

CHAPTER 18

*Prediction of Premature Termination of Therapy in the Treatment of Drug Addicts**

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INTRODUCTION

The number of addicts on hard drugs in the Federal Republic of Germany is estimated at around 80,000 (Reuband 1989). The most frequent form of treatment for drug addicts in Germany is a course of treatment on a residential basis lasting 6 to 12 months. In the Federal Republic of Germany there are approximately 100 residential treatment centers for drug addicts. Heroin substitutes such as methadone are not prescribed at any of these treatment centers, which only have drug-free treatment programs. The premature termination rate in the residential treatment centers is between 50% and 70% (Herbst and Hanel 1989a; Kunz 1989; Vollmer 1988). Patients who complete a course of therapy according to plan are more likely to live drug-free lives after treatment than those who terminate

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treatment prematurely (De Jong and Henrich 1980). In addition, the probability that the patient will lead a drug-free life later on increases with the length of stay (Herbst, Hanel, and Haderstorfer 1989). The number of completed courses of treatment is hence one of several success criteria in the treatment of drug addicts. It is therefore necessary to identify at an early stage patients likely to terminate therapy prematurely in order to improve the treatment programs.

There have been numerous studies investigating the variables by which premature therapy termination might be predicted (Baekeland and Lundwall 1975; De Leon 1984). The results have generally been contradictory, and as yet no clear predictive criteria have emerged. Therapists are thus not in a position to recognize patients in danger of dropping out or being discharged (Vollmer 1989). Early identification of patients who are at risk would make it easier to devise measures to reduce premature termination. The contradictory results in the literature and the wish of the staffs at the two treatment centers to develop measures for the explicit purpose of reducing premature termination of treatment prompted the present study. Potential predictive variables were documented over a long period of time at the two treatment centers, with the aim of forming and testing hypotheses which might help explain the contradictory results in the literature. One hypothesis of this study was thus that predictive criteria vary between treatment centers. Additionally, it was felt that a distinction should be made between various types of premature termination of therapy, such as termination by the patient and premature discharge by the therapist, as suggested by Baekeland and Lundwall (1975). According to Harris, Linn, and Pratt (1980) patients who drop out differ from those discharged for disciplinary reasons with respect to personality, attitudes toward drugs, and certain anamnestic variables. Most studies of premature termination of therapy are conducted without cross-validation, although the authors generally consider this to be necessary. Differences between the individual centers, the different types of premature termination, and the survey periods were taken into account in the design of the following study.

The questions asked in this study were as follow:

1. Which anamnestic variables and personality factors correlate with completion of therapy according to plan independently of the treatment center, the nature of premature termination, and the survey period?
2. Do the predictive criteria of the two centers differ from one another?
3. Are there different predictive criteria for dropout and discharge?
4. Are the results obtained confirmed by cross-validation?

METHOD

Treatment Centers

The study was conducted in two drug-free residential treatment centers. The planned duration of treatment was 6 to 9 months in both centers, with an average duration of eight months. Both centers had very similar admission and discharge criteria. On admission to the center the drug addicts were already detoxified. A counseling center distributed the patients between the centers, usually on a space-available basis.

In Center A the treatment was based solely on behavior therapy. The emphasis was on individual therapy, small groups concentrating on specific subjects (e.g., assertiveness training), and work therapy. The individual therapy was exclusively the responsibility of psychologists; the majority of the therapists at the time the data were collected were male, and the number of therapy places was 16. Treatment Center B operated in accordance with the humanistic paradigm. Here group therapy was more important than in Center A, and occupational therapy and art therapy (dancing, painting) were also offered. Individual therapy was conducted by psychologists and social workers. Most of the therapists were female and the number of therapy places was 12. The two centers did not differ substantially from one another in any other respects.

Data Collection and Measuring Instruments

The most important anamnestic data such as age, sex, previous treatment, nature of drugs consumed, and so forth were collected on the day the patients were admitted. In the first week of treatment all the patients were asked whether they would participate in the survey. Those who agreed to do so completed a personality questionnaire The Freiburger Persönlichkeitsinventar (FPI/A) and the Beck Depression Inventory (BDI) in the second week of treatment and a parallel form of the personality questionnaire (FPI/B) in the third week. In the fourth week further anamnestic data were collected, including the patients' reasons for registering for treatment, the number and duration of drug-free phases, and the psychological stress caused by previous periods of imprisonment.

