance Events: Research Report. Utrecht, Addiction Research Institute, 1998.
- Kriener H, Schmidt R, Smekal G: Checkit! Bericht zum wissenschaftlichen Pilot-Projekt Checkit! Mit Daten und Erfahrungen aus den Jahren 1997 und 1998. Vienna, Verein Wiener Sozialprojekte, 1999.
- Eve & Rave: Ecstasy-Pillen 1997. Qualitative und quantitative Analyse von Ecstasy-Pillen. Informationsbroschüre (www.eve-rave.ch). Zurich, Eve & Rave, 1997.
- European Monitoring Centre for Drugs and Drug Addiction: Extended Annual Report on the State of the Drugs Problem in the European Union. Lisbon, EMCDDA, 1999.
- Abraham MD, Cohen PDA, van Til RJ, Lange-meijer M: Licit and Illicit Drug Use in Amsterdam III: Developments in Drug Use 1987-1997: Research Report. Amsterdam, Centre for Drug Research, University of Amsterdam, 1998.
- Die Drogenaffinität Jugendlicher in der Bundesrepublik Deutschland 1997: Endbericht. Köln, BzGA, 1998.
- Schweizerische Fachstelle für Alkohol- und andere Drogenprobleme: Zahlen und Fakten zu Alkohol und anderen Drogen 1999. Lausanne, SFA, 1999.
- Urban D: Logit-Analyse: Statistische Verfahren zur Analyse von Modellen mit qualitativen Response-Variablen. Stuttgart, Gustav Fischer, 1993.
- Tossmann HP, Boldt S, Tensil MD: Drug Affinity amongst Youths within the Techno Party Scene in European Metropolises: Final Report. Luxembourg, European Commission, 2000.
- Forsyth AJM: Places and patterns of drug use in the Scottish dance scene. *Addiction* 1996;91: 511-521.
- Forsyth AJM, Barnard M, McKeganey NP: Musical preference as an indicator of adolescent drug use. *Addiction* 1997;92:1317-1325.
- Silbereisen RK, Reitzle M: Selbstwertgefühl, Freizeitpräferenzen und Drogengebrauch im Jugendalter; in Frey HP, Hausser K (eds): Identität. Stuttgart, Enke, 1987, pp 125-138.
- Kandel DB: The parental and peer context of adolescent deviance: An algebra of interpersonal influences. *J Drug Issues* 1996;26:289-315.
- Griffiths P, Vingoe L, Jansen K, Sherval J, Lewis R: New trends in synthetic drugs in the European Union: Epidemiology and demand reduction responses; in European Monitoring Centre for Drugs and Drug Addiction (ed): Insights - New Trends in Synthetic Drugs in the European Union. Lisbon, EMCDDA, 1997, p 90.