

A Prospective Multicentre Study of In-patient Treatment for Alcoholics: 18- and 48-Month Follow-up (Munich Evaluation for Alcoholism Treatment, MEAT)*

Wilhelm Feuerlein and Heinrich Küfner

Max-Planck-Institut für Psychiatrie, Kraepelinstrasse 2, D-8000 Munich 40, Federal Republic of Germany

Summary. In a prospective multicentre study of 1410 alcoholics (73% men) data were collected at five different times: admission, discharge, 6, 18 and 48 months after discharge. The details from the 21 treatment centres involved were acquired from staff-members; follow-up data on patients were collected by personal interviews and/or mailed questionnaires. In all, 85%, 84% and 81% of the patients could be traced, respectively. Additionally, data of patients' sick leave days and in-patient treatment were provided by the health insurance and pension insurance institutions, respectively. Outcome criteria were drinking behaviour, working and partner situation, and subjective complaints. The drinking behaviour was divided into three rough categories: abstinent, improved and unimproved. For 18 months 53% of the patients remained abstinent, 8.5% improved and 38% did not improve. For 48 months 46% remained abstinent, 12% improved and 42% did not improve. During the last 6 months prior to the 48-month data collection 66% were abstinent, 4% improved and 30% did not improve. Only 3% of patients succeeded in maintaining controlled drinking. The percentage of days of sick leave was reduced by 64% and of in-patient treatment from 34.7% to 14.6% during the 18-month period after discharge (in comparison with the 18-month period prior to treatment). Only 21% of the patients regularly attended self-help groups. Out of the patients' variables, ten for men and five for women could be identified as prognostically relevant. In the 48-month follow-up these factors were reconsidered. In men almost all, in women only three of the five factors were confirmed. The treatment variables were

evaluated according to the prognosis factors (positive vs negative group). In the 48-month follow-up the treatment variables relevant in the 18-month follow-up were also reassessed. In the positive prognosis group five variables were confirmed, in the negative prognosis group only one. In addition, differentiated indication variables for the three treatment lengths were developed and applied to a model. The following appeared to be clues regarding the length of desirable treatment. For an unfavourable prognosis in both men and women no short-term treatment should be given; medium- or long-term treatment is to be preferred. For a medium prognosis men do better with short-term treatment; for women medium-treatment is preferred. For a favourable prognosis for men medium-term treatment should be avoided; long-term is preferred; for women short-term treatment may also be preferred.

Key words: Alcoholism, in-patient treatment – Follow-up – Patient variables – Treatment variables

Introduction and Short Review of the Literature

The central aims of our study were to find out the overall results of treatment for alcoholism, the influence of patient variables on outcome, the treatment variables that are favourable for outcome, and which kind of treatment is best for which patients.

There are hundreds of outcome studies on the treatment of alcoholism, particularly in the literature of the English-speaking countries (for reviews see, for example, Emrick 1974; Costello 1975a, b; Costello et al. 1977; Miller and Hester 1980; Hoellen and Hoellen 1985). However, to the best of our knowledge, no meta-analyses such as those carried out by Smith

* The project was carried out in cooperation with the Federation of German Pension Insurance Institutions, Frankfurt/Main. Funding was provided by this federation

Offprint requests to: W. Feuerlein

Table 1. Results of in-patient treatment of alcohol dependence

	Abstinent	Abstinent or improved	Unimproved
Emrick (1974) (114 studies, variable follow-up)	33.8%	67.2%	32.8%
Backeland et al. (1975)		48.8%	51.2%
Costello et al. (1977) (1-year follow-up)		26.0%	
Polich et al. (1980) (4-year follow-up)	7%	19%	81%
Feuerlein (1984) (at least 4-year follow-up)	7%–23%		57%–81%

et al. (1980) for psychotherapy in general have yet been reported in this field. Most of the studies are from a single treatment centre; few appear to be multi-centre studies, e.g. the RAND report (Armor and Stambul 1976; Polich et al. 1980a, b) or the studies of Bromet, Moos and their group (e.g. Bromet and Moos 1977; Bromet et al. 1977).

The results of treatment from a series of reviews are given in Table 1. To determine the real effect of treatment of alcoholism, a comparison with the rate of spontaneous remission is necessary, but there are very few studies which address this subject, owing to the difficulty in finding completely untreated cases. In general, it is estimated that, every year, about 2% of alcoholics stop drinking (see Backeland et al. 1975; Smart 1976).

On the subject of the prognostic value of different patient variables there have been many empirical studies. According to Gibbs and Flanagan (1977) and Küfner (1984) the following positive predictors may be regarded as fairly stable: (1) patient married or living with a partner; (2) stable marriage or relationship; (3) employed at time of admission; (4) high-status job; (5) stable employment history on admission; (6) high social class background; (7) psychoneurosis; (8) few arrests due to alcohol; (9) contact with AA at time of admission; (10) high score in Wechsler's arithmetic subtest 10.

There are far fewer studies on the connection between treatment variables and outcome. In the review by Emrick (1975), in which the success rates of different types of treatment of varying duration were compared, 31 studies found no difference, 41 showed poorer results for shorter treatment only at short-term follow-up; in only 5 studies were the differences still demonstrable at 6 months, and in these, different methods of patient selection were seen as the decid-

ing factor. In an analysis by Costello (1975a, b) of 58 retrospective studies with a 1-year follow-up and 23 with a 2-year follow-up, the most successful treatment centres were described as: (1) employing a method of patient selection which rejected cases with an unfavourable prognosis; (2) being modelled on the pattern of a therapeutic community; (3) involving spouses, relatives or employers in the therapy; (4) using disulfiram; (5) practising continuity of care, patients being actively sought out for follow-up care after discharge.

The greatest difficulty facing research is to develop criteria for indication. This presupposes that it is possible to form a prognosis on the basis of admission data, and to work out from this the differential effects of different treatment programs on different patient groups (cf. Baumann 1981; Grawe 1978).

There have been few empirical studies of indications for treatment in alcoholism (Kissin et al. 1968; McLachlan 1974; cf. Glaser 1980). As far as we know, no study has provided empirical indications for treatment length, which is the dominant indication problem that we analysed.

In German-speaking countries, within the last 15 years several individual treatment units have carried out follow-up studies on the outcome of their own patients. Multicentre studies, however, have been very rare. One study (Waldow and Klink 1986) was based on a retrospective investigation. Another (DOSY system) had to be regarded as documentation without detailed evaluation (Keup 1985). In the following, a condensed description of a prospective multicentre study on the outcome of in-patient treatment for alcoholics is presented. For details see Küfner et al. (1984, 1986, 1988) and Küfner and Feuerlein (1989).

Description of the Study

Type of Study

The study can be characterized as a multi-centre, prospective panel study. It is a field, not an experimental study, and is concerned with outcome, rather than process. It is a study taking an empirical, pragmatic approach, without any closed theory behind it.

Patient and Treatment Variables

A total of 1410 consecutively admitted alcoholics (73% of them men) with an average age of 39 years (range 17–66, SD 8.5) were involved in this multicentre study in 21 treatment units which can be considered to be representative of the residential treat-

ment in the Federal Republic of Germany (including West Berlin).

In this study, started in 1980, patient data were collected at five different times: at the patient's admission for treatment, at discharge and 6, 18 and 48 months after discharge. At the follow-ups, the intention was to assess every patient by means of personal interviews or by mailed questionnaires. The intention was for each patient to be interviewed in person at least once. Patients who did not answer the mailed follow-up questionnaires or refused to fill them out were visited by an interviewer for a "substitute interview". The interviews were carried out by specially trained persons who were not members of the treatment staff. All interviewers were recruited and worked locally. There were also some cases in which the patient completed written forms each time.

