

## CHAPTER 23

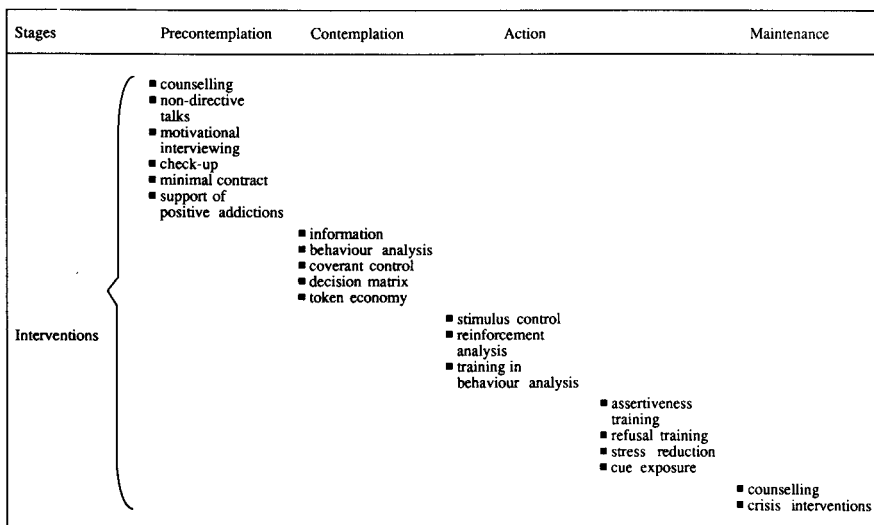
# *Individualized Behavior Therapy for Drug Addicts*

Heinz C. Vollmer, Roman Ferstl, and Heiner Ellgring

### INTRODUCTION

The main form of treatment for drug addicts in the Federal Republic of Germany is drug-free therapy on a residential basis. Various follow-up studies have shown that, two years after therapy, around 30% to 35% of the addicts are no longer taking hard drugs (De Jong and Henrich 1980; Herbst, Hanel, and Haderstorfer 1989; Klett 1987; Klett, Hanel and Bühringer 1984; Melchinger 1989). It is not possible to say whether this is attributable to the treatment because there have been no controlled studies. It is equally hard to say which parts of the treatment program are effective. From the point of view of a clinical psychologist working with drug addicts, there has been far too little research conducted into therapy, both in the Federal Republic and elsewhere.

An empirical basis for treatment is almost entirely lacking. This is reflected in the theories on the treatment of drug addicts, which sometimes appear irrational and are closer to myths (Reed 1980) than to the understanding of an empirical clinician working in the spirit of the Boulder conference (Kanfer and Phillips 1970; Wilson 1982). It is an overall aim of this study to find and point out ways in which research can be conducted under the conditions of routine clinical practice in order to improve the level of knowledge about the determinants of behavior change in therapy for drug addicts, and to provide the practicing psy-



**FIGURE 23.1.** Stages of change (Prochaska and Di Clemente 1983) and examples of interventions practiced in a behavior therapy program.

chologist with guidelines for their treatment. The following study was therefore conducted in two centers that provide normal treatment for drug addicts, where the therapy can only be altered for research purposes to a very limited extent.

The publication of Prochaska and Di Clemente’s model (1983, 1986) led one of the treatment centers to modify its behavior therapy program. According to Prochaska and Di Clemente, drug addicts may find themselves at different stages of change and different therapeutic interventions are indicated for each stage. It would thus, for example, not be appropriate to carry out refusal training or cue exposure with a patient who is not yet ready to stop taking drugs and is, rather, in need of motivating methods such as motivational interviewing. In Figure 23.1 the individual interventions are allocated to the various stages on the basis of experience with the behavior therapy program described in this study.

The study described in this paper poses the following question: Does a procedure based on Prochaska and Di Clemente’s change model (i.e., individualized therapy) lead to an improvement in the treatment of drug addicts? In order to answer this question, an individualized behavior therapy program was compared with two other types of therapy: a standard

behavior therapy program and a “humanistically” oriented therapy program. The first hypothesis of the study was as follows:

1. Patients who receive individualized therapy more frequently complete treatment according to plan and remain in treatment for longer periods than patients receiving standard behavior therapy and humanistic therapy.

Should this hypothesis prove true, the following hypothesis was to be examined in order to exclude a worsening in the quality of the treatment in spite of an increased number of patients completing it according to plan:

2. More or at least as many patients who complete individualized treatment according to plan are drug free at the 3-month and 12-month follow-ups in comparison with patients completing a course of standard behavior therapy or humanistic therapy.

