

The following short articles are linked together. They inform about the setting up of a research network on the epidemiology of substance abuse in Germany, describe the different projects involved and give an overview of the progress in each study.

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German Research Network 'Analytical Epidemiology of Substance Abuse' (ANEPSA)

ANEPSA Research Group

Epidemiological Research in Germany

Epidemiological studies on substance use in German population samples have a long tradition, but epidemiological *research* has rather been limited until recently. This obviously contradictory statement needs some explanation. Since 1973 large-scale representative surveys in the youth population from 12 to 24 years have been carried out on a regular basis, commissioned by the Federal Centre for Health Education, and since 1980 similar surveys have been done in the adult population (18–39 respectively 59 years) commissioned by the Federal Department of Health.

Based on 14 cross-sectional studies conducted in the last 25 years, prevalence figures, consumption patterns and long-term trends have been analysed, as a basis for the documentation of substance use and indications of abuse in Germany [1, 2] and for the planning of health political activities of different governmental organisations [for an overview of early studies in this area, see 3 and 4].

But given the large amount of such surveys, in-depth analyses of these data have only recently started to be carried out. Furthermore there was a lack of prospective studies on the course of substance use over time or on risk and protective factors for the onset of different stages of substance use and dependence. Longitudinal studies based on modern classification systems such as ICD-10 or DSM-III/IV and adequate diagnostic instruments were not conducted, except for clinical studies.

The Setting Up of ANEPSA

In December 1992 the Federal Department for Education and Research announced a large national research funding programme 'Biological and psychosocial factors of drug abuse and drug dependence' in the following areas: neurobiological basic research; epidemiological research; research in prevention; treatment research.

Out of 62 research proposals with about 200 single projects, 37 were funded from 1994/1995 onwards [for further details, see 5–7].

Five of them in the field of epidemiology were linked together as a network in order to co-operate in the research on the course of substance use and abuse over time and in the analysis of factors related to the onset and change of substance use patterns.

Project 1: Longitudinal Risk Cohort Study on the Onset, Course, Prevalence and Prevention of Illegal Drug Abuse

Cohorts of people under risk and in different stages of drug use or abuse (students, first offenders, first treatment contacts, long-term drug users without clinical symptoms and drug users from representative surveys; $n = 1,147$) will be analysed retrospectively and prospectively over 4 years with annual data collection. The study stresses the analysis of drug users who have often been neglected in previous studies, e.g. people with high prevalence figures and low or no clinical symptoms. Targets of the study are the development of descriptions for patterns of drug use and changes over time as well as the analysis of protective and risk factors related to possible changes of drug use patterns (principal investigators: Dr. Gerhard Bühringer, Dr. Heinrich Küfner, IFT Institute for Therapy Research, Munich).

Project 2: Prevalence, Risk Factors and Incidence

A random population sample of 3,021 subjects aged 14–25 years from a circumscribed metropolitan area (Munich) is analysed retrospectively and prospectively over a period of up to 4 years with two waves of personal follow-up interviews. Primary objectives besides the estimation of prevalence and incidence of specific types of substance use disorders (including nicotine and alcohol) in this age group are (a) the description of early developmental stages of substance use and abuse patterns, (b) the description of the natural course with emphasis on the identification of psychosocial, psychological and family genetic and developmental risk and protective factors for symptom progression, remission, and chronicity and (c) the assessment of impairments and psychopathological complications (secondary comorbidity) associated with substance abuse patterns (principal investigators: Prof. H.-U. Wittchen, Dr. R. Lieb, Max Planck Institute for Psychiatry, Munich).

Project 3: Family Genetic Factors

Linked to the population sample, parents of all 14- to 17-year-old respondents have been personally interviewed with a modified version of the Munich Composite International Diagnostic Interview (M-CIDI) to assess parental psychopathology, substance use and history, family climate variables along with additional medical and developmental information about their children's development. This

family genetic information is used to examine to what degree family genetic factors, family climate as well as the children's developmental characteristics contribute to the prediction of early stages of substance use, abuse and dependence patterns (principal investigators: Dr. R. Lieb, Prof. H.-U. Wittchen).