The outcome was assessed with reference to alcohol and drug consumption, social integration, physical health and personality, using the *Freiburger Persönlichkeits-Inventar* (Freiburg Personality Inventory) (FPI) (Fahrenberg et al. 1973) and the *Unsicherheits-Fragebogen* (U-Fb) (Self-Assertiveness Questionnaire) (Ullrich-de Muynck and Ullrich 1977). Life events were estimated by self-ratings (cf. Holmes and Rahe 1967), the global psychophysical condition by the *Beschwerden-Liste* (Complaints List) (von Zerssen 1967).

For characterization of the alcohol consumption drinking was divided into three categories: (1) totally abstinent; (2) improved [less than 60/30 g alcohol per day (male/female), no signs of physical or psychic consequences of alcohol abuse or of any pathological element in their drinking patterns (that is to say "controlled drinking")]; (3) unimproved: all other cases.

At the 48-month follow-up we set up four different classifications of drinking behaviour. Classifications 1–3 cover the total follow-up period; classification 4 covers only the last 6 months prior to the 48-month follow-up:

Classification 1: abstinent vs relapsed (in the whole follow-up period)

Classification 2: abstinent, improved, unimproved (according to the strict criteria of 6- and 18-month follow-up)

Classification 3: abstinent, improved, unimproved, but with the category improved defined in less strict terms: *either* abstinent after a relapse period of at most 1 month and no in-patient treatment due to alcohol abuse, *or* "social drinking", no signs of pathological drinking and no in-patient treatment for to alcohol abuse

Classification 4: abstinent, improved, unimproved in the sense of classification 2 (but only covering the last 6 months).

In addition, data were collected from health insurance and pension insurance institutions concerning periods of sick leave taken, days of in-patient treatment and granting of pensions.

The data concerning the variables of the treatment units were acquired by means of semi-structured interviews. Main variables were length of treatment (short-term: 6–8 weeks; medium-term: 4–5 months; long-term: 6 months), size, staffing, methods of treatment (e.g. individual therapy, group therapy, therapeutic community, involvement of the partners etc.), general orientation (e.g. behaviour therapy vs psychodynamic or religious orientation), admission criteria, source of referral, altogether about 150 variables. There was a broad consensus as to the goal of the treatment: in none of the units was controlled drinking regarded as a goal. We tried further to assess the therapeutic atmosphere. Patients and staff members were asked to fill out questionnaires on this issue (cf. Henrich et al. 1979)

Assessment of the Validity and Reliability of the Data

We tried to assess reliability and validity of the data by using various approaches:

1. A comparison between the patients' data given at the three follow-ups. In cases of discrepant data the unfavourable ones were employed for further analysis.
2. A comparison of patients' data relating to particular issues with other sources of information (e.g. in-patient treatment during follow-up, comparison with the data from the pension insurance institutions).
3. A comparison of data provided by the patient with the personal impression of the interviewer during the interviews (recorded in nearly all interviews and for some of the patients with partial data).
4. A comparison of the reports given by family members and/or significant other persons with the patients' data (available in 41 cases).
5. A comparison of the outcome data from the health insurance and pension insurance companies regarding days sick leave and days of in-patient treatment.
6. A comparison of the original data at the 48-month follow-up with an additional control interview, involving 93 patients from the 48-month follow-up. This subgroup proved to be comparable with the original sample as to sex distribution and prognosis index (see below).

The following hypotheses were confirmed: global data are more consistent than more detailed ones;

data concerning a particular time window are more reliable the closer their time window is to the follow-up time; there are no important discrepancies between written vs interview follow-ups or phone vs personal interviews.

Findings at the Time of Admission

An average of 18% of the patients refused to participate in this study. In one unit with an extremely high refusal rate (50%), 100 extra unselected, anonymous patients underwent the admission interview additionally and were included in the study in the order of their admission, to enable us to estimate the effect of the refusals. In summary, the refusal rate is most unlikely to have led to any important bias in results.

Nineteen per cent were divorced, 55% were married; 23% had been unemployed for more than 3 months; 2% were homeless. Thirty-eight per cent had been drinking until immediately before their admission; 34% had been abstinent for more than 4 weeks. Altogether, patients drank on average 186 g pure alcohol per drinking day (199 g for men, 151 g for women); 67% could be classified (according to Jellinek's system) as gamma drinkers.

Patients whose primary dependence was on medications or illegal drugs and those with extreme polytoxicomania were excluded from the study. Unambiguously predominant abuse of alcohol was a criterion for inclusion.

In the FPI, patients had higher values on the scales rating nervousness, depressiveness and emotional lability, and lower values on the scale "masculine self image". In the U-Fb, patients' ratings were compared with norms given for non-patients and social phobics. The patients appear to lie between "normal" and "socially phobic".

As to the physical condition, only 18% had no typically alcohol-related disease (e.g. alcoholic hepatopathy, alcoholic polyneuropathy, alcoholic cardiomyopathy). Seventeen per cent had experienced a delirium tremens; 37% had been treated at least once in a psychiatric hospital, 22% in an addiction unit; 24% had regularly attended some form of psychotherapy.

The life events with the highest mean stress value were separation from spouse, sexual problems, loss of job and divorce.

The Complaints List score was on average twice as high as that of the standard sample (29.2 vs 14.3).

Findings at Discharge

Seventeen per cent of the patients dropped out of treatment before it was completed (these patients are

included in the follow-ups). In this respect there are considerable differences between the various treatment units depending on treatment length and other treatment variables. During the period of treatment, 10% of patients had drinking relapses; 38% of these dropped out before treatment was completed.

For some patients ($n = 423$) we have additional diagnoses according to the ICD (9th rev.). When collecting data on additional diagnoses our assumption was that a diagnosis made at discharge would be more reliable than one made at admission.

The most frequent conditions were personality disturbances (25%), medicament or drug addiction (12%), neuroses (115) and medicament or drug abuse (6%). Therapists reported additional symptoms in 27% of the whole sample: anxiety states in 11%, eating disturbances in 6%, marked psycho-autonomic disturbances in 4.5%. In the FPI the mean scores on all scales (except "reactive aggressiveness") showed highly significant changes in the expected directions. Similar significant changes could be found using the U-Fb. A significant person was involved in the treatment in 69% of patients.

Findings at 6-Month Follow-up

We have data for 85% of the 1410 patients who signed the original written consent on their admission to in-patient treatment.

Seven patients died after discharge (0.5%). (The data of those who died were excluded from this and the other follow-up evaluations). In all, 67% (69% of the men, 60.5% of the women) remained abstinent for the whole 6 months, 11% (10% of the men, 14% of the women) were classified as having improved and 22% (20% of the men and 25.5% of the women) had not improved. Within the 1st month, 37% of all relapsers had started drinking again, and another 27% started during the subsequent 2 months.

With respect to the social situation, 21% were now unemployed, compared with 23% on admission to treatment. Eight per cent had new partners; 11.5% regularly took potentially addictive medications. The consumption of illegal drugs was very rare.

The course of changes in patients' personalities shows a process of normalization. In the FPI, the average values for all scales was now close to the standardized mean. Only on the scale "depressiveness" was the proportion of raised values still noticeably higher. A similar development can be seen in the values of the U-Fb, except the scale "being able to make demands", where the values were above the norm. The Complaints List score shrank from 29.2 at admission and 19.2 at discharge to 16.3 (all mean values significantly different). The average Complaints List

score was now barely higher than the mean value of the standard sample (14.3).