The FPI personality questionnaire is comparable with the MMPI. The FPI is used both for recording personality factors and measuring change during and after a course of psychotherapy. Stanine scores were used to standardize the results. Fifty-four percent of the standardized sample had scores which fell in the 4 to 6 range of the individual personality scales.

Table 18.1.

Design of the study. Number of patients admitted to the centres and percentage of patients who agreed to participate in the study

| | Survey period I | | Survey period II | |
|-------------------------------|-------------------------|---------------|-------------------------|---------------|
| | Admissions | Participation | Admissions | Participation |
| Treatment centre A | 129 | 114 (88%) | 43 | 39 (91%) |
| Treatment centre B | 98 | 80 (82%) | 27 | 23 (85%) |
| Total (A + B) | 227 | 194 (86%) | 70 | 62 (89%) |
| Duration of the survey period | /----- 39 months -----/ | | /----- 12 months -----/ | |

The BDI is a German translation of the questionnaire developed by Aaron Beck, which is now also valid in Germany.

Due to the personal presence of one of the authors of this study in both therapy centers and the high degree of cooperation of the therapists, it was possible to register all the patients admitted to the two centers, even those who terminated treatment after only a few hours or days.

Sample

The study was divided into two successive survey periods. The second period was used to cross-validate the results obtained in the first period (Table 18.1). In the first period a total of 227 drug addicts were questioned in both centers and in the second period a total of 70; 86% and 89% respectively, agreed to participate in the study. The primary diagnosis of most of the patients (94%) according to the DSM-III-R was opioid dependence (304.00), and of the remaining patients amphetamine dependence (304.40), cocaine dependence (304.20), alcohol dependence (303.90), and cannabis dependence (304.30). Almost all the patients also had a record of cannabis abuse. The majority of the patients were from the lower middle class. Only 17% of the patients had a final school qualification higher than Hauptschule (basic secondary-school level). Most patients were under legal obligation to have treatment.

At the beginning of treatment the patients in the two centers differed only with respect to two variables (Table 18.2). In the first survey period

Table 18.2.

**Characteristics of Patients on Admission for Treatment and Significant Differences between Groups
(Treatment Centre A, B; Survey Periods I, II)**

| Admission variable | Survey period I | | | | | | Survey period II | | | | | | Comparison | p |
|--|------------------|-----------|-----|------------|-----------|----|------------------|-----------|----|------------|-----------|----|-----------------------|------|
| | Treatment centre | | | | | | Treatment centre | | | | | | | |
| | M | A s.d. | N | M | B s.d. | N | M | A s.d. | N | M | B s.d. | N | | |
| Age | 25 | (2.7) | 129 | 24 | (3.2) | 98 | 25 | (3.6) | 43 | 24 | (2.9) | 27 | | n.s. |
| First use of opiates, amphetamines or cocaine (age) | 18 | (2.4) | 123 | 18 | (2.8) | 78 | 18 | (2.6) | 41 | 17 | (2.7) | 27 | | n.s. |
| First use of cannabis (age) | 15 | (2) | 117 | 15 | (2.4) | 78 | 15 | (1.8) | 41 | 14 | (1.7) | 27 | | n.s. |
| Duration of previous courses of treatment terminated prematurely (weeks) | 24 | (21) | 51 | 13 | (15) | 35 | 19 | (19) | 14 | 26 | (23) | 11 | period I: A vs. B | <.01 |
| Months in prison | 20 | (18) | 105 | 24 | (19) | 63 | 27 | (23) | 33 | 25 | (21) | 23 | | n.s. |
| Expected term of imprisonment (months) | 17 | (8) | 80 | 16 | (7) | 48 | 18 | (7) | 24 | 19 | (6) | 21 | | n.s. |
| Reasons for registering for treatment (1=very weak, 6=very strong reason): | | | | | | | | | | | | | | |
| - to give up drug taking | 4.8 | (1.3) | 98 | 5.3 | (1.1) | 48 | 4.7 | (1.6) | 32 | 5.6 | (0.7) | 15 | period I, II: A vs. B | <.05 |
| - to avoid imprisonment | 4.4 | (1.7) | 90 | 4 | (1.8) | 45 | 4.5 | (1.5) | 32 | 5.3 | (1.1) | 14 | centre B: I vs. II | <.05 |
| | % of Total | | | % of Total | | | % of Total | | | % of Total | | | | |
| Female | 23% | | 129 | 21% | | 98 | 21% | | 43 | 30% | | 27 | | n.s. |
| No final school qualification | 28% | | 122 | 26% | | 69 | 10% | | 42 | 19% | | 27 | centre A: I vs. II | <.05 |
| No partner | 72% | | 124 | 62% | | 68 | 63% | | 43 | 52% | | 27 | | n.s. |
| Partner also on drugs | 43% | | 35 | 65% | | 26 | 81% | | 16 | 62% | | 13 | centre A: I vs. II | <.05 |
| No prior treatment periods | 57% | | 124 | 47% | | 83 | 67% | | 42 | 59% | | 27 | | n.s. |
| No prior imprisonments | 11% | | 123 | 7% | | 82 | 17% | | 41 | 11% | | 27 | | n.s. |
| No legal order | 26% | | 121 | 27% | | 82 | 10% | | 42 | 4% | | 27 | centre A, B: I vs. II | <.05 |
| Opioid dependence | 97% | | 124 | 99% | | 84 | 91% | | 43 | 70% | | 27 | | n.s. |

