

Comparison of Clients Assigned to In-patient and Out-patient Treatment for Alcoholism and Drug Addiction

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Summary: This study examined characteristics of 296 alcohol and/or drug abuse clients assigned to either (1) in-patient programmes, (2) out-patient programmes, or (3) a lower cost primary care alternative. Multivariate analysis indicated that clients admitted for in-patient care reported greater alcohol consumption and associated problems, fewer community supports and more severe symptoms such as depression and anxiety. They tended to be more frank about their problems while defence mechanisms were more apparent in clients admitted to out-patient and primary care programmes. In general, out-patients had more favourable prognostic indicators, such as higher social stability and lower level of alcoholic involvement. The differences among treatment programmes were along *quantitative dimensions* of problem severity. In particular, the alcohol dependence syndrome was a major discriminating dimension.

What factors determine whether a client is attracted to and is offered out-patient or in-patient treatment for alcohol/drug abuse? This issue has become increasingly relevant with the current emphasis upon less intensive and more economical treatment (Edwards and Orford, 1977). By examining the characteristics of populations that enter alternative programmes, light may be shed on the treatment assignment process.

Kern *et al* (1978) compared in-patients in a public hospital, out-patients voluntarily receiving psychotherapy, and clients who were ordered by the court to undergo out-patient therapy as a result of two or more arrests for driving while intoxicated. The most important finding was that the three groups could be arranged along a continuum of alcohol-related problems; the in-patients reported the most severe and the court-remanded clients had the least severe problems. Possible explanations were that the court-remanded clients were denying the extent of their drinking, or were at an earlier stage of alcoholism.

Pattison *et al* (1973) found a continuum of decreasing social competence among clients of a hospital, an out-patient clinic, a halfway house and a police work centre. They concluded that the four treatment facilities tended to cater for different populations of alcoholics. A similar conclusion was reached by Cronkite and Moos (1978) in their study of five treatment programmes; they found that a composite variable, termed social background (age, sex, marital status,

ethnic group, education), was an important determinant of the type of programme a client entered. Although the distribution of clients on this complex variable was not presented, data from an earlier study on these samples (Bromet *et al*, 1976) suggested that the programmes could be ranked on a continuum. Several studies have found that social class interacts with the treatment programme that alcoholic clients enter (Edwards *et al*, 1974; Schmidt *et al*, 1968) and English and Curtin (1975) found that clients at three in-patients' programmes (V.A. Hospital, a state hospital and a halfway house) could be differentiated by the MMPI test along two dimensions of anxiety and self-esteem.

A rigorous comparison of client characteristics across different treatment settings is hampered by a large number of confounding variables that could account for observed differences; therefore another approach is to examine clients who make use of alcoholism treatment services *within* a given community. Delahaye (1977) studied clients at various treatment agencies in Manchester, England. These agencies ranged from a specialized residential unit for alcoholism, to more general facilities at public and mental hospitals. He found that private patients were older and of higher social class and social stability. Alcoholics Anonymous in Manchester saw clients of a higher social class than other agencies except for private psychiatrists; an Information Centre tended to receive younger clients who were at

an earlier stage of problem drinking. Although Delahaye identified clear differences between the client groups at each separate agency, variations among treatment approaches at each agency were less well defined. If, in fact, agencies are offering more or less the same treatment, what factors attract clients to one service rather than another?

In the present study clients at a specialized treatment centre for alcohol and drug-related problems were examined. The sample was relatively unusual both in the range of treatment services offered and in the extent of assessment information collected on all clients. In particular, differences were examined among clients assigned to in-patient programmes, out-patient programmes and a lower cost primary care alternative. Multivariate comparisons were conducted using alcohol-related measures, demographic variables, cognitive abilities, personality characteristics and measures of psychopathology. Following Skinner *et al* (1981), it was hypothesized that observed differences among clients would be of degree not kind.

Method

Subjects

The total sample consisted of 296 clients, of whom 76 per cent were male. The average age was 33.7 (± 12.0) years with a range of 14 to 66 years. The clients had been drinking for an average of 16.7 (± 10.0) years and in the past two months 55 per cent drank daily, 18 per cent in binges, 10 per cent at weekends, 12 per cent occasionally and 5 per cent were abstinent. With respect to substance of abuse, 64 per cent were referred for alcohol-related problems, 18 per cent for drug abuse and 18 per cent for mixed alcohol-drug problems. The civil status was single (41 per cent), separated (21 per cent), married (20 per cent), divorced (12 per cent) and cohabiting (5 per cent). The majority of clients (63 per cent) had their own apartment or house. All clients were ambulatory and had completed a comprehensive two-day assessment programme before being assigned to treatment. The population at the Clinical Institute is not necessarily representative of all individuals with alcohol-related problems in the Toronto area.