The most frequent life events recorded were changes in general habits of life, such as leisure pursuits and eating and social habits. These occurred in 35%–48% of the patients. The events to which the most stress was ascribed were death of a partner and serving a prison sentence.

Findings at 18-Month Follow-up

The response rate (including 2.5% patients with partial data) was 84% of the original 1410 patients. During the 18 months 37 (3%) died.

There were no appreciable changes in marital status in comparison with that at the time of admission. Seventeen per cent were unemployed now, whereas at admission this figure was 23%. There was a trend towards social stabilization with respect to home life, partners and work.

After exclusion of discrepant data, 53% (55% of the males, 47% of the females) remains as the rate of total abstinence over the whole 18-month period; this is 17% less than at the 6-month follow-up. It was found that 8.5% (9% of the males, 8% of the females) had improved and 38% (39% of the males and 44.5% of the females) had not improved. Taking account of only the last 6 months, 63% of the patients were abstinent, nearly as many as the 67% at the 6-month follow-up. Neglecting differences in patient groups, long-term treatment produced the highest abstinence rate, 60%, while medium-term achieved 45% and short-term 54%.

For patients with at least one previous period of treatment in an addiction treatment centre the rate of abstinence was noticeably lower: 39% at the 18-month follow-up.

Of the alcohol-abstinent patients, 3% had been taking sleeping pills, painkillers, tranquillizers or stimulants regularly for several months. According to the information from the patients, consumption of illegal drugs was remarkably low, the most frequently used being hashish (1.5% occasionally or regularly).

Patients with a secondary ICD diagnosis of abuse of medicaments had no lower a rate of abstinence than those with no secondary abuse. By contrast, those with a secondary diagnosis of medicament or drug dependence had a lower rate of abstinence (45% alcohol-abstinent, 27% abstinent from alcohol and medicaments/drugs).

The FPI indicated that the trend to normalization, first noticeable at the discharge interview, was continuing. The only raised value of the U-Fb was on the scale "being able to make demands". The mean score on the Complaints List was lower than at the 6-month follow-up: 15.7.

Table 2. Drinking behaviour in the three follow-up periods

	6 Months <i>n</i> = 1185	18 Months <i>n</i> = 1118	48 Months <i>n</i> = 1057
Abstinent	66.9%	53.2%	46.4%
Improved (class 2)	11.2%	8.5%	2.6%
(class 3)			11.9%
Unimproved (class 2)	21.9%	38.3%	51.0%
(class 3)			41.7%

Findings at 48-Month Follow-up

Complete or partial follow-up data were obtained from 1068 patients (81% of the original sample minus 92 dead).

An overview on the drinking behaviour in the three follow-up periods is given in Table 2.

During the whole follow-up period the overall abstinence rate was 46% (48.5% of the men, 41% of the women). Twelve per cent had improved (11% of the men, 13% of the women), 42% had not improved (40% of the men, 46% of the women), according to the less strict terms of classification 3.

Looking only at the last 6 months prior to the data collection, we found 66% (males 65%, females 70%) abstinent, 4% (4% males and 2% females) improved and 30% (31% males and 28% females) unimproved (according to the strict terms of classification 2). Of the patients who dropped out during the index treatment only 23% were abstinent during the whole follow-up period (vs 46% of the whole sample). In addition, it should be remembered that only 62% of these patients could be traced in the 48-month follow-up (vs 81% of the whole sample).

Patients who had to repeat the in-patient treatment during the whole follow-up period had a significantly worse outcome than patients without such treatment: the abstinence rate (last 6 months) was only 35% (vs 73% of the patients without repeated treatment).

Of the patients, 43% abstained from all kinds of addictive substances (alcohol, misuse of medicaments, illegal drugs) for the whole follow-up period. Thirty-three (7%) of the alcohol-abstinent patients regularly consumed addictive substances of various kinds, i.e. 3% of the whole sample.

In comparison with the situation at admission, the proportion of patients who were single, married and living alone decreased slightly: the number of divorcees rose from 17.5% to 24%. The number of patients living together with their parents decreased from 11% to 6%.

The working situation continued to improve (on average). During the whole follow-up period the

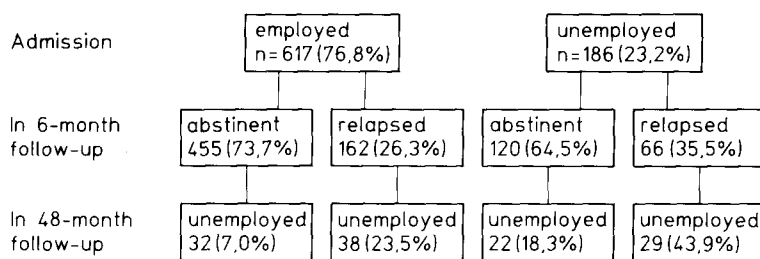


Fig. 1. Relationship between work situation and abstinence in 6-month and 48-month follow-up

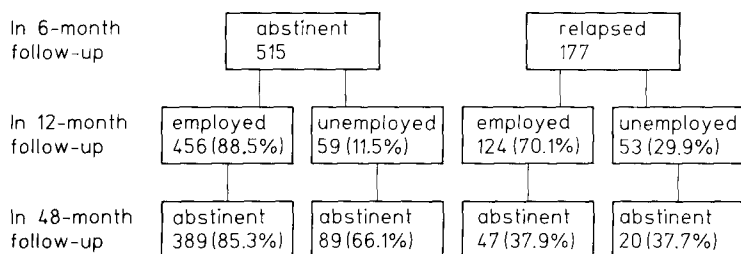


Fig. 2. Relationship between abstinence and work situation

number of unemployed persons decreased by 8% (contrasting with the increasing unemployment rates in the country in general). Now 15% of the patients were unemployed. However, about 25% of the unemployed had been continuously out of work for 4 years. A clear influence of the abstinence on the rate of unemployment could be shown. Only 7% of the patients employed at admission and abstinent at the 6-month follow-up were unemployed at the 48-month follow-up, whereas 23.5% of those who were employed (at admission) and relapsed (at the 6-month follow-up) were unemployed at the 48-month follow-up.

Unemployment became a risk factor mainly in abstinent patients; in such patients (6-month follow-up) the abstinence rate after 48 months was 85% in employed patients, but only 66% in unemployed patients. In relapsed patients no influence of unemployment could be demonstrated.

In comparison with the 18-month follow-up the proportion of (selected) complaints showed only small changes, i.e. the positive development after the index treatment proved to be stable. The data of the personality tests (FPI, U-Fb) indicate a similar situation.

Data from Health Insurance and Pension Insurance Institutions

In the 18-month follow-up the insurance institutions were asked for information on a random sample ($n = 297$) of the patients, stratified according to the length of treatment. We obtained data on 65% of these cases.

The average overall number of days sick leave went down from 118 days in the 18-month period

prior to the index treatment to 43 days in the 18-month period after discharge. This decrease of 64% can mainly be attributed to the drastic reduction in absences caused by probably or possibly alcohol-related conditions. Similarly, the proportion of days in in-patient treatment decreased from 34.7 days prior to index treatment to 14.6 days after discharge. Patients who abstained from alcohol and those who relapsed differed significantly in the number of days sick leave (34 vs 47).

In the 48-month follow-up we tried to include all patients in a survey of their days of sick leave and in in-patient treatment. Of the patients concerned, 63% agreed to let us to ask the insurance institutions for information. Thus data on 651 patients were obtained. The data cover the periods 2 years prior to and after the index treatment as well as the period 2 years prior to the collection of data for the 48-month follow-up.