it was seen that the patients in Center B who had prematurely terminated courses of treatment on previous occasions had on average done this at an earlier stage than those in Center A. In both survey periods the patients in Center B gave the item "in order not to take drugs any more" a higher rating as a reason for starting treatment than the patients of Center A. There was no difference between the patients of the two centers at the beginning of treatment with respect to the rest of the data, including the personality factors and the BDI data. There were more differences between the patients of the different survey periods. More of the patients in survey period 2 had a final school qualification (Hauptschule), were under legal obligation to have treatment, and had a partner who was involved with drugs.

According to their personality scores, the patients of survey period 2 were on the whole more balanced at the beginning of treatment than the patients of survey period 1 (Table 18.3). This applies particularly to the patients of Center A, who at the onset of treatment were more stable emotionally, less depressive, had fewer psychosomatic problems, and were calmer and more confident. There were no differences between the patients of the two survey periods with respect to the other variables such as age, length of time drugs had been taken, number of prison sentences, or Beck Depression Inventory scores.

Treatment Termination Criteria

A distinction was made between three types of treatment termination:

1. Discharge according to plan

All patients who were in the treatment centers for at least 180 days were put in the category of "discharge according to plan." One hundred and eighty days was the shortest normal therapy period possible for the treatment offered in the two centers. A time criterion for defining normal and premature termination of treatment was used in order to avoid classification errors on the part of the therapists and to achieve a better basis for comparison of the two centers.

Therapy was considered prematurely terminated when the patients stayed in the treatment center for less than 180 days. The therapist on duty when the patient terminated treatment was responsible for classifying this as "dropout" or "premature discharge."

2. Dropout

This category was designated for patients who made the decision to terminate treatment themselves.

Table 18.3.

Personality Scores of Patients on Admission for Treatment and Significant Differences between Groups