Project 4: Substance Use, Abuse and Dependence among the Adult Population in a Rural and an Urban Region of Northern Germany

The aim of the project is to investigate the prevalence of substance abuse and dependence in the adult general population and to analyse the individual and environmental circumstances of substance use and misuse (n = 4,075). Several relevant constructs associated with change of drinking and smoking behaviour are assessed to derive implications for population-based prevention programmes. Other mental disorders are investigated with regard to their impact on substance abuse (principal investigator: Prof. U. John, Ernst Moritz Arndt University, Greifswald).

Project 5: Remission from Alcohol Dependence without Formal Help

Individuals remitted from alcohol dependence without formal help are analysed retrospectively and prospectively with respect to triggering and maintenance factors of remission. Individuals (n = 200) are recruited by media-based solicitation or are drawn from the sample of project 4. Several relevant constructs (e.g. social support of self efficacy) are compared to alcohol dependants not remitted or in treatment (principal investigator: Prof. U. John).

Common Characteristics of the ANEPSA Projects

In spite of differences in the selection of the study population and the stress on different substances like alcohol or illicit drugs, all projects have some common characteristics.

(1) The consumption patterns, the consequences and possible factors related to the onset, the change or the termination of substance use or abuse are documented for each study person in a comparable way. In all studies, diagnostic assessments are based on the computer assisted personal interview (CAPI) version of the M-CIDI [8], supplemented by the CIDI-SAM (substance abuse module) [9]. The CIDI-SAM is a fully structured extended CIDI module which was designed as an optional module to expand the substance use sections of the CIDI.

(2) In the context of longitudinal studies the data collection and classification of the consumption patterns and their consequences will be repeated several times.

(3) Possible factors (e.g. vulnerability, risk and protective factors) which might influence the changes over time are analysed according to specific hypotheses and theoretical concepts in the different studies.

To guarantee the comparability in the design of the study, in the data collection and data analysis, the three research groups work tightly together in several areas: the use of a common code book (CIDI), the training of interviewers, operationalisation of stages of drug consumption in the field of illicit drugs and alcohol as well as in methodological aspects of representative surveys (in projects 2 and 4).

Common Targets

The different research groups analyse different hypotheses and theoretical concepts about the factors related to the use and abuse of psycho-active substances, but the technical concept and the structure of the longitudinal studies are highly standardised in order to gain additional benefits by comparing or adding the data and data analysis from the different studies. This is the major target of the co-operative approach of the three research groups which has several advantages.

(1) The data from all studies can be analysed with the specific hypotheses of each of the research groups. This synergy allows to build large samples much more easily than in a single study, which is necessary for rare statistical events like illicit drug use.

(2) Standardisation of terms for the description of different stages of drug use is the second target. Today even simple categories like 'experimenters' or 'regular users without negative consequences' are defined differently in every study. This is also true for the definition of 'spontaneous remission'. As a consequence comparative analyses of existing results from different studies are limited. Therefore the research group will develop proposals for standardised definitions of stages of drug use.

(3) The diagnostic criteria used in ICD-10 and DSM-III/IV are developed for adults. The research groups put forward the hypothesis that these diagnostic criteria are not appropriate for young people. The researchers work together to test this hypothesis and to develop a proposal for age-related diagnostic criteria.

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**Project 1:
Longitudinal Risk Cohort Study on the Onset,
Course, Prevalence and Prevention of Illegal Drug
Abuse**

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Key Words

Substance abuse and dependence · Risk factors · Illegal drugs ·
Longitudinal study · Prevalence

Introduction

Cross-sectional and longitudinal studies about drug use confirm that regular sequences of progression from legal to illegal drugs appear among adolescents and young adults of both sexes, irrespective of the onset age of drug use [1, 2], but the model of stages in drug behaviour does not imply that these stages are either obligatory or universal such that all adolescents must progress through each stage in turn. The use of a specific drug does not invariably lead to the use of other drugs higher up in the sequence. A number of studies have emphasised the fact of drug consumption as being part of a maturity process. In this case, drug consumption does not necessarily result in drug addiction or in severe problems [3]. Other theoretical perspectives stressed the fact that the use of various drugs and the participation in various problem behaviours are part of a personality constellation in interaction with the environmental system [4, 5]. Within the framework of a stage-based model of drug involvement it is possible to identify specific risk factors that explain movements from one stage of drug use to the next [6, 7].