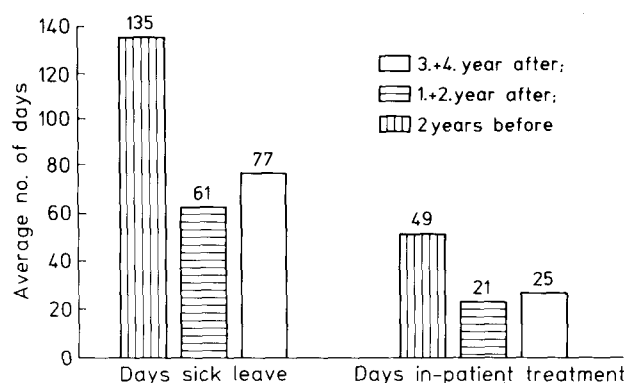


Fig. 3. Average days sick leave and in-patient treatment (2 years before treatment, during the 1st and 2nd year and 3rd and 4th year after treatment)

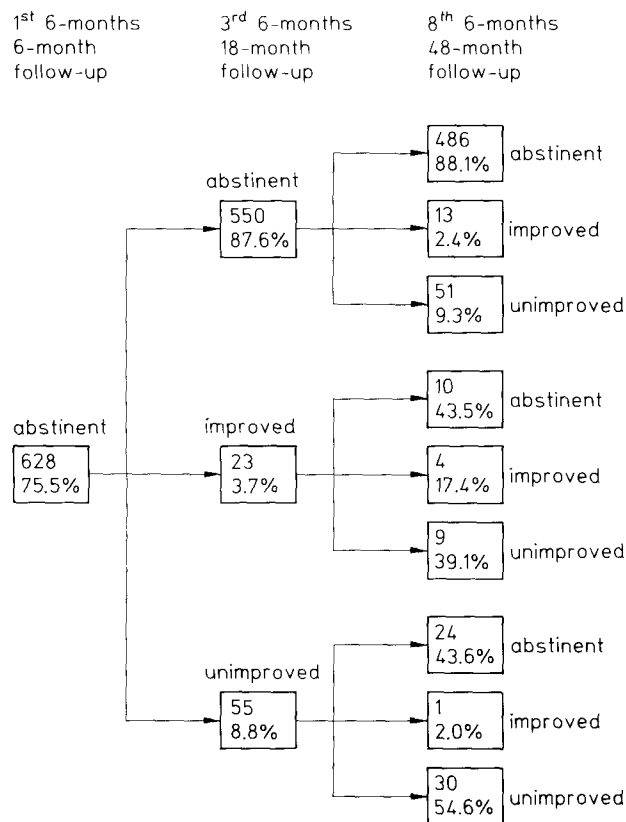


Fig. 4. Course over time of drinking behaviour: abstinent patients in 6-month follow-up

Altogether the number of patients without sick leave time increased considerably during the periods after treatment. In consequence, there was a marked reduction in the mean values of sick leave taken: by 55% (from 135 to 61) during the first 2-year period and by 43% (from 135 to 77) during the second 2-year period (each compared with the period prior to index treatment). This reduction prevailed in patients suffering from probably or possibly alcohol-related conditions. There was a similar decrease in the number of days in in-patient treatment (from 49 to 21 or 25). The reduction of the mean values was 58% during the first 2-year period and 48% during the second 2-year period, the greatest effect being seen in connection with probably or possibly alcohol-related conditions. The reduction in the number of days of sick leave and in in-patient treatment depended on the drinking behaviour after index treatment. Although there was a slight reduction among relapsed patients as well (e.g. sick leave for probably alcohol-related conditions: 71.7 vs 51.5 days), this reduction was much greater in abstinent patients (73 vs 7.5).

Data were provided on 60 patients receiving pensions. Of these 55% were 50 years of age or less. For 19 patients alcoholism was indicated as the reason for

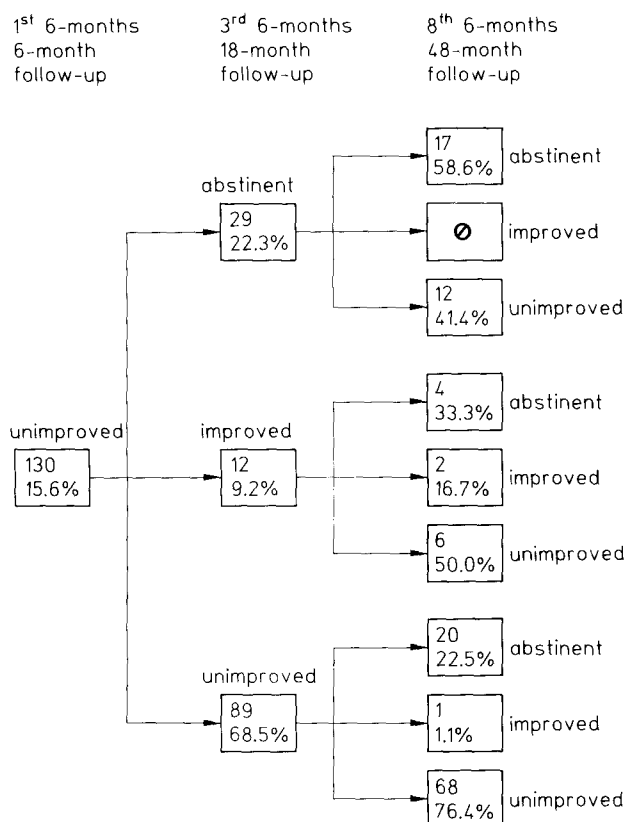


Fig. 5. Course over time of drinking behaviour: unimproved patients in 6-month follow-up

giving the pension, in 3 other cases carcinoma of the upper digestive tract was specified, which probably can be attributed to the alcohol abuse.

Changes in Drinking Behaviour over the Course of the Study

Of the patients who were abstinent ($n = 628$) in the first 6 months, 77% continued to be so to the end of the 18-month and 48-month period. Fourteen per cent were classified as "unimproved", 3% as "improved" in the 48-month follow-up (last 6 months).

Of the 130 patients who were classified as "unimproved" in the 6-month follow-up, 52% continued to be so during the whole follow-up period. At the time of the 48-month follow-up (last 6 months), 31.5% were classified as abstinent and 2% as improved.

The group of "improved" patients ($n = 74$) seemed to be the least stable. Only 2 (3%) continued to be "improved" during the whole follow-up period. At the 48-month follow-up (last 6 months), 7% could be identified as "improved", 38% as "abstinent" and 55% "unimproved". It may be concluded that only a rather small percentage of patients is able to keep to "controlled drinking" over a long time.