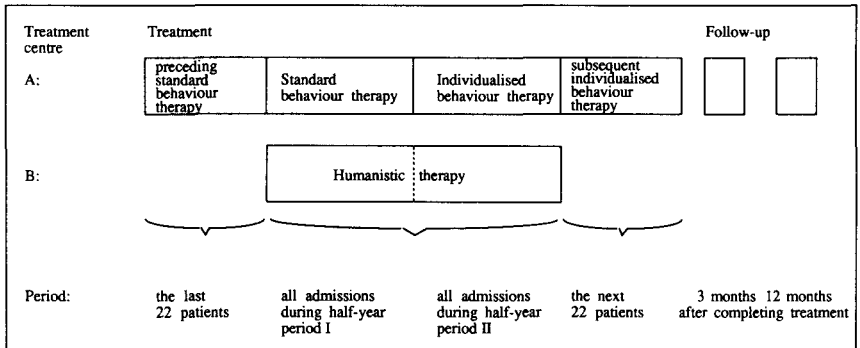
## **METHOD**

### **Treatment Centers**

The study was carried out in two drug-free residential treatment centers. The planned duration of therapy was six to nine months in both centers, with an average of eight months. In center A the treatment for many years had been based solely on behavior therapy. The emphasis was on individual therapy, small groups for the purpose of concentrating on specific subjects (i.e., assertiveness training, coping with stress), and work therapy. The individual therapy was exclusively the responsibility of psychologists; the majority of the therapists during the period of the study 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 otherwise differ substantially from one another. Both centers had similar discharge criteria.

In the first half year of the study all the patients in center A were treated in accordance with the behavior therapy program (standard therapy) that had been followed there for several years (Figure 23.2). The



**FIGURE 23.2.**  
Design of the study.

theoretical basis of this behavior therapy program comprised the learning paradigms (Skinner 1953; Pavlov 1927), the self-control approach (Kanfer 1971), the broad spectrum approach (Lazarus 1966), social learning theory (Bandura 1977), the concept of irrational beliefs (Ellis 1977), interactional behavior therapy (Grawe 1980), and the relapse model (Marlatt and Gordon 1985). Among the interventions practiced by the center were behavior analysis (Kanfer and Saslow 1969; Schulte 1974), motivational interviewing (Miller 1983), assertiveness training (Libermann King, De Risi, and McCann 1975; Ullrich and Ullrich 1976), stress inoculation training (Meichenbaum and Jaremko 1983), rational emotive therapy (Ellis 1977), relapse prevention training (Marlatt and Gordon 1985) and token economy (Ayllon and Azrin 1968).

All of the therapeutic sessions were obligatory. In the second half-year, Prochaska and Di Clemente's model (individualized therapy) was added to the therapy program. All of the therapeutic intervention measures were retained; the only change was a broadening of the theoretical basis of the therapy. It was not possible, as with Prochaska and Di Clemente, to determine which patient was at which stage of change. It was therefore left to the patients themselves to set their own goals for treatment and choose which therapeutic measures they wanted to participate in. The introduction of the Prochaska and Di Clemente model had the most effect on the therapy groups. While until then participation in all groups (communication training, relapse prevention, assertiveness training) had been obligatory, after the introduction of the Prochaska and Di Clemente model the patients could decide themselves which group they wanted to participate in. In the individual therapy, the broadening of the theoretical base

of the therapy program increased the influence of the patient on the therapy goals. The therapists were instructed to accept the therapy goals of the patients as much as possible and to insist on none of their own goals—on the basis of either behavior analysis or observations of the patients' behavior. After the study, treatment center A continued the individualized behavior therapy program.

Treatment center B served as the control group. The therapy program of treatment center B remained unchanged throughout the entire study.

The therapists of both centers were not informed of the design of the study, with the exception of the clinical psychologist responsible for planning and conducting the study, who himself worked as a therapist in center A. There he looked after 30% of the patients and was convinced that changing the program would lead to an improvement in the treatment. The other therapists in center A had a very critical attitude toward the introduction of Prochaska and Di Clemente's model. The reason it was possible not to inform the therapists of the design of the study was that in both centers studies of termination and relapse had been conducted for several years.

## **Sample**

Both treatment centers had identical admission criteria. The patients were mainly referred to the two centers from drug counseling facilities and social service departments in the prisons. For admission to therapy the patients had to fulfill the following criteria:

1. Dependence on opiates, amphetamines, or cocaine
2. Already detoxified
3. Age between 18 and 35
4. Absence of any acute psychosis or acute danger of suicide
5. No partner or child addicted to drugs being admitted at the same time
6. Agreement already obtained from certain paying authorities to fund the treatment, primarily on the part to the *Versicherungsanstalt für Arbeiter* (social insurance institution for workers)

Patients who, during or after admission, were discovered not to be in the above age group or to have another addiction nevertheless continued to be treated.

Seventy patients (17 female, 53 male) participated in the study. After an initial evaluation of the data, two more groups of patients were also included: one was a group of patients who were treated immediately be-

### 338 Drug Addiction Treatment Research

fore the study began (preceding standard therapy group), and the other was a group of patients who were treated immediately after the study was concluded (subsequent individualized therapy group). These two groups were defined by the number of patients: the "preceding standard therapy" group consisted of the last 22 patients admitted before the study began, and the "subsequent individualized therapy" group was made up of the first 22 patients admitted after the study was completed. The sample thus comprises a total of 114 patients.