Until now, there have been no empirically based descriptions or analyses of these varying patterns in Germany. Most research on drug addiction is done in the framework of treatment evaluation or population surveys.

The major aim of this study is to improve the knowledge about risk and protective factors for initiation of drug use and transition to drug abuse or dependence. Influence factors are the family, the peer group, personality characteristics and social institutions (legal system, health system, community factors). The main research issues are:

(1) to develop a system of drug use patterns including consequences for describing the initiation and the course of drug use in the sample;

(2) to analyse consequences of drug use in relation to frequency and type of drugs used and other factors in relation to social and personality factors within the subject's history;

(3) to find specific protective and risk factors in the subject's history correlated with onset and changes in drug use behaviour over time;

(4) to describe the course of drug use, life events and personality changes in relation to factors leading to an increase or decrease in drug involvement or to a cessation of illegal drug use;

(5) to develop a comprehensive model including protective and risk factors of the subject's history and the changes of social and personality variables in the course of the study.

Method

Design

The study design can be characterised as a prospective longitudinal study with different cohorts of drug users and non-users. Four annual interviews are planned over a 4-year period.

Sample

The sample consists of various cohorts of (young) persons to assure that different subgroups of drug users are included:

(1) a group of young persons were contacted in youth clubs and community centres or belong to a subsample of the representative survey of the Max Planck Institute for Psychiatry (see project No. 3) characterised by lifetime drug use in the first wave of their data collection;

(2) unknown drug users: we supposed that infrequent or occasional users in general do not have any contact with treatment centres or with the police; therefore we tried to reach this group by advertisements in newspapers, in university areas and by snowball sampling asking respondents to motivate others to participate in the study;

(3) treated persons were reached in cooperation with treatment centres and organisations involved in (drug) welfare;

(4) in cooperation with two prisons we contacted persons registered in police records;

(5) a subsample of non-users was selected in cooperation with the Max Planck Institute for Psychiatry.

Instruments

Data are obtained from personal computer-aided interviews lasting from 2 to 4 h and additional self-rating questionnaires. The computerised interview covers the following topics: demographic variables, family background, social network, life-style variables, health conditions, deviant behaviour and treatment demands.

With regard to the other studies in the research network and for reasons of comparability, lifetime and current use of legal and illegal drugs was measured with three substance specific sections of the M-CIDI (Munich Composite International Diagnostic Interview). In addition, frequency and quantity of drug use were assessed. The paper-pencil part of the interview included questionnaires about social resources, depression, coping and personality factors. In the second wave of data collection, questionnaires about hyperactive behaviour in childhood and sensation seeking were included.

Data Analysis

The data analyses are based on descriptive and multivariate logit analyses and causal analytic models. The first step of the data analyses consisted of forming three subgroups of drug consumption status. Subjects were classified into non-drug users, drug users without diagnosis (abuse or dependence according to DSM-IV) and drug users with diagnosis. The analyses are conducted for different main groups of drugs: cannabis, stimulants and cocaine, opiates.

State of the Project

The project started in 1994, the first data collection was carried out in 1996, further interviews are planned in 1997, 1998 and 1999. In our analyses of the first wave, we focussed on frequency and potentially negative consequences of legal and illegal drug use to define a system of drug use patterns.

At present the third wave is in progress. Further analyses will focus on antecedent factors and consequences of drug use. Most subjects of our sample have already initiated drug use at the first wave. Because of the high prevalence of drug use at the first data collection we are in a good position to study different patterns of drug consumption and the process of drug use. These groups are compared with persons without drug use or with experimental use.