| Personality scale (FPI; A, B) | Survey period I | | | | | | Survey period II | | | | | | Comparison | p | | | |
|-------------------------------|------------------|-----------|---|--------|-----------|-----|------------------|-----------|----|--------|-----------|----|------------|-----|----|--|--------------|
| | Treatment centre | | | | | | Treatment centre | | | | | | | | | | |
| | M | A s.d. | N | M | B s.d. | N | M | A s.d. | N | M | B s.d. | N | | | | | |
| 1. Nervousness | FPI-A: | | | 6.6 | 2.0 | 111 | 6.5 | 2.0 | 70 | 5.9 | 1.8 | 38 | 6.2 | 2.7 | 19 | centre A: I vs. II centre A: I vs. II | <.05 <.01 |
| | FPI-B: | | | 6.0 | 2.0 | 105 | 6.0 | 2.0 | 72 | 4.2 | 2.3 | 19 | 5.7 | 2.9 | 10 | | |
| 2. Spontaneous aggressiveness | | | | 6.0 | 1.6 | 110 | 5.7 | 1.6 | 70 | 5.8 | 1.7 | 38 | 6.0 | 1.5 | 19 | | n.s. n.s. |
| | | | | 5.3 | 1.8 | 105 | 5.1 | 2.0 | 71 | 5.2 | 2.0 | 19 | 6.1 | 1.9 | 10 | | |
| 3. Depressiveness | | | | 7.1 | 1.6 | 111 | 6.8 | 1.9 | 70 | 6.3 | 1.7 | 38 | 6.8 | 1.7 | 19 | centre A: I vs. II centre A: I vs. II | <.05 <.05 |
| | | | | 6.7 | 1.7 | 104 | 6.4 | 2.1 | 71 | 5.5 | 2.1 | 19 | 6.2 | 3.2 | 10 | | |
| 4. Excitability | | | | 5.9 | 1.8 | 111 | 5.8 | 2.1 | 70 | 5.2 | 1.8 | 38 | 5.7 | 1.9 | 19 | | n.s. n.s. |
| | | | | 6.0 | 1.6 | 105 | 5.8 | 2.1 | 72 | 5.6 | 2.1 | 19 | 5.6 | 2.4 | 10 | | |
| 5. Sociability | | | | 4.7 | 2.2 | 111 | 4.4 | 2.5 | 69 | 5.0 | 1.8 | 38 | 4.8 | 2.2 | 19 | | n.s. n.s. |
| | | | | 5.3 | 1.9 | 105 | 4.7 | 2.0 | 71 | 5.4 | 1.5 | 19 | 4.4 | 2.8 | 10 | | |
| 6. Calmness | | | | 4.4 | 1.8 | 109 | 4.0 | 1.6 | 69 | 4.4 | 1.6 | 38 | 4.8 | 1.7 | 19 | centre A, B: I vs. II | <.01 |
| | | | | 3.6 | 1.7 | 104 | 3.4 | 1.5 | 72 | 5.0 | 1.6 | 19 | 5.2 | 2.0 | 10 | | |
| 7. Reactive aggressiveness | | | | 5.2 | 1.8 | 111 | 4.9 | 1.9 | 70 | 5.2 | 1.7 | 38 | 5.6 | 2.0 | 19 | | n.s. n.s. |
| | | | | 5.3 | 1.8 | 104 | 5.2 | 2.3 | 72 | 5.5 | 2.2 | 19 | 5.8 | 1.9 | 10 | | |
| 8. Inhibition | | | | 5.9 | 2.0 | 111 | 5.9 | 1.9 | 69 | 5.2 | 1.8 | 38 | 4.6 | 2.0 | 19 | centre B: I vs. II | <.05 n.s. |
| | | | | 5.5 | 2.2 | 105 | 6.0 | 1.9 | 72 | 4.8 | 1.8 | 19 | 5.2 | 2.9 | 10 | | |
| 9. Openness | | | | 5.5 | 1.8 | 111 | 5.2 | 2.0 | 70 | 5.0 | 1.9 | 38 | 5.3 | 2.1 | 19 | | n.s. n.s. |
| | | | | 5.7 | 1.9 | 105 | 5.3 | 2.1 | 72 | 5.0 | 1.8 | 19 | 6.7 | 2.5 | 10 | | |
| E. Extraversion | | | | 5.3 | 2.2 | 111 | 5.1 | 2.4 | 70 | 5.5 | 2.2 | 38 | 6.0 | 2.4 | 19 | | n.s. n.s. |
| | | | | 5.0 | 2.0 | 105 | 4.6 | 1.7 | 71 | 5.9 | 2.1 | 19 | 5.5 | 1.9 | 10 | | |
| N. Emotional lability | | | | 6.2 | 1.7 | 111 | 6.0 | 1.9 | 70 | 5.6 | 1.6 | 38 | 6.0 | 2.1 | 19 | centre A: I vs. II centre A: I vs. II | <.05 <.01 |
| | | | | 6.7 | 1.7 | 104 | 6.5 | 2.2 | 71 | 5.5 | 1.8 | 19 | 5.8 | 2.7 | 10 | | |
| M. Masculinity | | | | 3.6 | 2.0 | 110 | 3.5 | 1.8 | 68 | 4.2 | 1.9 | 38 | 4.3 | 1.6 | 19 | | n.s. n.s. |
| | | | | 4.1 | 2.1 | 105 | 3.4 | 1.8 | 72 | 5.3 | 2.1 | 19 | 4.6 | 2.5 | 10 | | |
| Depression score (BDI) | N = 111 | | | N = 69 | | | N = 38 | | | N = 19 | | | | | | | |
| no depression (≤ 11) | 44% | | | 48% | | | 55% | | | 32% | | | | | | | |
| slight depression (12 -19) | 34% | | | 32% | | | 29% | | | 42% | | | | | | | |
| medium depression (20 - 26) | 15% | | | 15% | | | 13% | | | 16% | | | | | | | |
| severe depression (> 26) | 6% | | | 6% | | | 3% | | | 11% | | | n.s. | | | | |

3. Premature discharge

This category included patients who were prematurely discharged on the instruction of the therapist (e.g., because of drug consumption during treatment or because they left the center without permission).