Treatment programmes

Clients were compared across three broad treatment categories:

I. In-patient care ($n = 112$) consisted of two programmes. The first was a relatively traditional in-patient service consisting of group therapy, vocational rehabilitation, recreation and relaxation training. The second programme accepted younger clients with

mixed alcohol-drug problems. This programme had a behavioural orientation and used group contingency management techniques.

II. Out-patient care ($n = 119$) consisted of individual, group, family and marital psychotherapy and relaxation training. The vocational rehabilitation programme consisted of skills assessment, job search procedures and leisure counselling.

III. Primary care ($n = 65$) provided supportive counselling and help with practical details. In contrast to out-patient individual psychotherapy (median session length = 55 minutes), primary care involved briefer sessions (median = 32 minutes) and focussed upon general issues of concern to the client. Primary care is seen as a lower cost basic level of care that may be offered to all clients. Primary care therapists are generally paraprofessional staff.

Materials

All clients were tested by trained assessors on the following:

1. *Alcohol-related measures:* All clients completed a self-administered version of the Michigan Alcoholism Screening Test, or MAST (Selzer, 1971). The 25 items of the MAST span various problems associated with drinking, including its medical, social, intrapersonal and legal consequences. In an evaluation of the MAST with this clinical population, Skinner (1979) found it to be highly reliable, relatively free from response-style biases such as denial, and a meaningful predictor of psychopathology. The alcohol use inventory (AUI) was developed to provide a differential assessment model for alcoholism (Horn *et al*, 1974). The 16 primary order scales used in this study cover three distinct areas: styles of alcohol use, symptoms or unfavourable consequences of drinking and the perceived benefits of drinking. A multivariate comparison of the MAST and AUI has been conducted in this clinical population (Skinner, 1978). The AUI is a useful complement to the MAST in that the 16 AUI scales provide more detailed information on relevant problem areas. Finally, the client's lifetime drinking years, lifetime total number of drinks and present daily consumption were assessed by the lifetime drinking history (Skinner, unpublished text). This structured interview is patterned after Rohan (1976) and yields quantitative indices of an individual's alcohol consumption patterns.

2. *Demographic and previous treatment variables:* These were assessed by a structured interview and included: (1) age; (2) sex; (3) years of education; (4) social stability, a composite index derived from seven items relating to family contact, accommodation, work record and legal status (Skinner, 1980); (5) prob-

lems with drug abuse (no, sometimes, yes); (6) total months spent in residential treatment for alcoholism in past five years; (7) number of occasions that treatment was sought for alcoholism in past five years; and (8) whether the client had attended regular meetings of Alcoholics Anonymous.

3. *Validity scales:* The three response style measures included (1) the denial scale, which taps an individual's tendency to be defensive and minimize problems (Jackson, unpublished text); (2) the desirability scale, which assesses the extent to which one presents an over-favourable or socially desirable picture of oneself (Jackson, 1974); and (3) the infrequency scale, which identified clients who either did not understand the items or were responding carelessly (Jackson, 1974).

4. *Intellectual abilities and neuropsychological tests:* Five tests were administered. First, the WRAT reading ability scale (Jastak and Jastak, 1965) provides a measure of the client's word recognition ability. The client's verbal ability was estimated by a group-administered version of the WAIS vocabulary subscale (Wechsler, 1955). Next, a measure of general ability and abstract reasoning was provided by the standard progressive matrices (Raven, 1960). The Benton visual retention test (Benton, 1974) measured visual memory, concentration and spatial organization, and the WAIS digit symbol, particularly sensitive to brain damage (Lezak, 1976), was used to identify cases where organic impairment was suspected.

5. *Personality characteristics:* All clients completed eight scales from the Personality Research Form (Jackson, 1974): abasement, achievement, affiliation, aggression, autonomy, impulsivity, succorance and understanding. These scales were developed according to a construct validation paradigm (Jackson, 1971), and measure personality characteristics within the normal range of functioning. Also, clients were administered the locus of control instrument developed by Rotter (1966). This instrument is based on a general behavioural expectancy that differentiates individuals according to an internal or external orientation.