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Projects 2 and 3: Vulnerability and Protective Factors in Early Developmental Stages of Substance Use Disorders

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Key Words

Abuse · Dependence · Development · Risk factors

Introduction

In Germany, only few epidemiological data are available concerning the prevalence and incidence of specific forms of substance use disorders as codified in the ICD-10 or DSM-III-R. Further, even internationally, few studies have described the natural course of early

stages of substance use disorders in representative samples, large enough to allow the identification of developmental patterns, with their possibly specific vulnerability and risk factors as well as their typical psychosocial, medical, legal and psychopathological complications over time. This type of information can be regarded essential for our understanding of substance use disorders and more practically to identify empirically derived targets for substance-specific preventive activities.

Further, because of the lack of longitudinal studies, there are no sufficiently detailed data available about (a) the transitions from use to abuse and from use to dependence, (b) the reverse from abuse and dependence to remission and non-use, and (c) the factors which contribute to such transitions. Another key topic requiring further elaboration in this context is the role of the family in the development of substance use/substance use disorders. As we know from various studies, there is a greater risk for children to develop such a disorder when there are substance use disorders and/or other mental disorders in their family, but what are the specific pathways of such familial transmission?

Methods

Global Goal and Design

The study prospectively investigates over a period of 4 years how frequently and why 14- to 24-year-old adolescents and young adults use substances and develop substance abuse or dependence. Thus, the overall design of the study is prospective, consisting of a *baseline survey* (summer 1995) and *two follow-up surveys* (winter 1996/1997, summer 1998). As we focus on the younger cohort in the first follow-up survey, we will re-examine only the originally (at wave 1) 14- to 17-year-olds. For this age group, the influence of specific family factors and early developmental characteristics in the development of substance use disorders is investigated by a face-to-face *interview family study* which is carried out just after the second wave. Subjects of the family study are predominantly mothers because pilot studies have shown that they can give more adequate information about early developmental risk factors and familial influences (e.g. familial psychopathology, parental rearing behaviour etc.) than fathers.

Samples

First Wave. The baseline sample (first wave) was drawn from 1994 government registries in metropolitan Munich expected to be 14-24 years of age during the first half of 1995. Because of the special interest in the development of substance use disorders, 14- to 15-year-olds were sampled at twice the probability of 16- to 21-year-olds. Among the sampled individuals, a total of 3,021 interviews were completed, resulting in a response rate of 71%. A full description of causes of non-response is presented elsewhere [1].

Second Wave. In the first follow-up survey (second wave), only the former 14- to 17-year-olds were re-examined. In the first wave, 1,395 subjects of this age group were interviewed. Among this sample, a total of 1,228 subjects could be interviewed in the second wave (response rate: 88%).

Family Study. Due to the fact that we were interested in evaluating both the parents' psychopathology as well as the role of the family climate, only parents of 14- to 17-year-olds were investigated. Thus, we contacted the parents of the 1,228 adolescents taking part in the first follow-up survey. A total of 1,053 parent interviews were completed in 1997, resulting in a response rate of 86%.

Instruments

The diagnostic assessments of the children and parents were based on the computer-assisted personal interview version of the Munich Composite International Diagnostic Interview (M-CIDI) [2]. The M-CIDI is a modified version of the WHO-CIDI, version 1.2, supplemented by questions to cover the DSM-IV and ICD-10 criteria. The M-CIDI allows for the assessment of symptoms, syndromes and diagnoses of 48 mental disorders (not counting various subtypes of main disorders) along with information about onset, duration, clinical and psychosocial impairments. The M-CIDI includes (a) the use of symptom lists and memory aids that are assembled in a separate response booklet to improve lifetime recall, ease memory search and shorten length of the interview in the somatisation and anxiety section and (b) different dimensional symptom scales such as the SCL-90-R, Behavioural Inhibition Scale and school stress scales to assess several psychological constructs.

Reliability and Validity of the M-CIDI. The psychometric properties of the M-CIDI have been investigated in various sites and samples and were reported elsewhere [3].

Interviewers. The diagnostic interviews of all waves including the family study are conducted by especially trained interviewers. They all received an intensive M-CIDI training and in the field phase they were supervised continuously by our staff.