Since both treatment centers are only recognized by certain paying authorities, almost all the patients were working class. Most of the patients were under legal obligation to undergo treatment. These patients usually go back to prison if they terminate treatment prematurely or have to begin a new course of residential treatment immediately. Most patients said they had started therapy because they could shorten their sentences by having residential treatment and because, if they completed it according to plan, their sentence would be suspended. Other characteristics of the patients are listed in Table 23.1.

At the beginning of treatment the patients of some groups differed from those of others with respect to individual characteristics. The humanistic therapy patients (survey period I) had, for example, a shorter remaining term of imprisonment than those of survey period II and the standard therapy patients. The individualized therapy patients were older than the standard therapy patients, and the patients of the "subsequent individualized therapy" group were older than the standard therapy patients and the patients of the "preceding standard therapy" group. With the exception of age, none of the characteristics where there were differences between the individual groups (i.e., remaining term of imprisonment, age when soft drugs were first taken) correlated with the way therapy was terminated (Vollmer, Ellgring, and Ferstl 1990). However, age did have predictive value with respect to the way treatment was terminated for a proportion of the sample and must thus be taken into account in the evaluation.

### Procedure

#### *Distribution of the Patients*

In order to achieve as random a distribution as possible of the patients between the two centers, whichever center had a higher percentage of places available received the next patient. The person responsible for the distribution of the patients was not informed of the design of the study.

**Table 23.1.**  
**Characteristics of Patients**

Variable	Behaviour therapy				Humanistic therapy		Comparison p
	preceding standard therapy (N=22)	standard therapy (N=21)	individualised therapy (N=22)	subsequent individualised therapy (N=22)	period I (N=12)	period II (N=15)	
	M s.d.	M s.d.	M s.d.	M s.d.	M s.d.	M s.d.	
Age	24 3	24 4	26 3	27 4	24 3	25 3	see Table 2
First use of opiates, amphetamines or cocaine (age)	18 2	17 3	18 3	18 3	17 2	17 3	n.s.
First use of cannabis (age)	15 2	15 2	15 2	16 3	15 1	14 2	Ind. vs HII <.05
Months in prison	15 14	26 22	28 24	28 21	17 8	30 25	pSt vs sInd. <.05
Expected term of imprisonment (months)	17 5	20 7	15 7	21 11	11 10	20 5	St vs HI <.05 Ind. vs HII <.05 HI vs HII <.05
	No	No	No	No	No	No	
Sex							
female	7	6	3	3	5	3	
male	15	15	19	19	7	12	n.s.
School qualification							
No final qualification	5	3	2	4	3	2	
Hauptschule <sup>1)</sup>	14	17	20	13	9	13	
Mittlere Reife <sup>2)</sup>	3	1	0	5	0	0	
Abitur <sup>3)</sup>	0	0	0	0	0	0	n.s.
Partner situation							
No partner	12	14	13	10	6	8	
Partner also on drugs	5	4	6	6	1	2	
Partner not on drugs	5	3	3	6	5	5	n.s.
Prior courses of treatment							
0	12	13	15	13	9	6	
1	5	5	5	6	2	7	
>1	5	3	2	3	1	2	n.s.
No legal order	4	2	3	3	1	0	n.s.
Principal diagnosis (DSM III R)							
opiod dependence	20	19	20	19	10	9	
amphetamine dependence	1	1	2	2	0	4	
cannabis dependence	1	0	0	1	1	2	
alcohol dependence	0	0	0	0	1	0	
sedative dependence	0	1	0	0	0	0	n.s.

<sup>1)</sup> basic secondary school level, <sup>2)</sup> equivalent to O-levels, <sup>3)</sup> equivalent to A-levels. Ind: individualised therapy; sInd: subsequent individualised therapy;  
ST: standard therapy; pSt: preceding standard therapy; HI: humanistic therapy, period I; HII: humanistic therapy, period II.

## 340 Drug Addiction Treatment Research

### *Interviews at the Beginning of Treatment*

On admission, the patients were interviewed by experienced psychologists or social workers in order to establish whether they were suffering from any psychiatric disorders; they were then classified according to DSM III R. If serious psychiatric disorders were suspected, a structured interview with a psychiatrist took place. On the day of admission, anamnestic data such as age, schooling, and length of time on drugs were collected using a standardized questionnaire.

### *Follow-up Interview*

Three and 12 months after the end of treatment, the patients who had terminated treatment according to plan were visited in their homes by a psychologist for a follow-up interview. The psychologist had taken part beforehand in interview training which consisted of six sessions with video feedback. She was not informed of the purpose and design of the study, and her task was to establish what had caused any relapse and to ascertain whether patients who said they had had no relapse since the end of therapy were in fact free of drugs.

