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Alcoholism: new aspects in epidemiology, diagnosis, and research

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Recent findings on epidemiology, analytical studies in different settings and data on various therapies have demonstrated the vitality of alcohol research in the German-speaking world. The 11th Scientific Congress of the "German Society on Addiction Research and Treatment (DGS)" at the Medizinische Universität in Lübeck, Germany has clearly demonstrated that addiction disorders, especially alcoholism, is a deeply pervasive and multifacited problem. Dilling (Lübeck, Germany), president of the 11th Congress, noted that in Germany alcoholism is a major disease with 3 million patients, as compared to the 1.4 million pharmacodependents and 100,000 drug addicts. This makes a public policy necessary. According to Aasland (Oslo, Norway) the Scandinavian experience might serve as an example. Raising the taxes in Denmark in 1917 by up to tenfold reduced alcohol consumption to one-fifth from which reduction it recovered very slowly. The annual rates of delirium tremens dropped subsequently from 27.2 to 1.8/100,000 and that of deaths due to alcoholism from 13.7 to 1.9/100,000. Other interesting responses were to reduce opening times for shops of alcoholic beverages, raise the age limit for buying alcohol, ration it and starting information campaigns. When the ration of 1 L of liquor a month was lifted after World War II, Norway saw a dramatic increase in liver cirrhosis. Today, Norway has had to lift its severe restrictions, because its neighbors, Denmark and Sweden, apply the less strict EU regulations. However, under the actual, still confining system, 25% of alcoholic beverages in Norway are brewed illegally.

On the individual level, DiClemente (Baltimore MD, USA) proposed a psychological treatment model for motivation and recovery (abstinence) of the alcoholic. It consists of six phases: precontemplation → contemplation → preparation → action → maintenance → termination or relapse → (pre)contemplation, etc. This model makes it possible to integrate several alarming facts (US statistics): Just 5–10% of alcoholics come under treatment; 20–80% drop out; there is often spontaneous recovery; 70% of treated patients have a relapse in the first year after treatment; most abstinent alcoholics make several fruitless attempts before succeeding; and secondary prevention programs are often unsuccessful in preventing relapse. The processes involved in these steps are awareness of the problem, self-reevaluation, dramatic relief on decision, reevaluation of environment and entourage, and liberation from the social 'compulsion to drink'. In the process of change, the form of the problem changes both symptomatically and situationally by changing cognitions to an interpersonal and finally an intrapersonal problem. Motivation depends on personal considerations and environmental stress, the decision to stop on a balance, on the basis of cognitive and experiential considerations and the self-efficacy in maintenance on behavioral changes. This model was discussed several times during the congress.

Epidemiology

Alcoholism is a prevalent disease; yet per year only 1% of alcoholics are in treatment, 70% visit their general physician for various reasons, and 25% of patients in general hospitals and 2.5% in general psychiatric institutions have an alcohol problem (Stetter, Tübingen, Germany). A study of an outpatient psychiatric service for 1 year found that 7.2% of the patients were alcohol-dependent, 3.5% abused alcohol, 1.2% were suspect and 5.3% were remitted. For the dependent *policlinical* alcoholics, 43% had had previous treatment, 43.3% were alcohol dependent, 12.5 were misusers and 49% were remitted; thus, 51% went spontaneously into remission. Alarmingly high are the percentages of alcoholic disorders found in general practice: 5.3–18.4%, with a sex difference (male/female) of 17.7 vs 6.3%. The highest prevalence is found in the 14–19 and 40–59 year-olds (both 30%) (Hill, Lübeck).

Alcoholism is a malignant, long-term disease. Lesch (Vienna, Austria) reported on an 18-year follow-up study near Vienna. This study revealed that of 315 alcoholics studied, 145 died prematurely, most of them before 65 years of age. It was noted that the younger the alcoholics were when they started, the worse the prognosis was. In addition, these patients were an economic burden because of their many hospitalizations. In a general hospital, 12.7% of the patients per year were alcohol-dependent, 4.8% misused alcohol, 9.7% were suspected of misusing it, 2.6% were remitted alcoholics, and 70.2% were not suspected of having an alcohol problem (n = 1,309). Of the patients that were treated, only 19% were abstinent after 1 year. Advice on seeking professional help and on altering readiness for change were some of the objectives attempted. Military conscripts (n = 5,000, 18–23 year olds) who drank a lot and kept stocks of alco-

Table I. Alcohol-related somatic disorders (%) in a general hospital.