Data Analyses

Data Weighting. To account for the different sample probabilities, non-contact and non-response, relative weights for wave 1 and wave 2 are used in all analyses, which adjusts the data by age, sex and geographic location to match the distribution of the sampling frame.

Diagnostic Analysis. Diagnostic analysis is based on the M-CIDI/DSM-IV diagnostic algorithms.

State of the Project

As shown above, the baseline and first follow-up survey as well as the family study have been conducted successfully with remarkable response rates in summer 1995, winter 1996/97 and in spring 1997. In summer 1998, the follow-up survey will be started and hopefully be completed by the end of the year. In this last wave, all adolescents and young adults of the baseline survey will be interviewed again by using the M-CIDI.

Results

The results from the baseline survey have comprehensively been presented and discussed in a recent topic issue 'Early developmental stages of substance use' of the journal *European Addiction Research* [4]. The analyses of the findings of the follow-up and family investigation are currently under way. The following reference list gives a complete overview of papers that have been published so far or are in press [5–20].

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Project 4: Substance Use, Abuse and Dependence among the Adult Population in a Rural and Urban Region of Northern Germany

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Key Words

General population · Prevalence · Epidemiology, mental disorders · Mental health · Alcohol · Nicotine

Introduction

Germany is a wealthy nation with a high level of substance consumption but poor epidemiological research in the past decades. The deficits of the past have included lack of financial support as well as of applications for grants, and lack of interest in the addiction field on the side of politicians as well as of researchers [1].

Confronted with health and social problems – related to substance consumption, abuse and dependence – especially in the health care system, there is an ongoing recognition of the striking urgent need for strategies in primary and secondary prevention of these problems in Germany. In addition, there is a need to investigate processes of individual conditions of change in substance use and help-seeking behaviour to make public and individual interventions as effective as possible.

The aims of our study are: firstly, to estimate the prevalence of substance abuse and dependence in a representative sample of the adult general population in the rural and urban region of a northern German city (Lübeck) and the nearby countryside; secondly, to investigate individual and environmental circumstances of substance use and misuse with focus on nicotine and alcohol. The prevalence of other mental disorders shall be investigated with regard to their impact on use and misuse of substances.

Method

4,075 individuals aged 18–64 years were randomly recruited from the resident registration office files in northern Germany and interviewed – mostly at their homes – by 56 trained lay interviewers. The interviewers had former experience with difficult and demanding surveys. In addition they were trained for 1 week by a group of WHO-CIDI trainers. The interviews were critically reviewed by 5 psychologists. Incomplete or inconsistent interviews were completed by an additional interview.

The interview contained a DSM-IV adapted computerised version of the CIDI [2] and additional questionnaires. From the CIDI the modules for substance-related, mood, anxiety, somatoform and eating disorders were used. The paper-pencil part of the interview includes questionnaires for the topics alcohol, nicotine, health behaviour, mental health, social resources and environmental factors.

Alcohol

Screening instruments: Alcohol Use Disorders Identification Test [3]; Lübeck Alcohol Dependence and Abuse Screening Test [4]. Severity of dependence: the Lübeck Alcohol Dependence Scale [5]. Readiness to Change Questionnaire [6]; Alcohol Decisional Balance Scale [7]; coping of unsuccessful attempts to quit drinking (adapted instrument based on Reicherts and Perrez [8]); Reasons for Not Seeking Help [9, 10]; Social Pressure Scale [11]. Adverse Consequences from Drinking [12]; Questionnaire of Help-Seeking (self-construction).

Nicotine

Fagerström Test for Nicotine Dependence [13]. Readiness to Change Questionnaire [6] (modified version).

Mental Health

Mental Health Questionnaire (based on Trier Personality Questionnaire [14]); Five-Item Mental Health Screening Test [15]; Sense of Coherence Questionnaire [16, 17]; Short Sense of Coherence Questionnaire [18].

Social Resources and Environmental Factors

Satisfaction with life domains (adapted from Dlugosch and Krieger [19]); Satisfaction with Life Scale [20]; Social Support Appraisal Scale [21]; Normative and Subjective Analysis of Work Conditions [22].