A semi-standardized questionnaire dealing with the relapse process was used for the follow-up interview. Among the details the patients were asked to give were quantity and frequency of drug consumption, type of drug, and the cause of the relapse. They also filled in a questionnaire themselves and answered questions about drug consumption, work situation, etc. The patients who said they had taken no drugs in the last four weeks were asked to provide urine under supervision. The urine was analyzed at the Institute for Forensic Medicine of Munich University; the analysis involved drug screening with TDX, and, in the case of positive findings, a thin-layer chromatography test.

Patients who had terminated treatment prematurely were not visited for a follow-up interview for the following reasons: virtually no patients with legal orders are allowed their freedom by the court so that they can try living without drugs. Most patients go back to prison or are obliged to start another course of treatment immediately. The decision whether the patients stay free, go back to prison, or start another course of treatment is made by the court according to legal criteria (i.e., criminal offenses before the start of treatment) and not from a therapeutic standpoint (i.e., progress achieved so far). The follow-up results of the prematurely discharged patients therefore could not be used to evaluate the treatment. For patients under legal obligation to have treatment, the way the treat-



ment was terminated was, consequently, a crucial success criterion. Almost all the patients who completed treatment according to plan were able to stay free and thus had the opportunity to try living without drugs.

## **Evaluation**

A comparison was made between the outcome criteria (type of treatment termination and duration of stay) of the standard behavior therapy and the individualized behavior therapy, and of survey period 1 and survey period 2 in the case of the humanistic therapy. The frequency distributions were tested for significance with the chi-square test and the mean value comparisons with the t-test or covariance analysis. The level of significance adopted was 5%. The comparison of the success criteria was based on a one-tailed test with the hypothesis that individualized therapy has better results. The other comparisons were based on a two-tailed test. Since the sample size was small, because of the high quota of premature discharges, the follow-up data are presented in descriptive form. The follow-up data of the control group were not taken into account in the evaluation since the sample size was too small to allow any conclusions to be drawn.

## **RESULTS**

### **Type of Treatment Termination and Duration of Stay**

Significantly, more individualized therapy patients than standard behavior therapy patients terminated treatment according to plan (Table 23.2 and Figure 23.3). While there were 8 patients following the standard program who terminated treatment according to plan, in the case of the individualized program patients this figure was 16. Among the individualized therapy patients, the number of patients terminating treatment themselves decreased, as did the number prematurely discharged by the therapists. In the second treatment center, on the other hand, there was no difference between the two survey periods with respect to the number of patients completing treatment according to plan. In both periods, almost the same number of patients terminated treatment prematurely. In the standard therapy group the patients who terminated treatment according to plan were significantly older than those who terminated treatment prematurely, but

Table 23.2.

Statistical Values for Differences between (Preceding) Standard Therapy and (Subsequent) Individualised Therapy

Treatment group	Differences in age <sup>1)</sup> (t-test)		Differences in number of patients: discharge according to plan vs premature discharge <sup>2)</sup> (chi square, df=1)		Differences in duration of treatment <sup>2)</sup> (analysis of covariance, df=1)			
	t	P	$\chi^2$	P	main effect: group		covariate: age	
					F	P	F	P
individualised vs standard	-2.14	.039*	5.23	.011*	2.12	.08	13.48	.001***
subsequent indiv. vs preceding standard	-2.08	.044*	0.82	.183	3.50	.03*	0.002	.963
individualised vs preceding standard	1.64	.109	3.339	.033*	0.34	.28	2.22	1.44
subsequent indiv. vs standard	-2.49	.017*	1.90	.084	9.17	.002**	4.89	.033*

<sup>1)</sup> The (subsequent) individualised therapy patients were older in every case.

<sup>2)</sup> More (subsequent) individualised therapy patients completed therapy according to plan and they also spent longer in therapy (see Figures 3 and 4).

Significant values are indicated by an asterisk

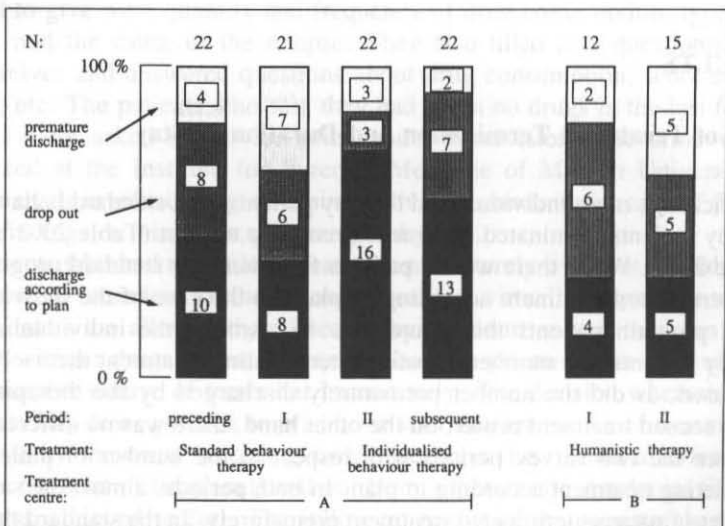


FIGURE 23.3.  
Type of treatment termination.