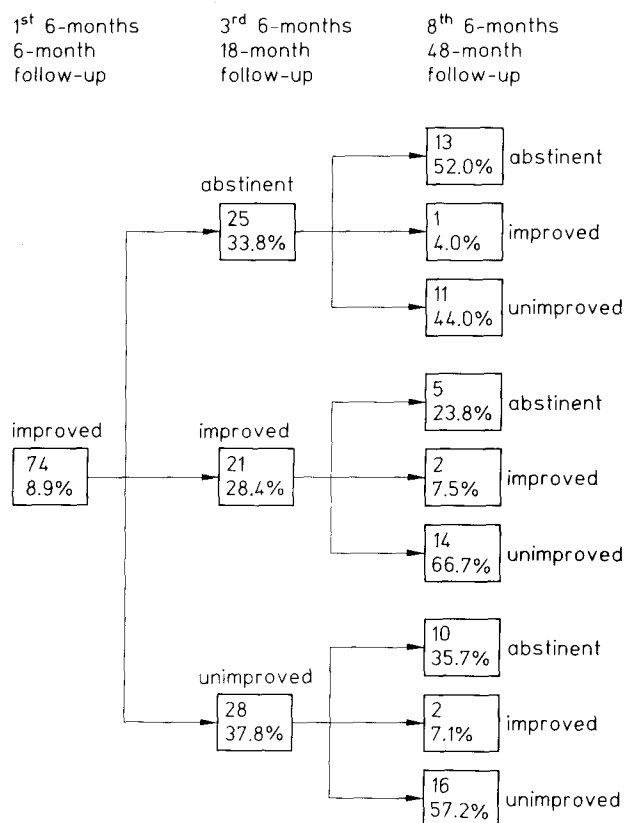


Fig. 6. Course over time of drinking behaviour: improved patients in 6-month follow-up

Aftercare and Treatment in the Follow-up Periods

Seventy-five per cent of the patients attended a self-help group at least once during the 18-month follow-up period, but only 25% did so regularly. Patients who had regular contact with self-help groups or with regular group psychotherapy had the highest abstinence rate (72%, 65%); those with irregular contact had the lowest abstinence rates (48%, 36%). Both in the group of patients who were abstinent in the first half year and in the group of those who relapsed, there was a positive relationship between regular attendance at self-help groups and abstinence in the third 6-month period. For those who dropped out of residential therapy, regular attendance at self-help groups did not appear to be sufficient as a substitute (abstinence rates of 31% with regular attendance vs 25% without regular attendance).

In the 48-month follow-up the regular attendance rate for self-help group attenders (over the 4-year period) was 21%. Of these, 70.5% of the men and 44.5% of the women remained abstinent. On the other hand, 45.5% of the men who never attended a self-help group remained abstinent, whereas only 34.5% of the women did so.

Fifteen per cent of patients had at least one more residential treatment in an addictive centre during the 4-year period. Of these, 35% were abstinent during the last 6 months before the 48-month follow-up.

Prognosis

The prognosis of treatment outcome may depend upon patients' characteristics (e.g. groups of different age and sex, of different social background, severity of alcoholism) as well as upon treatment factors (e.g. length of treatment, methods of treatment). Assessment of the prognosis involves many other aspects, which we tried to take into account; these are mainly methodological ones, which cannot be discussed here in detail (for further information, see Küfner and Feuerlein 1989). We have to restrict ourselves to some basic remarks on the procedure:

1. All patient variables were taken as possible prognostic variables.
2. Men and women were analysed separately.
3. To test the stability of a relationship the study population was randomly divided into halves and each half analysed separately. Only if the relationship in both halves proved to be significant was a prognostic relationship assumed.
4. The following six characteristics were selected as outcome criteria: drinking behaviour, work situation, partner relationship, satisfaction with work and with partner, subjective complaints. Data on these criteria were available from the three follow-up periods.

Patient Variables as Prognostic Factors

For setting up the prognosis factors we used only the abstinence rate as an outcome criterion.

The following variables indicated a more favourable prognosis. In men these were: living with spouse; home town population smaller than 100 000; only one place of work in the last 2 years; not unemployed; home owner; not living in a hostel or homeless; never lost a job because of alcohol; no history of suicide attempts; no previous treatment in an addiction unit.

In women the variables were: less than two suicide attempts; no previous treatment in an addiction unit; less than 625 g pure alcohol drunk per week; low score on U-Fb scale: "being able to make demands"; high score on U-Fb scale: "social decency".

The prognostic factors were combined to prognostic indices by summation (divided into three levels). The scores of the prognosis index for men have a range from 0 to 9 points (Cronbach's alpha 0.61); the scores of the prognosis index for women have a

range of 0 to 5 points (Cronbach's alpha 0.31). For the women's prognosis index we could not establish equal sizes of the three levels because, among other reasons, there is a marked increase of the abstinence rates between the index scores 2 and 3.

In men the relationships between the prognosis index (divided into three levels) and abstinence rates were different. In men with the poorest prognosis (score 0–3) the abstinence rate was 31%, in those with the best prognosis (score 7–9) 69%, i.e. a difference of 38%. The difference between the men with the poorest prognosis and the men with a moderate prognosis (score 4–6) was 15%, that between the latter and those with a good prognosis 23%. In women with the poorest prognosis (score 0–1) the abstinence rate was very low (17%), in women with the best prognosis (score 3–5) 60%, the difference being 43%. The difference between the poor and the moderate (score 2) prognosis group was 26%, between the latter and the best prognosis group 17%.

The correlation coefficients for selected predictors with the other five outcome criteria ranged for the men between 0.36 (satisfaction with partner relationship) and 0.64 (subjective complaints) and for the women between 0.13 (work situation) and 0.62 (subjective complaints).

Some new, prognostically unfavourable factors appeared at discharge. In men, these were: dropping out; alcohol relapse during treatment; poor or doubtful clinical prognosis (assessed by the therapists); low involvement (i.e. few hours) of significant persons.

In women the unfavourable factors were dropping out and low Complaints List score (moderate score favourable!)

Using the outcome data from the 48-month follow-up, these prognostic factors and indices were re-estimated. In men, almost all were confirmed. In women, only three of the five prognostic factors could be confirmed; in the remaining two a trend in the expected direction was found.

In addition to the abstinence, some other outcome criteria were assessed: working situation, partner, satisfaction with the working situation and with the partner, complaint list. The highest correlations (at the 48-month follow-up) were found between the Complaints List score and the patient variables (in men 0.62, in women 0.69). In other criteria there were substantial differences between male and female patients: working situation (0.48 vs 0.18) and satisfaction with the partner (0.33 vs 0.12).

Treatment Variables and Outcome

Remarks on the Procedure. The units of analysis are now represented by the treatment centres. To control

patient selection in the various treatment centres, patients were divided into two subgroups (on the basis of the prognosis index): a negative prognosis group (scores men: 0–6, women: 0–2) and a positive prognosis group (scores men: 7–9, women: 3–5). For evaluation two strategies were carried out: the correlations between a centre's treatment variables and its abstinence rate (strategy 1); comparison of variables of the most successful centres and the least successful centres (strategy 2). The selected treatments were significant in both strategies.

Results. The following variables were positively connected with the abstinence rate. For the positive prognosis group these were: higher minimum age limit for admission (21 years); regular individual therapy; broad spectrum of therapeutic techniques; therapeutic response to unpunctuality; flexible control for drugs sent in by post; intensive involvement of relatives.

For the negative prognosis group, the variables were: segregation of men and women; information and discussion groups for life planning; extended waiting list for admission.

For the whole patient group, the variables were: referral from counselling centres; extended waiting list; no referrals from social welfare; no part-time staff; segregation of men and women; physical therapy; relapse a ground for discharge.

The effects of these treatment variables are characterized by differences in the abstinence rates ranging between 7.7% and 15.9%.

Because of lack of sufficient variance there were some problems with some variables. If variables were very rare (e.g. acupuncture, offered only in one centre) or very common (e.g. group therapy, sport) they could not be used for assessing the relationship to outcome.

Length of Treatment. The effect of the length of the treatment (short-term, medium-term, long-term) as a variable of great practical significance was an object of peculiar interest.