6. *Psychopathology:* The Basic Personality Inventory or BPI, (Jackson, unpublished text) was designed to assess various facets of abnormal behaviour. The BPI yields 11 content scales, including depression (despondent, feels inadequate), anxiety (easily scared, afraid of novelty) and interpersonal problems (uncooperative, easily annoyed) and assesses relatively enduring predispositions or traits. In contrast, clients were also given a state measure of anxiety (Endler and Okada, 1975).

Finally, all clients completed the schedule of recent events (Holmes and Rahe, 1967) which assesses life-event stress during the past year.

Analyses

Multiple discriminant analysis (Cooley and Lohnes, 1971) was used as the principal technique for comparing clients in the three treatment categories. This multivariate procedure derives weighted linear combinations of variables that optimally differentiate among the three treatment groups. An advantage of this method over repeated univariate comparisons is that it takes into account correlations among the dependent variables; because assessment information was used in part as a basis for assigning clients to treatment, the significance tests must be interpreted only for their *descriptive* power. That is, these tests are only useful for describing the extent to which clients are being differentially screened for one class of programme versus another. Causal inferences may not be drawn because the assumption of independent random samples had been violated.

Results

The salient findings are highlighted for each of the six assessment domains in Figs 1 to 6 respectively. One discriminant function was significant at the 1 in a 100 level for each comparison, except for the validity scales where two dimensions were retained. In each Figure the location or centroid of the in-patient, out-patient and primary care programmes are given on the discriminant function. This function represents the optimal linear combination of variables for distinguishing among the three treatment programmes. The variables which are most powerful in making this discrimination (Table 1) are depicted in the appropriate Figure. The discriminant function weights, structure coefficients and univariate F ratios are given on a sheet (available by writing to the author).

1. *Alcohol related measures:* The most prominent scales on this dimension (Fig 1) were the MAST, present daily average consumption of alcohol, and several scales from the Alcohol Use Inventory including social role maladaptation, obsessive-compulsive drinking, psychoperceptual withdrawal (delirium) and psychophysical withdrawal (hangover). This dimension of general alcoholism or alcohol dependence ordered the three treatment programmes according to severity of symptoms. That is, clients assigned to the in-patient programme tended to experience more severe withdrawal symptoms, drank in a compulsive style, reported loss of control when drinking, had a greater daily consumption of alcohol and had more often sought help for drinking problems. This differentiation is quite evident on the MAST where the group averages and standard deviations were: out-patient 22.4 (± 12.6), primary care 27.0 (± 14.0) and in-patient 30.6 (± 10.7).

TABLE I
Discriminating power of each measure
*(Univariate F Ratios: * P < .01)*

	<i>F ratio</i>
I. Alcohol Related Measures	
Alcohol Use Inventory	
1. Social benefit	2.99
2. Mental benefit	7.36*
3. Gregarious style	2.15
4. Obsessive-compulsive	13.25*
5. Sustained drinking	5.29*
6. Post drinking guilt	4.59*
7. Change mood	7.55*
8. Prior help	8.70*
9. Loss of control	9.92*
10. Social maladaptation	18.99*
11. Withdrawal—DTs	13.34*
12. Withdrawal—hangover	9.88*
13. Drug use	2.18
14. Daily quantity	9.34*
15. Marital problems	0.11
16. Marital conflict	0.49
MAST	12.96*
Lifetime drinking years	0.16
Lifetime drinking total	8.09*
Present daily consumption	12.10*
II. Assessment Validity Scales	
Denial	5.73*
Social desirability	20.41*
Carelessness (infrequency)	2.39
III. Demographic Variables	
Age	.99
Sex (1 = M, 2 = F)	1.13
Education (years)	10.29*
Social stability	45.09*
Drug problems	1.60
Time in treatment	4.70*
Number previous treatments	5.30*
Attended AA (0 = No, 1 = Yes)	1.93
IV. Intellectual Abilities	
Reading level (WRAT)	10.76*
Verbal ability (WAIS)	13.21*
Abstract reasoning (Ravens)	9.31*
Digit symbols (WAIS)	3.89
Benton visual retention test	1.60
V. Personality Characteristics	
Abasement	2.77
Achievement	2.27
Affiliation	3.04
Aggression	2.48
Autonomy	0.46
Impulsivity	14.55*
Succorance	1.61
Understanding	3.06
Locus of control	2.12

TABLE I (continued)

	<i>F ratio</i>
VI. Measures of Psychopathology	
Hypochondriasis	12.64*
Depression	16.00*
Interpersonal problems	1.14
Social deviation	2.84
Persecutory ideas	18.11*
Anxiety	8.04*
Thinking disorder	12.63*
Impulse expression	12.86*
Social introversion	4.12
Self depreciation	14.58*
Deviation	19.93*
State anxiety	12.36*
SRRS	5.54*