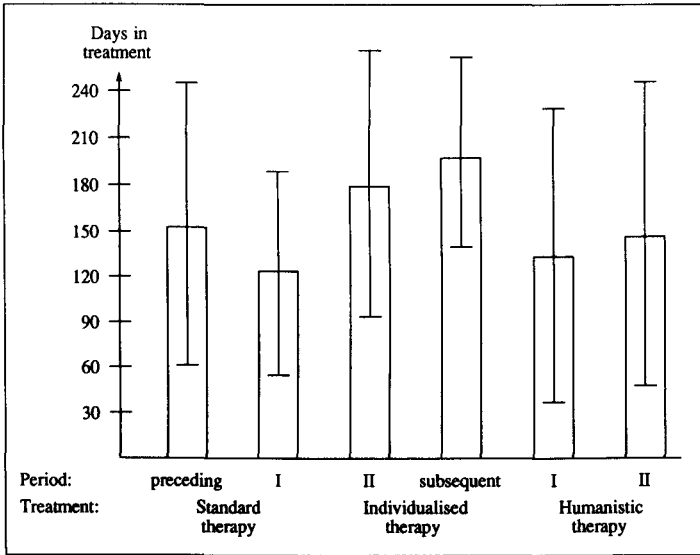


FIGURE 23.4.  
Days in treatment.

there was no such age difference in the other groups. The other characteristics where the patients of the individual groups differed did not correlate with the outcome criteria type of treatment termination and duration of stay. Nor did the patients of the different individual therapists differ with these two outcome criteria.

It would theoretically be possible to increase the number of patients completing treatment according to plan by shortening the therapy period. This did not happen with the individualized therapy patients, who on average spent longer in treatment than the standard therapy patients (Figure 23.4). This applied both to prematurely terminated treatment and treatment completed according to plan. In the humanistic therapy program there was scarcely any difference between the two groups in duration of stay. When the characteristic age was partialled out by means of covariance analysis, it was shown that the differences between individualized and standard therapy patients are due to age and not to the treatment.

There is no difference between the two samples additionally included in the study (preceding standard therapy, subsequent individualized therapy) with respect to the number of patients terminating treatment according to plan. The "subsequent individualized therapy" patients had

Table 23.3.

Number of Patients Interviewed at 3 month and 12 month Follow-ups

Treatment termination	Contact with patients	3 months follow-up		12 months follow-up	
		standard therapy	individualised therapy	standard therapy	individualised therapy
Discharge according to plan	interviewed	6	9	3	7
	not interviewed because of relapse <sup>1)</sup>	0	3	2	4
	not traced	2	4	3	5
premature termination	not interviewed	13	6	13	6
Total		21	22	21	22

<sup>1)</sup> Patients with whom no proper interview could be conducted or with whom no interview took place because they were under the influence of drugs.

treatment for significantly longer periods, even when the age factor was partialled out. A comparison of the “subsequent individualized therapy” with the standard therapy showed that the longer periods spent in therapy in the former case were due both to the treatment and to age.

**Follow-up**

An increase in the number of patients completing treatment according to plan and in the duration of stay could possibly also be achieved by more relaxed, less demanding therapy. This would be reflected in poorer follow-up results. In order to exclude this possibility, there must be at least the same number of successful patients in both the standard therapy and the individualized therapy groups. Three months after treatment had been completed according to plan, it was possible to interview six standard program patients and nine individualized therapy patients (Table 23.3). At the three-month follow-up, more of the individualized therapy patients said they had taken no cannabis, no medication, and no hard drugs in the last 30 days (Table 23.4). The urine checks of the individualized therapy patients also produced more negative results. There were no differences between the two groups in the work situation. In one group, five patients and in the other six patients had regular jobs at the time of the interview; four in one group and five in the other said they had not been unemployed since the therapy ended.

At the 12-month follow-up fewer patients were interviewed in both groups (Table 23.3). The number of patients who could not be inter-

**TABLE 23.4.**

**Use of Psychoactive Substances Recorded at 3-month Follow-up of Interviewed Patients Who Completed Treatment**

Psychoactive substances taken in the last 30 days:									
Substance:	Alcohol		Cannabis		Medication		hard drugs		
Treatment group:	Standard	Individualised	Standard	Individualised	Standard	Individualised	Standard	Individualised	
Days: 0	0	0	0	3	4	8	3	7	
≤7	1	2	1	1	2	0	2	1	
8-14	1	3	0	0	0	0	0	1	
>14	4	4	3	5	0	1	1	0	

Urine analyses of patients who claimed they had not taken any drugs:		
Result	Standard	Individualised
drugfree	2	6
Cannabis	1	0
hard drugs	0	0
refused	1	1

viewed because of relapse increased. There was no longer any difference between the standard program and the individualized therapy groups regarding the number of patients who had stopped taking drugs (Table 23.5). More individualized therapy patients had regular jobs at the time of the interview ( $N = 6$  vs.  $3$ ) and said they had not been unemployed since the therapy finished ( $N = 4$  vs.  $2$ ).