Comparing the patients from the three lengths of treatment we found significant differences in the mean values of the prognosis index. The medium-term treatment group had the patients with the least favourable prognosis. Therefore the abstinence rates of the three treatment lengths should not be compared unless the differences in the prognosis indices are controlled. For this purpose we used five statistical approaches, separately for men and women. The most important are:

1. Parallelization (matching): In men, no statistically confirmed correlation between abstinence and length of treatment could be established. Nevertheless, differences are apparent for various subgroups: short-

term treatment seems to be unfavourable for men with a poor prognosis (abstinence rate 8% vs 40% in long-term treatment); medium-term treatment seems to be unfavourable for men with a good prognosis (abstinence rate 59% vs 75% in long-term treatment). In women, this approach appears to allow the conclusion: the better the prognosis, the shorter the treatment.

2. Logit analysis: the results may be summarized as follows.

In men: short-term treatment plus moderate prognosis index: higher abstinence than expected; long-term treatment plus moderate prognosis: lower abstinence rate than expected.

Table 3. Abstinence, length of treatment and prognosis index (men)

Prognosis index	Abstinence rates (%)			Total sample
	Length of treatment			
	Short	Medium	Long	
0-3	<i>n</i> = 9 11.1%	<i>n</i> = 40 30.0%	<i>n</i> = 20 30.0%	NS <i>n</i> = 69 27.5%
4-6	<i>n</i> = 75 44.0%	<i>n</i> = 86 39.5%	<i>n</i> = 120 36.7%	NS <i>n</i> = 281 39.5%
7-9	<i>n</i> = 113 55.8%	<i>n</i> = 60 45.0%	<i>n</i> = 186 68.6%	*** <i>n</i> = 359 60.7%
				<i>P</i> = 0.0019

Table 4. Abstinence, length of treatment and prognosis index (women)

Prognosis index	Abstinence rates (%)				Total sample
	Length of treatment				
	Short	Medium	Long		
0-1	<i>n</i> = 4 0%	<i>n</i> = 12 16.7%	<i>n</i> = 13 30.8%	NS	<i>n</i> = 29 20.7%
2	<i>n</i> = 30 26.7%	<i>n</i> = 18 38.9%	<i>n</i> = 35 37.1%	NS	<i>n</i> = 83 33.7%
3-5	<i>n</i> = 47 55.3%	<i>n</i> = 16 43.8%	<i>n</i> = 86 48.8%	NS	<i>n</i> = 149 50.3%

In women: no significant effect (probably due to the low numbers of cases).

In the 48-month follow-up the treatment variables mentioned above were reconsidered on the basis of abstinence as an outcome criterion. The abstinence rates of the 21 treatment centres did not become similar to each other after the 4-year period. On the contrary, the differences between the centres increased slightly (maximal difference 35.3% vs 32.9% in the 18-month follow-up). As to the various treatment variables, in the negative prognosis group only one item (life planning groups) could be confirmed. In the positive prognosis group four out of five treatment items were confirmed: higher minimum age limit, regular individual therapy, flexible management regarding drugs sent in, intensive involvement of relatives. Three additional significant treatment variables (different for each of the prognostic subgroups) were identified. The item "life planning" was the only one that proved to be relevant for the two subgroups.

The relationships between patient variables, abstinence rate and length of treatment identified in the 18-month follow-up were reconsidered in the 48-month follow-up. Most of these relationships could be re-confirmed. As in the 18-month follow-up there were differences between males and females. A distinction was made between global and differential effects contingent on patient variables. Altogether the global effect of long-term treatment was slightly positive in trend. However, the differential effects contingent on the prognosis index and on various indication items are more important (see below).

Tables 3 and 4 indicate the relationships between abstinence rates, length of treatment and prognosis index (48-month follow-up).

Indications for Treatment

To establish indication criteria for treatment length two methods complementing each other were used. *Method 1* used the prognosis index in relation to abstinence rate and length of treatment. In this way the indications shown in Table 5 were set up. Using *method 2*

Table 5. Indication by means of the prognosis index

Prognosis	Indication for length of treatment
Unfavourable (men: 0-3, women: 0-1)	Men and women: no short-term treatment, prefer long-term treatment
Medium (men: 4-6, women: 2)	Men: prefer short-term treatment (abstinence rates being nearly equal in the three treatment lengths); women: prefer medium-term treatment
Favourable (men: 7-9, women: 3-5)	Men: no medium-term treatment, prefer long-term treatment; women: prefer short-term treatment

we tried to identify further patient variables as special indicators of the three treatment lengths, split according to sex and prognosis index. We started with the indication variables which had been established on the basis of the data of the 18-month follow-up. These variables were re-evaluated using the abstinence data from the 48-month follow-up. For the males with an unfavourable prognosis no specific indication variables could be set up because of the small number of cases. However, it was possible to establish such a list of variables for the other prognostic subgroups, containing different sets of items. These items came from different data areas: from sociodemographic data, from data on substance use, on alcohol sequelae, from personality questionnaires. Most of the indicators in the 18-month follow-up were shown to be stable in the 48-month follow-up.

On the basis of these indication variables an indication model was set up in the following way (for details, see Küfner and Feuerlein 1989).

1. All indication variables were summed up into indication indices, one index for each length of treatment.
2. Each patient was assigned a score on the indication index for each of short-, medium- and long-term treatment.
3. Decision rules were applied, the principle being that each patient should be assigned to the length of treatment according the highest probability of success. Where the indication levels and the abstinence rates are the same the shorter treatment should be chosen.

Systematic application of the indication model gave an overall projected improvement of 13.2% in the men's abstinence rate and 19.2% in the women's. Systematic allocation to the three different length of treatment according to this model resulted in shifts of different magnitude. In men, small shifts in the proportions in short-term treatment (34% vs 26% in original), medium-term (24.5% vs 31%) and long-term treatment (42% vs 43%) are to be expected. Furthermore, there were differences between the prognosis groups: in men, in the unfavourable prognosis group a shift to the medium-term (or long-term) treatment, in the moderate prognosis group a shift to the short-term treatment, and in the favourable prognosis group a shift to the long-term treatment. In women these shifts were greater: a far smaller proportion was allocated to the long-term treatment (13% vs 51%), medium-term gaining the most (44% vs 18%). The short-term treatment shift held 12% (43% vs 31%). As in men, there were differences between the prognosis groups: in the negative prognosis group we found a

shift to the medium-term treatment, in the positive prognosis to the medium-term as well as to the short-term treatment.

Discussion

In this section only some of the issues can be discussed and related to other results in the literature. For a more detailed discussion, see Küfner and Feuerlein (1989).

The *representativeness* of the sample of centres selected from the roughly 220 then existing can be described as "typical". The following aspects were considered: length of treatment, selection of patients, type of treatment programs, size of the centre, regional distribution, sponsor organization. The representativeness of the patients sample depends, among other points, on the number of refusals to participate given at the admission interview, the comparison with a comprehensive patient sample taken from a documentation system maintained by specialist hospitals, and the response rate in the follow-ups.

The refusal rate was 18% (range 0–50%). A comparison carried out (in the centre having the extreme refusal rate) between an anonymous, unselected sample and the original sample showed no significant differences in the prognosis index.

The response rate in our study was higher than in most of the other studies: 84% in the 18-month and 81% in 48-month follow-up. In comparison with the sample of the DOSY documentation the proportion of women was somewhat larger in our sample (27% vs 16%), but since, in everything to do with prognostic statements, men and women were analysed separately, this should not have any influence upon the results.

The homogeneity of the patients sample can be characterized (among other variables) by the alcohol-related diseases (documented in 82% of the patients) and in the percentage of additional psychiatric diagnoses. Twelve per cent had a secondary diagnosis of medicament or drug dependence, 6% of medicament or drug abuse.