Alcohol disorder (n)	*Typical*	*Probable*	*Other*
Without (938)	3.2	40	56.8
Dependence (149)	68.5	22.8	8.7
Misuse (54)	18.5	53.7	27.8
Suspect (113)	21.2	46.0	32.7
'Alcoholic'	13.4	39.1	47.6

holic beverages, were heavy drinkers before entering the Bundeswehr (Renn, Hamburg, Germany). The adage that the military is the 'drinking school of the nation' is only partly true, however. Up to 20 years of age an alcohol effect dependent solely on age could be demonstrated, after 20 years an extra military effect was evident, but after 21 years there was no more age effect. An increase in drinking was the result of having more opportunities to drink – an effect dependent on the leader of the group.

In the young-age group of the general population (14–25 years, $n > 3{,}021$), alcohol misuse was most prevalent (21.4 and 6.2%, for males and females, respectively), followed by nicotine use with 19.1 and 19.6% and alcohol dependence with 10 and 2.5%, respectively (Lachner, Munich, Germany). A mean of 27.9% of youngsters had used cannabis and 0.1% cocaine. The relative risk (RR) on alcohol dependence was high in panic disorder (5.4), phobias (1.98) and mania (2.28), with females showing a much higher RR than males in comorbid phobia (6 vs 2.3), panic disorder (24 vs 5.6) and panic attacks (23.8 vs 5.6). Anxiety disorders were primary to alcoholism in 87%, depression in just 50% and showed a risk of increased alcohol use of 1.37.

Another important group are women alcoholics. Their alcoholism starts later than in men, develops faster and they show less therapeutic results. The severity of their alcoholism shows an inverse relation with successful treatment, as does the damage incurred by drinking. A good social network is favorable for their prognosis (Mann, Tübingen, Germany). In the Tübingen treatment program, patients are treated in closed outpatient groups for 1 year, after a 6-week withdrawal. Of two matched groups of women ($n = 59$) and men ($n = 110$) more men than women were still abstinent after 6 months (57 vs 42%) as well as after 1 year (50 vs 36%). Improvement as social adaptation showed the highest correlation with abstinence.

Diagnosis

Patients (18–64 years old) in the medical ($n = 625$) and surgical ($n = 663$) departments of a general hospital were classified during 1 year as alcoholics according to the International Classification of Diseases (ICD)-10. Alcohol-related somatic disorders were categorized as typical, (eg, liver cirrhosis), probable (heart failure) and other (eg, carcinoma of pharynx, larynx or esophagus; Simanowski, Heidelberg, Germany) according to the ICD-9 (table I; Hapke, Lübeck).

Table II. Somatic diseases according to psychological treatment phase (%).

Phase	*Typical*	*Probable*	*Other*
(Pre)-contemplation	45.2	37.1	17.7
Preparation	69.8	18.6	11.6
Action	71.8	20.5	7.7
Maintenance	35.3	33.3	31.4
Abstinence	35.3	33.3	31.4
Abstinent 1 year	40	30	20

Table III. Sensitivity and specificity of the cage, last and mast (%).

Test	*Sensitivity*	*Specificity*	*Efficacy*
	Alcoholism clinic		
Cage	72	92	89
Last	86	88	91
	General hospital		
Cage	72	91	86
Last	86	88	88
	General physician		
Cage	53	93	89
Last	64	92	89

The explicit sensitivity of the last is 50%, the actual 77%; for screening purposes it retains 68% of the positive cases, for referral 37%. See text for definitions of Cage and Last.