Evaluation

The anamnesis and personality variables of the patients who had completed therapy according to plan were compared with those of (a) patients who dropped out and (b) patients who were prematurely discharged. Differences in frequency distribution were statistically tested with the chi-square test or, in the case of small samples, with Fischer's test. Comparisons of mean scores were carried out using the Mann-Whitney U test. The statistical tests in survey period I were based on two-tailed tests, and where correlations were found in the cross-validation of survey period I, one-tailed test were used in survey period II. Discriminant analysis of the items on the personality questionnaire was carried out following the "Mahal" method. For all these calculations the SPSS program was used. Duration of stay prior to dropout and premature discharge was examined by K. Herbst using survival analysis methods, data after 180 days in the center being censored. Analysis of duration of stay in the center was based on the generalized gamma-distribution model, using the maximum-likelihood method and the likelihood-ratio test (see Herbst et al. 1989).

Legal Obligation to Undergo Treatment

In the Federal Republic of Germany there are two laws which are frequently applied to drug addicts:

1. According to Section 56 of the penal code (StGB), a drug addict can be ordered to undergo treatment and his sentence can be suspended. In the case of premature termination of treatment, this is not normally followed by further imprisonment. The probation order is only revoked when the patient commits a new crime, for example, when he again consumes illegal drugs.
2. According to Section 35 of the Narcotics Act (BtmG), the sentence can be suspended for the duration of treatment. After successful completion of treatment the remaining sentence is generally suspended.

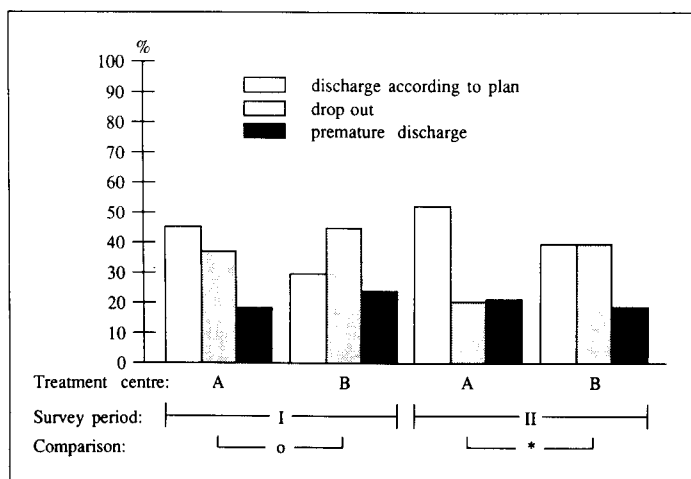


FIGURE 18.1. Types of treatment termination in two different treatment centers (A, B) at two different survey periods (I, II). o = $P < .10$; * = $p < .05$; N: (IA = 129; IB = 98; IIA = 43; IIB = 27).

In the case of premature termination of treatment the patient is usually rearrested.

The patients are aware of the legal consequences of premature termination of treatment.

RESULTS

Number and Nature of Premature Terminations

Of the total sample (Centers A, B; survey periods I, II), 42% of the patients completed treatment according to plan. Thirty-seven percent decided to break off treatment themselves and 21% were prematurely discharged by the therapists. More patients completed treatment according to plan in Center A than in Center B. This difference is significant in the second survey period and there is a tendency in this direction in the first survey period (Figure 18.1). There is no significant difference between the two centers with respect to the survival function (Figure 18.2). The rate of premature termination was highest in the first three months.

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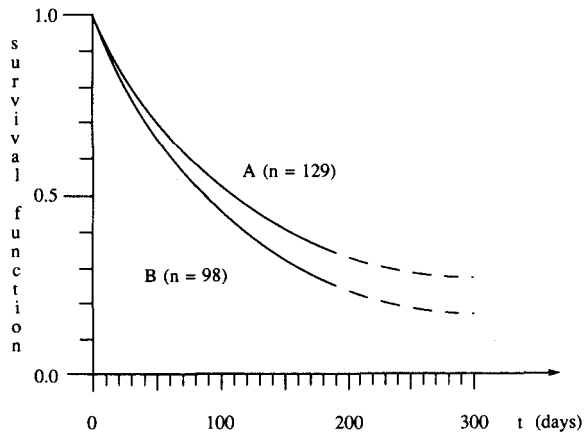


FIGURE 18.2. Duration of stay in treatment Centers A and B (data after 180 days of treatment are censored).