ALCOHOL RELATED PROBLEMS

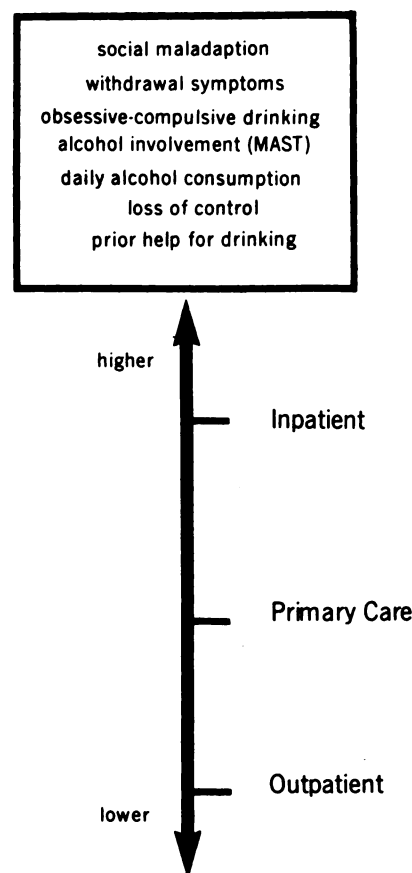


FIG 1.—Discriminant function based on alcohol related measures.

TREATMENT REGIMES FOR ADDICTS

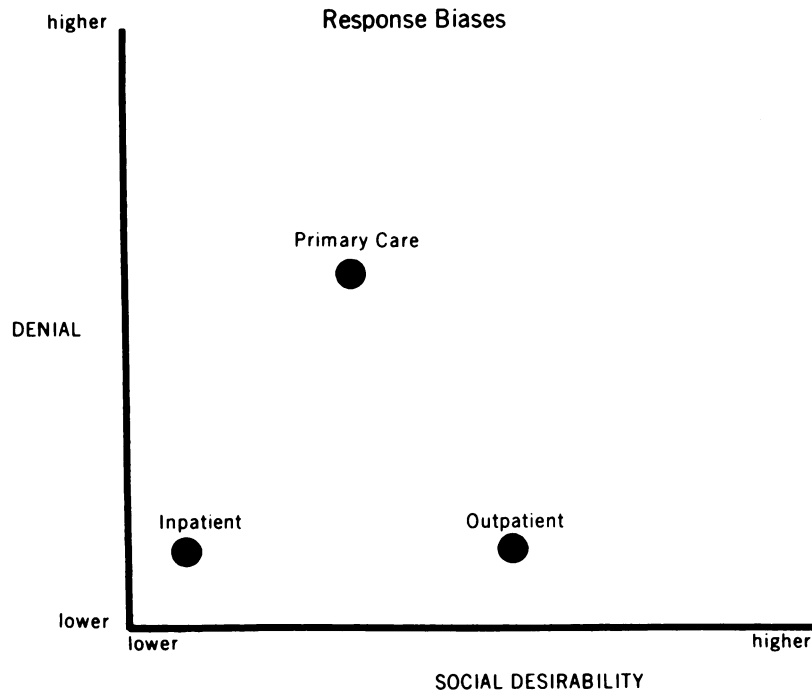


FIG 2.—Two discriminant functions based on assessment validity scales.

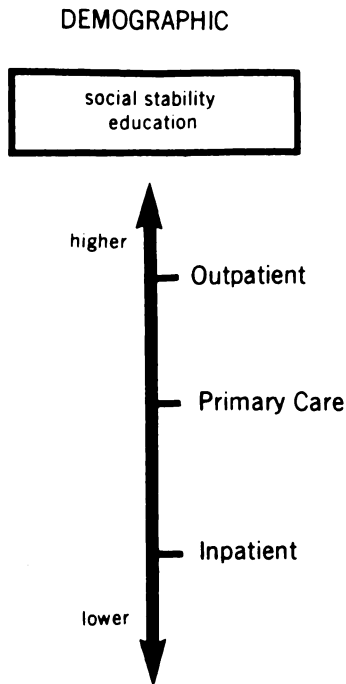


FIG 3.—Discriminant function based on demographic variables.