## **DISCUSSION**

As measured by the type of therapy termination and the duration of treatment, more patients in the individualized behavior therapy or subsequent individualized behavior therapy groups than in the standard behavior therapy and preceding standard behavior therapy groups, and the humanistic therapy groups of periods 1 and 2 succeeded in halting their drug consumption. The better results of the patients from the two individualized therapy groups can be explained in three ways: the age of the patients, the change of therapy program, and the individualized therapy.

The attempt to exclude potential confounding variables through the mode of distribution of the patients between the two treatment centers failed as far as the age factor was concerned. The better results of the individualized therapy group are thus in part because the patients involved were older than those of the standard therapy group. The results of the individualized therapy group are not, however, exclusively due to the patients being older, since age does not always have predictive value for the success of therapy and the subsequent individualized therapy group differed significantly from the two standard therapy groups, even when age was partialled out by means of covariance analysis.

A further potential determinant of change is the introduction of something new into the therapy. It may be irrelevant which measure is introduced, provided that the patients react positively to the new measure and it is not contraindicated for the treatment of drug addicts. Occasionally, changing a therapy program, whatever form such a change takes, could thus improve the attention of the patients and their identification with the therapy, and have a positive effect on their willingness to change their behavior. If it is assumed that the novelty value wears off after six months, it is unlikely that the results of the individualized therapy can be explained exclusively by the introduction of something new, because even the results of the subsequent individualized therapy group are better than those of the two standard therapy groups.

The hypothesis of the study, that individualization of the therapy produces better results, could not be tested as conclusively as had been hoped,

**TABLE 23.5.**

**Use of Psychoactive Substances Recorded at 12-month Follow-up of Interviewed Patients Who Completed Treatment**

Psychoactive substances taken in the last 30 days:								
Substance: Treatment group:	Alcohol		Cannabis		Medication		hard drugs	
	Standard	Individualised	Standard	Individualised	Standard	Individualised	Standard	Individualised
Days: 0	0	0	2	2	3	5	3	4
≤7	1	2	0	0	0	1	0	2
8-14	0	1	0	1	0	0	0	0
>14	2	3	1	4	0	0	0	1

Urine analyses of patients who claimed they had not taken any drugs:		
Result	Standard	Individualised
drugfree	1	2
Cannabis	1	2
Tranquilizer	1	0

but there are various indications that this hypothesis is correct. Thus, on the one hand, the above-mentioned disturbance variables are not sufficient to explain the better results of the patients in the individualized therapy groups, and, on the other hand, some comparisons between the groups indicate that it was the treatment that was having an effect, in particular for comparisons between subsequent individualized therapy and the two standard therapy groups, and for the comparison with the humanistic therapy program, where there was no improvement during the study period.

There are also practical and theoretical considerations which indicate that individualized therapy is superior to standard therapy. If one assumes that drug addicts under legal obligation to undergo treatment are at various stages of change, it does not seem appropriate to apply the same measures to all patients at the same time and with the same intensity. As the patients are treated according to their current stage of change, they are protected from measures that are not indicated and that seem irrelevant to them, and that would also reduce their resistance to the therapy and increase their cooperation. There are various authors who feel that the systematic assignment of patients to different types of treatment is more likely to be successful than uniform treatment, and this has, to some extent, also been empirically proven.

In this study, in addition to treatment according to indication of stage of change, another feature of the individualized therapy and hence a potential determinant of change is the freedom of the patients to make their own decisions about their therapy. Since there were no valid criteria for assigning patients to the various measures, the patients were allowed to decide what they would participate in themselves. Attribution research shows that people's intrinsic motivation increases when they can make their own decisions and are not acting for external reasons (Bandura 1977). It is conceivable that the external control imposed by legal orders, which can have a detrimental effect on patients' willingness to change, is partly offset by the freedom they are granted within the treatment and that their intrinsic motivation to continue with treatment is increased. A greater degree of freedom in therapy carries with it the danger that it will be less demanding, more relaxed, and not as effective, so that a reduction in the rate of termination would occur at the price of the quality of the therapy. The data from the three-month follow-up in particular show that this is not the case. The number of patients no longer on drugs is higher after individualized therapy than after standard behavior therapy.