When the same patients were classified according to DiClemente's psychological treatment model, alcoholics in the action phase showed the most typical somatic alcohol-related diseases (table II). The percentages of the cases in the maintenance or abstinence phase probably show a regression of the somatic disorders during abstinence.

Interestingly, surgeons recognized only 11% of alcoholic patients, internal medicine specialists 59% and psychiatrists 89%. For heavy drinkers, the non-psychiatrists recognized 26% in women, 43% in men, and two-thirds of male drinkers and one-third of females drinkers overall. As a formal check, the CAGE (Cut down alcohol use; Annoyed by remarks; feeling Guilty about drinking; used alcohol as an Eye-opener) and Lübeck alcoholism screening test (LAST; 7-item, cut-off 2) were used. Both have a high sensitivity and specificity (table III; Bohlmann, Lübeck), in several situations (Rumpf, Lübeck).

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Psychosocial problems were most prevalent in alcoholics in the 'dependence' phase, followed by those who were in remission (table IV; Rümpf, Lübeck).

The most recent biological test for alcoholism is that of carbohydrate-deficient transferrin (CDT; Kanitz, Lübeck). It was investigated in alcoholics ($n = 108$), abstinent alcoholics ($n = 101$), healthy volunteers ($n =$

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Table IV. Psychological problems related to alcohol disorders.

Alcohol disorder	*Prevalence (%) in basic insurance participants*	*Psychosocial problems (%)*
Dependence	12.5	64.3
Misuse	4.8	5.4
Suspect	9.7	–
Remission	2.6	46.7

98) and non-alcoholic liver cirrhosis patients (n = 30). Its showed gender differences (female/male) in sensitivity (49 vs 75–93%, respectively) and specificity (75–93%, respectively). When combined with gammaglutamyltransferase the sensitivity in women increased from 49–96% and in men from 25–58%. The specificity decreased from 86–78% and 98–89% in women and men, respectively. A CDT of more than 30 predicts a withdrawal risk. The t1/2 elimination decreased exponentially, reaching normal levels within 3 weeks, except in cirrhosis.

Laboratory tests revealed somatic damage to organs in alcoholics (n = 205). This damage was demonstrated for one organ in 31.9% of the patients, for two organs in 14.4%, for three organs in 1.3%, whereas 36.3% showed no organ damage (Wetterling, Lübeck). Using imaging techniques, 30.6% of the patients showed brain damage, 27.5% brain and liver damage, 6.9% liver damage, 1.3% pancreas damage and just 20% no damage. There was no relation to the duration of drinking.

Treatment

Motivation is very important during detoxification, because just 20% of alcoholics remain abstinent and detoxification is only effective in 50% (Stetter, Tübingen). Treatment programs should concentrate on the somatic aspects, psychiatric aspects and motivation of alcoholic patients. These patients respond most to, in decreasing rank-order, attention for somatic aspects, protection provided by the ward, information about the treatment, distance from social 'milieu' and individualized therapy. Special attention in these areas resulted in a relapse afer 3 months by 40%, at 8 months 52%, while 30% remained abstinent at 28 months.

There is a clear-cut difference between patients who have had previous treatment(s) (PT) and those who have not (table V; Rumpf, Lübeck).

Because there is still a lot of polypragmatism in the withdrawal phase, critical evaluation of criteria and risks is necessary (Schröder-Rosenstock, Giessen). Neurophysiological criteria might be the alpha-power suppression in the electroencephalogram, and shorter P_{100} of the visual evoked potential (VEP) and brain evoked auditory potential (BEAP) in alcoholics; after 3 weeks of abstinence there is alpha-power rebound and an increase in beta-power and P_{100} normalization.

In Lübeck (Veltrup) it was noted that there is a demarcation between proximal and distal influences on

Table V. Differences between alcoholics related to previous treatment (PT).