2. *Assessment validity scales:* In Fig 2, the most powerful discriminators were social desirability on the first axis and denial on the second discriminant function. Some interesting differences are evident with respect to the assessment validity scales. First, the primary care clients exhibited a stronger tendency to be defensive and minimize problems, possibly because they had been screened from the more costly interventions by being less frank about their symptoms and drinking problems. Second, the out-patient group was higher on social desirability, that is, a tendency to present a favourable picture of oneself. This could reflect a higher level of self-esteem among these clients, as well as a tendency to distort their self description in the direction of behaviours judged to be socially desirable. In contrast to primary care and out-patient clients, the in-patients as a group tended to give the most candid self descriptions.

3. *Demographic variables:* The social stability index and years in education were the principal discriminators in Fig 3. The out-patient group was higher on social stability (Skinner, 1981) which is a composite index that considers present accommodation, family contact, work record and legal status. Also, out-patients tended to be better educated. These differences are not surprising since social stability is an important consideration when assigning clients to out-

INTELLECTUAL ABILITY

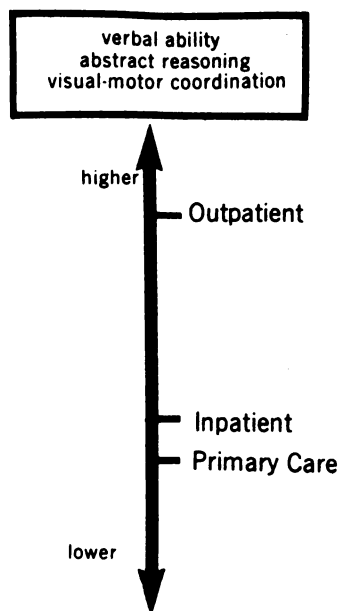


FIG 4.—Discriminant function based on intellectual abilities and neuropsychological tests.

PERSONALITY

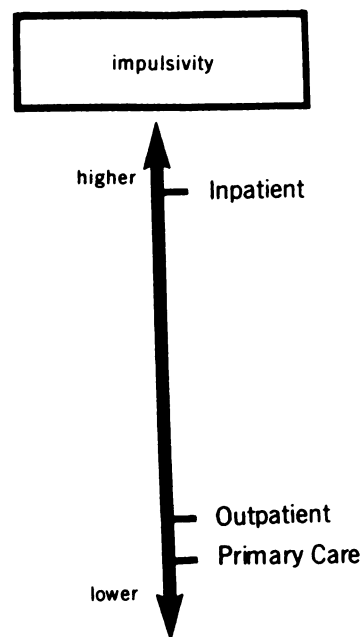


FIG 5.—Discriminant function based on personality characteristics.

patient care. Research indicates that a reasonable level of community support is necessary to sustain treatment on an out-patient basis (Baekeland, 1977). There were no systematic age or sex differences across programmes.

4. Intellectual abilities and neuropsychological tests: In Fig 4 the vocabulary subscale of the WAIS, reading ability and standard progressive matrices were key discriminators. With respect to intellectual ability, the out-patient clients were clearly higher than either the in-patient or primary care groups. Also, the out-patient group performed somewhat better on the neuropsychological tests. Thus, clients streamed to out-patient programmes tended to be more intelligent and less deteriorated on testing.

5. Personality characteristics: Generally there were few differences in personality characteristics across the three groups. However, impulsivity was an important discriminator (Fig 5) with the in-patient group reporting a greater tendency to act on the spur of the moment and engage in reckless behaviour.

6. Measures of psychopathology: The important variables (Fig 6) were persecutory ideas, anxiety, self depreciation, hypochondriasis and thought disorder. The in-patient clients reported a more severe level of symptoms on several indices of psychopathology.

That is, they tended to be more suspicious of others, experienced generalized symptoms of anxiety and depression, were more preoccupied with bodily functions and somatic complaints, and reported more cognitive disorders (memory lapses, confusion).

The dimensions depicted in the Figures represent optimal functions for discriminating among the three treatment programmes. Although the group mean profiles (centroids) were distinct, overlap was evident among the distribution of clients in each programme. That is, on the basis of the discriminant function scores one may compute an estimate of an individual's membership in each of the three treatment programmes (Cooley and Lohnes, 1971). Then the individual may be assigned (predicted group membership) to the programme with the highest probability. A comparison of actual group membership with predicted membership provides a convenient summary of the differentiating power of the assessment measures. Table II lists the percentage of correctly classified individuals in the three treatment programmes. For in-patient and out-patient clients, approximately two-thirds were correctly classified. In contrast, a large majority of the primary care clients were misclassified to either the out-patient or in-patient groups. Thus, the primary care group is heterogeneous

with a proportion resembling clients in the in-patient and out-patient programmes.