Standard programs, in particular group therapy, are the norm in the treatment of drug addicts. Many therapists are very skeptical about individualized therapy for drug addicts, and this applied to most of the therapists at the two treatment centers participating in the study and to



colleagues at other centers. However, based on the results of this study, it can be said with some certainty that the introduction of individualized behavior therapy did not have a detrimental effect on the treatment of the drug addicts. It can quite probably even be assumed that the patients in the individualized therapy group did better than the standard therapy and humanistic therapy patients. It is not possible to define the determinants of change precisely. Variables that correlate with age, the novelty value of the therapy, and the individualized behavior therapy program may have influenced the results. It is not possible to say here how much the effect of the treatment in individualized therapy is due to treatment according to indication of stage of change and how much to the patients' freedom to decide. This would be an interesting question for further studies.

In this study, the criteria for the success of the therapy were the number of patients who terminated treatment according to plan and the duration of their stay at the center. Normally, the number of patients is too approximate a measure for a comparison of therapy programs. In order for the differences to be significant with a group size of 22 people, even at the lowest level of significance (5%) and with one-tailed tests, 5 to 6 more people must complete treatment according to plan. In the context of everyday therapeutic practice, such improvements are unrealistic. Measuring instruments which are more sensitive to changes regarding the attainment of various therapeutic goals are prerequisite for the identification of determinants of behavior change. The number of days in treatment would seem to be a suitable measure for evaluating types of therapy, because it has predictive value as far as subsequent freedom from drugs is concerned (Bradley 1989, Herbst et al. 1989). The validity of this measure should, however, also be examined more closely. The number of drug-free people at the follow-ups is too approximate a measure, and the number of drug-free days would have been more appropriate. The numbers of drug-free days were not compared on account of the differences in discharge according to plan, which ruled out group comparison at follow-up.

The inclusion in the follow-up of the patients who terminated therapy prematurely would not have made the study more conclusive. It is not possible to form hypotheses about causal connections between treatment and drug situation with these patients because of uncontrollable disturbance variables (i.e., different interpretation of legal orders). The type of therapy termination and the duration of stay are thus important success criteria for the treatment of drug addicts, especially those under legal obligation to have treatment. As long as there are no other valid measuring instruments for the evaluation of the success of therapy, such

simple measures as duration of therapy will have to suffice. This is particularly unsatisfactory for practicing clinical psychologists, since these simple success criteria do not do justice to the complexity of the therapy goals and the involved and laborious therapeutic process. On the other hand, they enable the practicing psychologist to carry out empirical studies with a minimum of complication. Nevertheless, on the basis of the authors' experience with this and previous studies, the demand made by some researchers (Wilson 1984) for publications by practicing psychologists is only realistic under certain conditions. It is no problem to incorporate the documentation of data from patients and the systematic variation of interventions into the everyday routine—given a cooperative team and uncomplicated measuring instruments. However, the practicing psychologist is frequently unable to cope with the work involved in evaluating the data.

Without the research institutes mentioned here, the publication of the study would not have been possible. Research institutes, with their better technological and staffing facilities, can help clinical psychologists with the evaluation of the data that have been collected. Close cooperation on an equal basis between therapy and research centers has the advantage of providing a means of mutual control, with one concentrating more on the relevance to practice and the other more on objectivity. In this study, it was possible to show that even in a normal treatment center for drug addicts it is possible to carry out research into the determinants of change of a particular kind of therapy by means of systematic documentation and controlled change. The extent to which the results of this study can be generalized would have to be tested in other treatment centers. The study produced hypotheses for basic research about individual determinants of behavior change in therapy which could be tested under controlled conditions. Given the unsatisfactory level of knowledge about determinants of change in therapy for drug addicts, what is needed, especially from the standpoint of a practicing psychologist, is more practice-oriented and basic research.

### **Acknowledgments**

We would like to thank the following for making this study possible: the patients and colleagues of the Aiglsdorf and Baumgarten treatment centers (director Dr. Alfred Dvorak); Mrs. Dipl. Psych. Angelika Leitner for the follow-ups; Mr. Michael Waadt for advice about the statistics and evaluation of data; Dr. Ludwig von Meyer (Institut für Rechtsmedizin der Universität München—Institute for Forensic Medicine of Munich

University) for the urine analysis; Mr. Phillipp Korintenberg for the graphics and tables; and Ms. Sue Bollans for the translation into English. The data presented in this paper were collected as part of a research project to investigate the relapse process, with financial assistance from the Volkswagenwerk Foundation.