Outcome

The abstinence rates of 53% at the 18-month and 46% at the 48-month follow-up are high in comparison with those in the international literature (as quoted above). In comparison with other German-speaking studies (e.g. Keup 1985; Klein 1981; Koester et al. 1981; Krampen 1986; Scheller and Klein 1982; Watzl 1986) the abstinence rates of this study are about average. The number of "improved" patients was relatively small: 8.5% at the 18-month follow-up. At the

48-month follow-up the rate was 3% (in the strict sense) and 12% (according to less strict criteria). These results may be interpreted as indicating that the majority of the patients are not able to maintain so-called controlled drinking over a longer period of time.

The reduction of the unemployment rates from 23% to 15% cannot be explained by other factors, e.g. data attrition, an improvement of the job market or an increase in the number of retirements.

The drop-out rate of 17% seems relatively low when compared with other studies (e.g. DOSY documentation: 24%). This difference may be due to the relatively high percentage of patients allotted to short-term treatment in our study. In the English literature (dealing mostly with short-term treatment centres) it is about 5% (see Moos et al. 1982). The differences between drop-out rates in the various centres of this study are great (range 4.5%–32%). Dropping out of treatment is generally regarded as a failure of treatment: the abstinence rate of drop-outs was 30%, in comparison with the 57% of patients who completed their treatment (18-month follow-up).

Prognostic relationships

Prognostic relationships could only be examined under the conditions of the in-patient treatment studied here. It is possible that different prognostic factors may arise from different forms of treatment. Our central problem was to develop a search strategy for prognostic factors or combinations of such factors. A simple method is to summarize the selected predictors (prognosis index). Its correlation with abstinence can nevertheless be regarded as more than moderate: $r = 0.29$ for men, $r = 0.28$ for women (on the basis of the 18-month follow-up). When factors from the interview at discharge are included and with optimal weighting in a multiple regression analysis, the correlation was: $r = 0.4$.

Agreeing well with the literature (for reviews see Gibbs and Flanagan 1977; Küfner 1984) some markers of social stability proved to be favourable prognostic factors, but only for men. Occupational status and age were not relevant in our study. The latter did show a weak positive correlation with abstinence in the overall group, but did not meet the selection criteria for a prognostic factor. There were similar differences in the prognosis index: the older the patients, the higher the index. The conclusion which must be drawn from this is that the effect of age is probably due to the effect of the different prognostic factors.

Treatment variables

The effects of treatment variables are difficult to analyse, mainly because they are mixed up with the ef-

fects of patient variables. This problem was dealt with in two different ways.

1. By means of the prognosis index homogeneous subgroups were established. The relationship between treatment variables and abstinence was analysed. Separate analysis for patients with positive and negative prognosis (in both strategies as mentioned above) showed that very different treatment variables had a demonstrable effect in each group.

2. At the level of treatment centres the effect of treatment variables independent of patient variables was assessed by means of multiple regression analysis using the abstinence rates of the centres as dependent variables, prognosis index and selected treatment variables as independent variables. The results indicated the following. The prognosis index explains 37% of the variance of the abstinence rates. The selected treatment variables explain 63% of the abstinence rates of the centres. These two package of variables taken together explain 73.2% of the variance of the abstinence rates of the centres, i.e. 36% of the abstinence can be explained solely by the treatment variables.

The relationship between treatment variables and outcome is variously regarded in the literature. (Emrick (1974) and Armor and Stambul (1976) could not establish any positive relations. In contrast, Smart and Gray (1978) found that the type of treatment did have a certain significance, at least as regards group therapy and length of treatment. Bromet et al. (1977) emphasized "the effectiveness of individual programs". We may conclude that the inconsistency of results as to the effects of treatment variables is due to the heterogeneity of patient samples. In most studies, however, this interaction is not taken into account.

Length of treatment

Regardless of the fact that the three different lengths of treatment (i.e. scheduled, not actual, treatment) have significantly different abstinence rates, the question of the comparability of their patient groups must be raised. Comparisons of prognosis indices and of numerous individual items show up clear variations in the patient selections of these three treatment lengths: the patients in medium-term centres are consistently those with the worst prognosis. In order to control for the influence of this patient selection (which is likely, but is not specified) in the three treatment lengths, we carried out several analyses. We could not show relationships between length of treatment and abstinence rate at every level. Only at the top (good prognosis) level was a positive effect of long-term treatment empirically verifiable.

Out of 27 studies in the literature regarding length of treatment (see Küfner 1984), 16 found positive effects of longer treatment, 9 found no difference and 2 found negative effects of longer treatment. Together, these results on the whole support the provision of longer treatment. However, they do also indicate that generalizing about length of treatment is not a very useful exercise, as one must always bear in mind the likelihood that length of treatment and patient variables are interacting on each other. The oft-cited finding of Orford and Edwards (1977), that a single individual counselling session is at least as effective as quite lengthy out-patient treatment (average 9.6 contacts), cannot be applied to inpatient treatment.

Indications

The literature on alcoholism contains only a few studies which try to conceptualize the subject of indication, with only a small amount of empirical data. In some studies recommendations are given (e.g. Miller and Hester 1980; Matakas et al. 1984). With his "cafeteria plan" concept, Ewing (1977) starts out from the finding that patients who are given the opportunity to choose what type of treatment they should receive had better results than those who are not. Another attempt was made by McLachlan (1974). In 1986, Krampen tried to establish empirical indication variables for a short-term treatment (6 weeks), using an action theory model.

The indication variables were analysed for prognostically homogeneous subgroups by means of the logit analysis.

As to the practical relevance of the indication model, it has to be discussed whether such improvements are essential. In addition the following problems should be considered:

1. No cross-validation was carried out either within the study sample or with another sample.
2. The patient population to which the indication model should be applied could have changed in the meantime, e.g. in relation to the patients' basic disturbances.
3. The spectrum of treatment programs on offer could have been changed (e.g. treatment facilities with variable treatment length).

Despite these considerations the results seem, at least, to indicate the necessity of making available treatments of different lengths.

Acknowledgements. It is impossible to name here all the persons who helped us to carry out this study. Only some are mentioned. We thank the Federation of German Pension Insurance Institutions (Verband Deutscher Rentenversicherungs-

träger), Frankfurt/Main for sponsoring and advising, particularly Dr. R. Buschmann (Steinhage), Dr. F. Kaufmann, Dr. M. Schuntermann and Prof. H. Weber (Falkensammer); Dr. K. Antons (Büdingen), T. Flohrschtz (Gräfelfing) and M. Huber (Munich) for their substantial and effective help in planning, carrying out and evaluating the study; Dr. E. Hansert and Dr. A. Yassouridis (Munich), Prof. H. Wottawa (Bochum) for their advice regarding statistical problems.