Only after around 90 days did the survival function curve flatten out (i.e., fewer patients were terminating treatment prematurely).

There also were no differences between the two centers with respect to the risk of dropout or premature discharge. Between these two types of premature termination there were, however, significant differences ($X^2 = 13.15$, $df = 2$, $p < .01$; Figure 18.3). The risk of a patient's terminating treatment decreased slightly in the initial weeks and then remained almost constant during therapy. The risk of premature discharge increased during the first three months in particular. In both centers the risk of patients' terminating treatment was higher than the risk of their being prematurely discharged by the therapists. Cross-validation with respect to the survival and hazard function was not possible on account of the small sample size in the second survey period.

Anamnesis Data and Premature Termination of Treatment

Only one variable, legal orders, correlated in survey period I with premature termination of treatment regardless of center type (Center A or B) and in treatment Center B regardless of the nature of premature termination (dropout or premature discharge) (Figure 18.4). In treatment Center A patients without legal orders were not prematurely discharged more often.

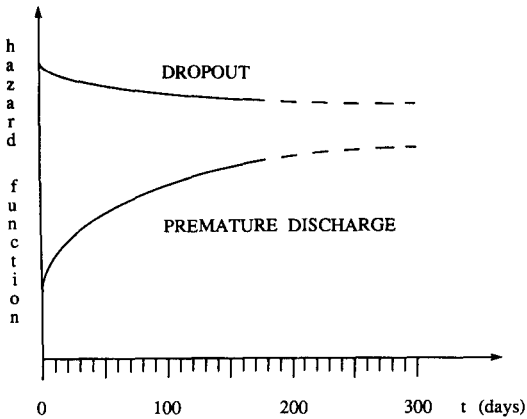


FIGURE 18.3. Risk of dropout and premature discharge for treatment Centers A + B, N = 227 (data after 180 days of treatment are censored).

Significantly more patients under legal obligation to have therapy completed treatment according to plan than patients who were not under any such obligation. The nature of the legal order did not play any part, and patients with a treatment order according to Section 56 of the penal code completed treatment according to plan as frequently as patients with a suspended sentence according to Section 35 of the Narcotics Act (Figure 18.5). In the second survey period the number of patients without a legal order was too small to conduct a statistical test. In Center B the only patient without a legal order terminated treatment, and in Center A two out of four patients without a legal order terminated treatment.

A second variable that repeatedly correlated with the nature of treatment termination was age (Table 18.4). In survey period I at Center B and survey period II at Center A, more young patients terminated treatment prematurely. In the larger sample, on the other hand (survey period I, Center A), there was no connection between age and premature termination. Other anamnestic variables, such as age at the onset of drug consumption, the last time drugs were taken, or no final school qualification, only had predictive value in connection with the center, the nature of premature termination, and the survey period. The variables that correlated with premature discharge were thus different from those that correlated with dropout. The two centers also differed with respect to the variables that had predictive value. In some cases the results obtained in the two centers and for the different types of premature termination even

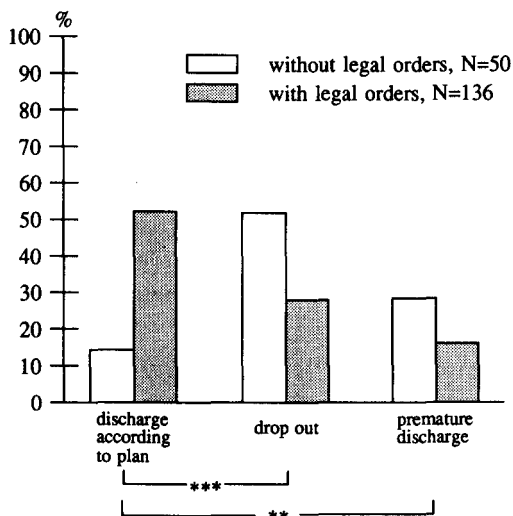


FIGURE 18.4.
 Legal orders and treatment termination (** = $p < .01$; *** = $p < .001$).