## REFERENCES

- Ayllon, T., and Azrin, N. H. (1968). *The Token Economy: A Motivational System for Therapy and Rehabilitation*. New York: Appleton-Century-Crofts.
- Bandura, A. (1977). Self-efficacy: Towards a unifying theory of behavior change. *Psychological Review*, 84, 191–215.
- Bradley, B. P. (1989). Heroin and the opiates. In M. Gossop (ed.), *Relapse and Addictive Behaviour*, 73–85. London: Tavistock/Routledge.
- De Jong, R., and Henrich, G. (1980). Follow-up results of a behavior modification program for juvenile drug addicts. *Addictive Behaviours* 5: 49–57.
- Ellis, A. (1977). The basic clinical theory of rational-emotive therapy. In Ellis and R. Grieger (eds.), *Handbook of Rational-Emotive Therapy*. New York: Springer.
- Grawe, K. (1980). Die diagnostisch-therapeutische Funktion der Gruppeninteraktion in verhaltenstherapeutischen Gruppen (The diagnostic-therapeutic function of group interaction in behaviour therapy groups). In K. Grawe (ed.), *Verhaltenstherapie in Gruppen*, 88–223. München: Urban & Schwarzenberg.
- Herbst, K., Hanel, E., and Haderstorfer, B. (1989). Rückfallgeschehen bei stationär behandelten Drogenabhängigen (Relapse of drug addicts following inpatient treatment). In H. Watzl and R. Cohen (eds.), *Rückfall und Rückfallprophylaxe*, 139–48. Berlin: Springer.
- Kanfer, F. H. (1971). The maintenance of behavior by self-generated stimuli and reinforcement. In A. Jacobs and L. B. Sachs (eds.), *The Psychology of Private Events*, 39–57. New York: Academic Press.
- Kanfer, F. H., and Phillips, J. S. (1970). *Learning foundations of behavior therapy*. New York: Wiley.
- Kanfer, F. H., and Saslow, G. (1969). Behavioral diagnosis. In C. M. Franks (ed.), *Behavior Therapy: Appraisal and Status*, 417–44. New York: McGraw-Hill.
- Klett, F. (1987). Langzeitverläufe bei Drogenabhängigen bis zu 10 Jahren nach Behandlungsende (Long-term course in drug addicts up to 10 years after treatment termination). In D. Kleiner (ed.), *Langzeitverläufe bei Suchtkrankheiten*, 162–78. Berlin: Springer.
- Klett, F., Hanel, E., and Bühringer, G. (1984). Sekundäranalyse deutschsprachiger Katamnesen bei Drogenabhängigen (Secondary analysis of German follow-up studies on drug dependents). *Suchtgefahren* 30: 245–65.

### 352 Drug Addiction Treatment Research

- Lazarus, A. A. (1966). Broad spectrum behavior therapy and the treatment of agoraphobia. *Behaviour Research and Therapy* 4: 95-97.
- Libermann, R. P., King, L. W., De Risi, W. J., and McCann, M. (1975). *Personal Effectiveness*. Champaign, Ill.: Research Press.
- Marlatt, G. A. and Gordon, J. R. (eds.). (1985). *Relapse Prevention*. New York: Guilford Press.
- Meichenbaum, D., and Jaremko, M. E. (1983). *Stress Reduction and Prevention*. New York: Plenum.
- Melchinger, H. (1989). Therapie unter Freiheitsentzug: Katamnestische Untersuchungen bei Klienten der Fachklinik Brauel (Court-ordered therapy at a closed facility: A follow-up study of drug-dependent clients at the Brauel Treatment Center). In W. Feuerlein, G. Bühringer, and R. Wille (eds.), *Therapieerläufe bei Drogenabhängigen*, 245-64. Berlin: Springer.
- Miller, W. R. (1983). Motivational interviewing with problem drinkers. *Behavioural Psychotherapy* 11, 147-72.
- Pavlov, I. P. (1927). *Conditioned Reflexes*. London: Oxford University Press.
- Prochaska, J. O., and Di Clemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology* 51: 390-95.
- . (1986). Toward a comprehensive model of change. In W. R. Miller and N. Heather (eds.), *Treating addictive Behaviors*, 3-27. New York: Plenum Press.
- Reed, Th. (1980). Challenging some "common wisdom" on drug abuse. *The International Journal of the Addictions* 15: 359-73.
- Schulte, D. (1974). Ein Schema für Diagnose und Therapieplanung in der Verhaltenstherapie (A guide for diagnosis and treatment planning in behavior therapy). In D. Schulte (ed.), *Diagnostik in der Verhaltenstherapie*, 75-104. München: Urban & Schwarzenberg.
- Skinner, B. F. (1953). *Science and Human Behavior*. New York: Free Press.
- Ullrich, R. and Ullrich, R. (1976). *Das Assertiveness-Training-Program* (The assertiveness training program). München: Pfeiffer.
- Vollmer, H. C., Ellgring, H., and Ferstl, R. (1990). Prediction of Premature Termination of Therapy in the Treatment of Drug Addicts. Manuscript submitted for publication.
- Wilson, G. T. (1982). Clinical issues and strategies in the practice of behavior therapy. In C. M. Franks, G. T. Wilson, Ph. C. Kendall, and K. D. Brownell (eds.), *Annual Review of Behavior Therapy*, vol. 8, 305-45. New York: Guilford.
- Wilson, G. T. (1984). Clinical issues and strategies in the practice of behaviour therapy. In C. M. Franks, G. T. Wilson, Ph. C. Kendall, and K. D. Brownell (eds.), *Annual Review of Behavior Therapy*, vol. 10, 291-320. New York: Guilford Press.