Discussion

It is clear that clients streamed into the in-patient programmes tended to be more deviant in several respects; they reported greater alcohol consumption and more problems associated with drinking, they had fewer community supports and were less socially

stable and they tended to experience a more severe range of symptoms related to psychopathology such as depression and anxiety. In brief, in-patient clients were more maladjusted. However, it is interesting to note that in-patients tended to be more frank about admitting to symptoms and problems. Defense mechanisms tended to be more marked among clients streamed into the out-patient and primary care programmes. In general, the out-patient clients tended to have more favourable prognostic indicators (Baekeland, 1977), such as social stability and lower level of alcoholic involvement.

Differences existed among clients streamed into alternative treatment programmes. Nevertheless, these differences were of degree not kind (Skinner *et al*, 1981). The treatment programmes in this study may be ordered along several dimensions, such as level of alcohol dependence, social competence, social class and psychopathology. Although the groups may be ordered along various health-pathology dimensions, overlap among clients in these programmes was evident (Table II).

The alcohol related measures that define Fig 1 have a pronounced similarity to the alcohol dependence syndrome (Edwards and Gross, 1976; Edwards *et al*, 1977). This syndrome is characterized by a "narrowing in the repertoire of drinking behaviour, salience of drink-seeking behaviour, increased tolerance of alcohol, repeated withdrawal symptoms, . . . subjective awareness of a compulsion to drink" (Edwards and Gross, 1976). There are degrees of severity of the alcohol dependence syndrome. The data in Fig 1 provide clear support for the existence of this syndrome. High scorers on this dimension reported a compulsive drinking style and loss of behavioural control when drinking. Daily average consumption was at larger doses and withdrawal symptoms were frequently experienced. Clients assigned to in-patient treatment programmes were at a more advanced level

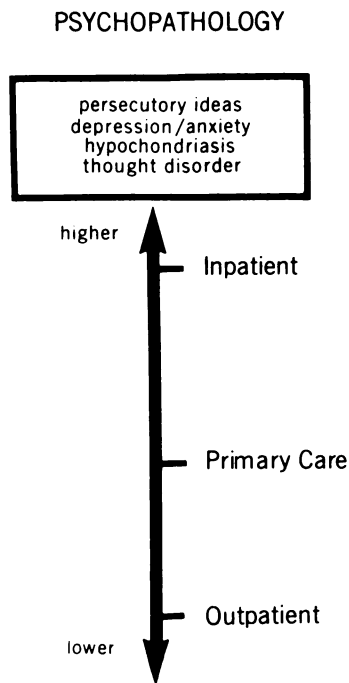


FIG 6.—Discriminant function based on measures of psychopathology.

TABLE II
Summary of classification results

	Wilks Lambda	Percentage correctly classified			
		Inpatient	Outpatient	Primary care	Total
1. Alcohol related measures	.74*	69%	67%	23%	58%
2. Assessment validity scales	.83*	65%	64%	12%	53%
3. Demographic variables	.74*	71%	72%	3%	56%
4. Intellectual abilities and neuropsychological tests	.90*	70%	65%	2%	53%
5. Personality characteristics	.86*	68%	65%	12%	54%
6. Measures of psychopathology	.78*	66%	69%	9%	55%

* $P < .001$. Wilks Lambda provides a multivariate statistical test for the discriminating power of the dependent measures.

of alcohol dependence, followed by primary care clients, with out-patient clients at the lower end of the continuum.

Given a comprehensive description of clients in different programmes, there are certain fundamental questions. For example, why do clients with more severe symptoms and problems related to alcohol abuse tend to be found in the more costly in-patient programmes? Since these clients have poorer prognostic indicators (e.g. low social stability, chronic history of alcohol abuse), a lower cost basic care treatment may yield comparable outcomes to more intensive treatment programmes (Edwards and Orford, 1977). Currently, there is a tendency for in-patient programmes to offer a range of treatments consisting of medical care, group and/or individual counselling, educational sessions and recreational activities, and clients are encouraged to participate in all aspects of the programme. However, a more efficient and potentially more effective approach is to match a client's presenting problems with the most appropriate intervention (Glaser, 1980). The issue of residential care (in-patient, halfway house) would be considered to be independent of any specific medical and/or psychosocial intervention. Descriptive research, such as the present study, provides a useful reference point for planning the efficient use of health care resources.

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