Health Behaviour

Multidimensional Health Locus of Control Scale [23]; Nutrition and Sporting Questionnaire (construction based on Dlugosch and Krieger [19] and Fuchs [24].

State of the Project

The response rate of the survey is 70%. The highest rate of 73% in the group aged between 18 and 24 years decreases continuously down to 68% among those aged between 55 and 64 years. The randomly selected sample proved to be sufficiently representative in sex ratio, proportion of urban versus rural residents and age distribution. Preliminary findings reveal relevant target groups for population-based interventions in the addiction field.

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Project 5: Triggering and Maintenance Factors of Remitting from Alcohol Dependence without Formal Help

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Key Words

Alcohol dependence · Remission · Natural recovery ·
 Triggering mechanisms · Maintenance factors

Introduction

The majority of research efforts in the field of alcohol dependence is based on studying individuals who seek help. However, findings from the Epidemiological Catchment Area Study show that only 22% of alcohol dependants sought help in a 12-month period [1] and the National Longitudinal Alcohol Epidemiologic Survey revealed that only 14.1% of individuals with alcohol dependence or abuse ever received treatment [2]. Moreover, little is known how alcohol dependants achieve remission without receiving formal help, although data indicate that there is a substantial rate of natural recovery. In a Canadian general population study, 77% of recovered problem drinkers received no formal help [3]; however, subgroups according to dependence or abuse were not differentiated.

Most studies on natural recovery from alcohol dependence did not include control groups [4]. More recent research projects with a control group design focussed on triggering mechanisms, especially life events [5, 6]. Data dealing with psychological maintenance factors such as self-efficacy or coping mechanisms are lacking [7] or are not based on standardised instruments [8]. Such findings could give a fresh impetus to treatment approaches. The aim of this study is to examine triggering factors and maintenance factors of remission from alcohol dependence without formal help. Methodological improvements are based on a control group design, standardised assessment of relevant psychological constructs and a follow-up study.

Method

Remitted alcohol dependants are recruited by media-based solicitation (newspaper articles and advertisements, broadcasting and television reports). In addition, part of the sample will be derived from a representative general population study of 4,075 respondents. In total, 220 remitters shall be investigated in a personal interview. Inclusion criteria are: alcohol dependence according to DSM-IV or ICD-10 criteria for research, remitted for at least 6 months, no in-patient or out-patient treatment. Two groups are: (1) no formal help – attendance of no more than 2 self-help group meetings like AA and no more than one advice by a physician; (2) minor formal help – attendance of no more than 10 self-help group meetings and no more than 5 counselling sessions by a physician. Controls are recruited from a general population sample (current dependants), treatment settings and self-help groups (dependants remitted for less than 1 year).

The interview differentiates three time frames: (1) 2 years prior to remission, (2) 1 year after remission and (3) the year before the interview. Collateral interviews are conducted to confirm data according to the alcohol dependence syndrome, utilisation of formal help, date of remission and alcohol consumption since remission. A follow-up will be conducted after 2 years.

Among others, the following variables will be assessed by predominantly standardised instruments: (1) triggering factors – severity of dependence, adverse consequences from drinking, coping with unsuccessful efforts to drink less or abstain, social pressure, life events, social support and reasons for not seeking help; (2) maintenance factors – coping mechanisms, temptations to drink and self-efficacy not to drink, social support, satisfaction with life, mental health and perceived support in different life domains. Variables are assessed with instruments most of which are specified in the companion article (see above, Project 4).

State of the Project

The project started in July 1995. Data gathering of T1 ended in January 1998. The follow-up is scheduled until January 1999. Preliminary analysis of a subsample shows that adverse consequences from drinking in the domains health, work, family and drunkdriving are relevant triggering factors in remitting from alcohol dependence without formal help, and social support can be regarded as a significant maintenance factor. Furthermore, social support is related to higher alcohol abstinence self-efficacy, lower temptation to drink and specific cognitive ways of coping.

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