	PT	*No PT*
Duration (years)	15	10
Quantity (qid)	162	96.7
Depression (%)	21	14
Anxiety disorder (%)	40	18
Precontemplation phase (%)	18	33
Preparation phase (%)	52	33

The severity of the alcoholism was twice as severe in the PT than in the non-PT group. Qid: quater in die (four times a day).

prognosis: the first group consists of patients suffering from chronic depressed mood, social isolation and 'problems', the second group from craving and avoidance. Three factors are important In the recovery process: the situational factor (eg, living alone), the affective (craving, mood) and the cognitive factor (worrying). One year after treatment, 17% of treated alcoholics drank sporadically, 27% phasically and 37% continuously. Primary prevention should be aimed at avoiding dramatization and pathology and instead concentrating on constructive mastery of the problem.

Changes in motivational therapy are remarkable: before treatment 36.1% of the patients were in the preparational phase of DiClemente's psychological treatment model, whereas 30.5% were in the action phase. After having reached abstinence, 40% were in the contemplative phase, 54% in the preparational phase and 38% in the action phase.

In a general hospital changing the staff's attitude towards alcoholics is required at three levels: A sound evaluation must be made solely on the basis of screening patients, and not on preconceived ideas; the best interventions must be investigated; and the personnel, particularly the residents and interns, must be well trained (Kremer, Bielefeld, Germany). With a multidisciplinary team, one obtains good results even after liver transplantation in alcoholics (Zyklacz, Vienna). Survival rates are 71% after 1 year, 66% after 3 years and 63% after 5 years; at 3 years just 30% of these patients had had a relapse.

Pharmacotherapy for alcoholism had reached a breakthrough with 'anticraving' drugs, such as the opioid-antagonist naloxone. Serotonin uptake inhibitors (eg, citalopram, fluoxetine) may also decrease alcohol intake in the short term in alcoholics who are not severely dependent (Naranjo, Toronto, Canada). Acamprosate is one specific and effective anticraving drug. Dopaminergic agonists (eg, apomorphine, lisuride, bromocriptine) and antagonists (eg, tiapride) are still under investigation (Wolstein, Essen, Germany).

Recreational drugs

3,4-Methylenedioxymetamphetamine (MDMA) or Ecstasy (XTC), as it is sold on the black market, often contains many by-products as well as the pure chemical

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substance (Heinz, Heber, Germany). These contaminants often cause and toxicological reactions consisting mainly of dehydration, body-temperature increase and sometimes rhabdomyolysis. The metabolite, 3,4-methylenedioxyamphetamine (MDA), or 'Adam', is more psychotoxic than MDMA: it causes psychoses. MDMA is badly absorbed from the gut, is two-thirds excreted unchanged by the kidneys and has an elimination half-life of 6 h. XTC is on the increase in Germany. Police confiscated 600 tablets in 1987 in comparison with more than 250,000 in 1995 (Bilke, Essen). Users of ecstasy enjoy the associative and communicative enhancement, the excitation and relaxation it produces as well as the oceanic feelings it provokes. Unfavorable effects, however, are tachycardia (20%), anxiety (20%), thirst (15%), jaw-muscle contractions, and apperception disturbances. A disturbing fact is its use mainly by youths (17 years old) in techno-Rave parties, where they dance until exhaustion.

Toxicological studies have shown a lasting serotonin depletion in animal experiments, yet the young consider it a harmless drug (85%). Just 18% use only MDMA, while others also use energy drinks (51%), cannabis (30%), LSD (14%) and alcohol (7.5%). About 50% take three to six tablets a week. Among 26–27 year olds, the m:f ratio of users is 3:1; two-thirds of users take it weekly to monthly, 0.25 to 4 tablets at one time. Although they may spend 20–100 DM (35–57 USD)/week to buy it, they do not usually go into debt to obtain it. Women often get it from their male friends for free (Spitczok von Brisinski, Berlin, Germany). Women in this age group (26–27 years old) were found to have a high self-esteem, whereas men had a low one. Women believed that it helps in problem solving.

Treatment of nicotine dependence is also very difficult. At 1 year of withdrawal only 7.5% of smokers were still abstinent, despite various kinds of support and psychotherapy. Pharmacological agents are nicotine antagonists, taste adulterations, withdrawal drugs, or chewing-gum, plaster or spray as nicotine substitution (Batra, Tübingen).

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