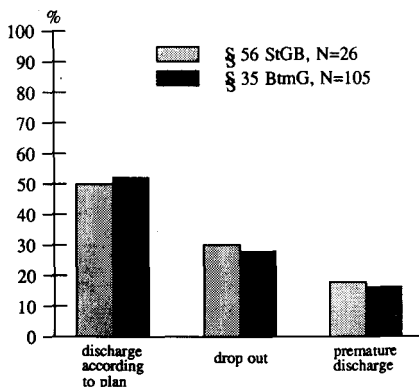


FIGURE 18.5.
 Comparison of type of legal order with type of treatment termination.

contradicted one another. In Center A, for example, there was a tendency for more patients to be discharged who had been in prison for a long time ($p < .10$), but in Center B more patients were discharged who had had shorter periods of imprisonment ($p < .10$). In no case was the predictive value of a variable confirmed in the second survey period.

Table 18.4.

The Relationship between Intake Variables and Outcome

| Intake variable | Treatment centre A | | | | Treatment centre B | | | |
|--|--------------------|---------------------|------------------|---------------------|--------------------|---------------------|------------------|---------------------|
| | Survey period I | | Survey period II | | Survey period I | | Survey period II | |
| | drop out | premature discharge | drop out | premature discharge | drop out | premature discharge | drop out | premature discharge |
| Age | | | younger ** | younger * | younger ° | younger ** | | |
| First use of cannabis | | | earlier ° | | earlier * | | | |
| First use of hard drugs | | | earlier * | | | earlier * | | |
| Length of time cannabis taken | | | shorter * | shorter ° | | | | |
| Last use of medicaments | shorter * | longer ° | | | | | | |
| Duration of previous courses of treatment prematurely terminated | | shorter * | | | | | | |
| Time spent in prison | | longer ° | shorter * | | | shorter ° | | |
| Stress caused by imprisonment (1=very weak, 6=very strong) | weaker * | weaker ** | | | | | | |
| Giving up drug taking as a reason for registering for treatment (1=very weak, 6=very strong reason) | stronger * | | | | | | | |
| Choice of treatment centre on account of individual treatment sessions (1=very weak, 6=very strong reason) | | | | | | stronger * | | |
| Left school without a final qualification | | | | | more frequent * | | | |
| No previous treatment terminated prematurely | | | | | | less frequent * | | |


° = p < .10; * = p < .05; ** = p < .01; p < .001 < .001
 = no statistical test could be carried out

Table 18.5.

The Relationship between Personality Factors and Outcome

| Personality factors | Treatment centre A | | | | Treatment centre B | | | |
|----------------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|------------------|---------------------|
| | Survey period I | | Survey period II | | Survey period I | | Survey period II | |
| | drop out | premature discharge | drop out | premature discharge | drop out | premature discharge | drop out | premature discharge |
| Spontaneous aggressiveness | | | more aggressive ** | more aggressive ° | | | | |
| Reactive aggressiveness | | | more dominant * | more dominant * | | | | |
| Inhibition | | more spontaneous * | | | | | | more inhibited * |
| Extraversion | | more extraverted * | | | | | | |

° = p < .10; * = p < .05; ** = p < .01;  = no statistical test could be carried out

Personality Factors and Premature Termination of Treatment

The prediction of premature termination of treatment by means of personality factors presented a similar picture to that of prediction on the basis of anamnesis data (Table 18.5). In Center A more extroverted or less inhibited patients were discharged by the therapists in the first survey period. These results, however, were not confirmed in the second survey period. Discriminant analysis of the individual items of the personality

questionnaires showed that in Center A (survey period I) 77% of the patients could be classified under the discharge according to plan, dropout, and premature discharge categories by 14 items. These results, however, were not confirmed in the second survey period.

Variables without Predictive Value

Some variables will now be examined which are frequently thought to correlate with the way therapy is terminated, but which allowed no prediction to be made in this study in either survey period or in either of the two centers. Although in the two centers far fewer women are treated than men, female patients completed their treatment according to plan just as often as the male patients. In addition, premature termination of treatment occurred independent of whether the patient had a partner, how long the patient had been addicted, when the patient last consumed hard drugs, how long he or she had to wait before admission to therapy, whether he or she had come to treatment from prison or the drug scene, and the length of sentence expected in the case of premature termination of therapy. Patients who had more extreme scores on the personality questionnaire or the BDI also did not break off treatment more frequently than the patients whose scores were in the normal range.