References

- Armor PI, Stambul MI (1976) Alcoholism and treatment. Rand Corporation Santa Monica, Calif.
- Baekeland F, Lundwall L, Kissin B (1975) Methods of the treatment of chronic alcoholism: a critical appraisal. In: Gibbins RJ, Israel Y, Kalant H, Popham RE, Schmidt W, Smart RG (eds) Research advances in alcohol and drug problems, vol 2. Wiley, New York
- Baumann U (ed) (1981) Indikation zur Psychotherapie. Urban und Schwarzenberg, Munich
- Bromet EJ, Moos R (1977) Environmental resources and post-treatment functioning of alcoholic patients. *J Health Soc Behav* 18:326-338
- Bromet EJ, Moos R, Bliss F, Wuthmann C (1977) Posttreatment functioning of alcoholic patients: its relation to program participation. *J Consult Clin Psychol* 45:829-842
- Costello RM (1975a) Alcoholism treatment and evaluation. In search of methods. *Int J Addict* 10:251-275
- Costello RM (1975b) Alcoholism treatment and evaluation. In search of methods. II. Collation of two-year follow-up studies. *Int J Addict* 10:857-867
- Costello RM, Biever P, Baillargeon JG (1977) Alcoholism treatment programming: historical trends and modern approaches. *Alcohol Clin Exp Res* 1:311-318
- Emrick CD (1974) A review of psychologically oriented treatment of alcoholism. I. The use and interrelationship of outcome criteria and drinking behavior following treatment. *Q J Stud Alcohol* 35:523-549
- Emrick CD (1975) A review of psychologically oriented treatment of alcoholism. II. The relative effectiveness of different treatment approaches and the effectiveness of treatment versus no treatment. *Q J Stud Alcohol* 36:88-108
- Ewing JA (1977) Matching therapy and patients: the cafeteria plan. *Br J Addict* 72:13-18
- Fahrenberg I, Selg H, Hampel R (1973) Das Freiburger Persönlichkeitsinventar (FPI), 2nd edn. Hogrefe, Göttingen
- Feuerlein W (1984) Langzeitverläufe bei Alkoholikern. In: Kryspin-Exner K, Schubert H (eds) Langzeittherapie psychiatrischer Erkrankungen. IV. Alpenländisches Psychiatrie-Symposium Seefeld/Tirol 1./2.10.1982. Schattauer, Stuttgart
- Feuerlein W (1987) Die Untersuchung über stationäre Entwöhnungsbehandlung von Alkoholabhängigen als Beitrag zur Optimierung medizinischer Reha-Maßnahmen. In: Kongreßbericht Bundeskongreß Rehabilitation 1987 in Karlsruhe. Bundesarbeitsgemeinschaft für Rehabilitation, Bonn, pp 208-218
- Gibbs L, Flanagan I (1977) Prognostic indicators of alcoholism treatment outcome. *Int J Addict* 12:1097-1141
- Glaser FB (1980) Anybody got a match? Treatment research and matching hypothesis. In: Edwards G, Grant M (eds) Alcoholism treatment in transition. Croom Helm, London
- Grawe K (1978) Indikation zur Psychotherapie. In: Pongratz L (ed) Handbuch der Psychologie, vol 8. Hogrefe, Göttingen

- Henrich G, De Jong R, Mai N (1979) Aspekte des therapeutischen Klimas – Entwicklung eines Fragebogens. *Z Klin Psychol* 8:41–55
- Hoellen BM, Hoellen B (1985) Neue Ergebnisse der Alkoholismustherapie: Ein Überblick. *Suchtgefahren* 31: 402–413
- Holmes TH, Rahe RH (1967) The social adjustment rating scale. *J Psychosom Res* 11:213–218
- Keup W (1985) Jahresstatistik 1983 der Fachkrankenhäuser für Suchtkranke (DOSY 83): Katamnesen. In: Ziegler H (ed) *Jahrbuch 85 zur Frage der Suchtgefahren*. Neuland, Hamburg
- Kissin B, Rosenblatt SM, Machover K (1968) Prognostic factors in alcoholism. *Am Psychiatr Assoc Rep* 24:22–43
- Klein KH (1981) Probleme bei Katamnesen von Alkoholiker-Therapie. Katamnestische Untersuchung in einer Fachklinik für Alkoholabhängige. Thesis, University of Freiburg/Breisgau
- Koester W, Schneider R, Hachmann E, Mai N (1981) Dokumentation und Evaluation der stationären Behandlung von Alkohol- und Medikamentenabhängigen nach einem verhaltenstherapeutischen Programm. Beschreibung des Dokumentationssystems und Ergebnisse. *Suchtgefahren* 27:193–206
- Krampe G (1986) Zum indikativen Wert handlungstheoretischer Persönlichkeitsvariablen für die Alkoholismusbehandlung. In: Ladewig D (ed) *Drogen-Alkohol. Der aktuelle Stand in Behandlung Drogen- und Alkoholabhängiger*. ISPA Press, Lausanne
- Küfner H (1984) Zur Prognose des Alkoholismus. *Therapiewoche* 34:3636–3643
- Küfner H, Feuerlein W (1989) In-patient treatment for alcoholism. Springer, Berlin Heidelberg New York
- Küfner H, Feuerlein W, Flohrschütz T (1984) Untersuchungen über stationäre Alkoholismustherapien. Erste Ergebnisse einer Halbjahres-Katamnese. In: Ladewig D (ed) *Drogen und Alkohol. Der aktuelle Stand in der Behandlung Drogen- und Alkoholabhängiger*. International Symposium, Basel 1983. Karger, Basel, pp 148–186
- Küfner H, Feuerlein W, Flohrschütz T (1986) Die stationäre Behandlung von Alkoholabhängigen: Merkmale von Patienten und Behandlungseinrichtungen, katamnestische Ergebnisse. *Suchtgefahren* 32:1–86
- Küfner H, Feuerlein W, Huber M (1988) Die stationäre Behandlung von Alkoholabhängigen: Ergebnisse der 4-Jahreskatamnesen, mögliche Konsequenzen für Indikationsstellung und Behandlung. *Suchtgefahren* 34:157–271
- Matakas F, Berger H, Koester H, Legnaro A (1984) *Alkoholismus als Karriere*. Springer, Berlin Heidelberg New York
- McLachlan JFC (1974) Therapy strategies, personality orientation recovery from alcoholism. *Can J Psychiatry* 19:25–30
- Miller WR, Hester RK (1980) Treating the problem drinker: Modern approaches. In: Miller WR (ed) *The addictive behaviors: treatment of alcoholism, drug abuses, smoking and obesity*. Pergamon Press, Oxford
- Moos RH, Cronkite RC, Finney JW (1982) A conceptual framework for alcoholism treatment evaluation. In: Pattison EM, Kaufmann E (eds) *Encyclopedic handbook of alcoholism*. Gardner, New York
- Orford J, Edwards G (1977) *Alcoholism*. Oxford University Press, Oxford
- Polich JM, Armor DJ, Braiker HB (1980a) The course of alcoholism: four years after treatment. Rand Corporation, Santa Monica, Calif.
- Polich JM, Armor DJ, Braiker HB (1980b) Patterns of alcoholism over four years. *Q J Stud Alcohol* 41:397–416
- Scheller R, Klein M (1982) Persönlichkeitspsychologische Determinanten des Therapieerfolgs bei Alkoholabhängigen. *Z Differ Diagn Psychol* 3:47–54
- Smart RG (1976) Spontaneous recovery in alcoholics: a review and analysis of the available research. *Drug Alcohol Depend* 1:277–285
- Smart RG, Gray G (1978) Minimal-, moderate- and long-term treatment for alcoholism. *Br J Addict* 73:35–38
- Smith ML, Glass GV, Miller TJ (1980) The benefits of psychotherapy. Johns Hopkins University Press, Baltimore
- Ullrich DR, Muynck R, Ullrich R (1977) *Der Unsicherheitsfragebogen. Testmanual*. Pfeiffer, Munich
- Waldow M, Klink M (1986) Rehabilitationsverlauf Alkohol- und Medikamentenabhängiger nach stationärer Behandlung. Eine multivariate Globalanalyse katamnestischer Daten. Elwert, Marburg
- Watzl H (1986) Die Vorhersage des Behandlungserfolgs bei alkoholkranken Frauen – eine empirische Untersuchung. Röttger, Munich
- Zerssen D von (1976) *Beschwerden-Liste. Manual*. Beltz, Weinheim

Received October 31, 1988