DISCUSSION

Most of the centers for the treatment of drug addicts in the Federal Republic of Germany were relatively small. The number of therapy places is between 10 and 40. Center A, for example, has 16 therapy places and takes up to 50 patients per year. Center B has 12 places and takes up to 30 patients a year. Prediction criteria are thus only of use to the individual treatment centers if patients likely to terminate therapy prematurely can be identified at an early stage even with such small samples. The sample size of this study in the second survey period was 43 patients in one center and 27 patients in the other. With this sample size it was not possible to find valid predictive criteria in the two centers with the measuring instruments used in the study, with the possible exception of legal orders. Since in the second survey period there were only 5 patients who were not under legal obligation to have treatment, it was not possible to check the connection between legal orders and termination of treatment by cross-validation.

Another variable which produced unexpected results in this study was age. The patients who terminated treatment prematurely, whether they

dropped out or were prematurely discharged, tended to be younger. In the data collected at Center A, however, age and termination of therapy were only found to be connected in the second survey period, and in the data for Center B only in the first period. In the larger sample (Center A, survey period I) on the other hand, there was no correlation between age and premature termination of treatment. Various other studies have found that younger patients are more likely to terminate therapy prematurely (Baekeland and Lundwall 1975), and in this study too, younger patients appeared to be at greater risk than older ones. It must be said, however, that younger patients are not automatically more likely to end treatment prematurely.

The other predictive variables followed a similar pattern and different criteria correlated with termination of treatment according to plan depending on the center, survey period, and nature of therapy termination. Although, given the number of variables tested, accidental significance cannot be entirely excluded, there were nevertheless connections that appeared plausible when the two therapy centers were known. It was thus, for example, possible to see where the treatment could be improved on the basis of the predictive criteria found. The following is an example of a predictive criterion that appears reasonable: At the beginning of treatment, patients in Center A rated "motivation to stop taking drugs as a reason for therapy" lower than the patients in Center B. This discrepancy can be explained by the fact that the patients in Center B tended to give the answers desired by the therapists, because in this center there is more emphasis on confrontation and greater pressure is put on the patients who do not appear to be highly motivated than in the other center. In Center A there is greater acceptance of a lower motivation level by the therapists.

In Center A in the first survey period the patients who considered themselves to be more highly motivated broke off treatment more frequently than the less motivated ones. It is possible that the "motivated" patients at Center A were disappointed at the apparently low demands that were made of them by the therapists and at the therapists' acceptance of the "low" motivation of other patients. Based on these results, measures, such as more individually designed therapy, were introduced to improve cooperation in therapy. Against this background, it is easy to see why the correlation between highly rated motivation and termination of treatment only occurred in Center A, survey period I, and not elsewhere. Further examples of individual predictive criteria which appeared plausible occurred at both centers, but it is not possible to deal with them in detail here, because it would require a more precise description of both treatment programs.

In general, the results can be interpreted as follows: There were dif-

ferent predictive criteria for premature termination depending on the center and survey period. A differentiation must also be made between the types of termination. When the treatment programs and the background are known, some variables can be said to be plausible as predictive criteria. While accidental significance cannot be excluded, it is unlikely as the sole explanation for the results of this study. Some of the criteria from the empirical literature such as sex, depression, and extreme personality scores did not correlate with premature termination of treatment in this study. These results suggest that there are very few general predictive criteria and that certain combinations of center, therapist, and patient influence the way treatment is terminated. One would thus expect different patients to terminate treatment prematurely each time, according to whether it is of a more confrontational or nondirective nature or whether the majority of the patients are or are not under legal obligation to have treatment. In the same way changes in the treatment program would lead to changes in the predictive criteria. Different predictive criteria in different studies would thus not only be understandable but also expected. If this hypothesis is true, more importance should be attached to the individual analysis of treatment centers than has previously been the case.

The relationship of premature discharge to length of time in treatment corresponds to other studies (De Leon 1984; Kunz and Kampe 1985). In the first few months the risk of premature discharge is highest and then decreases slowly the longer the patient is in treatment. As also shown in the study by Herbst and Hanel (1989b), there is a significant difference between the relationship of dropout and premature discharge to length of time in therapy. This may be a variable that is independent of the treatment centers and programs. It might reflect decision processes on the part of patients and therapists which should be more closely investigated. Finally, the authors felt that what they had achieved with the publication of this study was to add to the predictive literature a few unimportant and unreliable criteria and yet more unanswered questions! On the other hand, the individual analyses indicated how the two therapy programs investigated might be improved and provided some ideas for improving the methods used in the empirical study of predictive criteria.

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