An Analysis of Distance Variables that Affect Aftercare Attendance

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ABSTRACT: *Recent research has examined variables related to attendance at aftercare services because of the correlation between aftercare and posthospitalization treatment success. The present study, which examined aftercare attendance for 40 randomly selected subjects following discharge from an inpatient alcohol treatment program, extends the list of variables found to influence attendance. A multiple-regression analysis of subject demographic variables and variables of a more programmatic nature found that distance variables (e.g., number of miles to an aftercare agency) significantly influenced aftercare attendance. The results are discussed with respect to aftercare program decisions.*

Aftercare treatment has been shown to be an important factor in posthospital care for chronic alcoholics (Van Dijk & Van Dijk-Kofferman, 1973; Pokorny, Miller, Kanas, & Valles, 1973) as well as psychiatric patients (Winston, Pardes, Papernik, & Breslin, 1977; Erickson, 1975). Generally these studies showed that the probability of treatment success was related to attendance at aftercare sessions when these services were provided. Pokorny and his co-workers, for example, compared a group of alcoholic patients who had received hospital treatment with a group who also had received hospital treatment but, in addition, had attended aftercare sessions. These authors reported that in the latter group the percent of patients maintaining a successful outcome 1 year after discharge was approximately twice that observed in the hospital-treatment only group. Aftercare services take on greater importance in view of the limited success of hospital treatment alone in the treatment of alcohol abuse (Armor, Polich, & Stambul, 1976; Emrick, 1974) and psychiatric problems (Erickson, 1975).

Since aftercare has been positively correlated with treatment success, recent research has attempted to identify variables related to client return for aftercare. For instance, Pratt, Linn, Carmichael, and Webb (1977) found that individuals who saw themselves as more autonomous while in hospital were more likely to return for aftercare treatment. Other personality variables including impulse control, motivation (Baekland, Lundwall, & Shanahan, 1973), and an external locus of control orientation (O'Leary, Calsyn, Chaney, & Freeman, 1977; O'Leary, Rohsenow, & Donovan, 1976) have been identified as

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important predictors of aftercare attendance. Finally, two demographic variables, marital (Pokorny et al., 1973; Williams, 1977) and vocational status have been reported to be prominent factors related to attendance.

Although the studies reviewed above have identified a number of patient characteristics related to aftercare attendance, research to date has not been concerned with variables that could be manipulated to influence positively aftercare attendance. Also, variables related to the type of aftercare treatment offered to patients have not been systematically investigated. More specifically, research efforts have not investigated the importance of programmatic variables (e.g., location of aftercare facility, travel subsidy, scheduling) which could be modified to increase the probability of aftercare attendance. In addition, there has been little research conducted that evaluates the relative effectiveness of different types of aftercare services (e.g., group vs. individual treatment) or aftercare providers (e.g., professionals vs. trained paraprofessionals).

The purpose of the present study was to examine the relationship of patient characteristics and variables of a practical nature with attendance at posthospital aftercare sessions which were provided following treatment for alcohol abuse. As such the study attempted to gather systematically information that could potentially affect decisions regarding the location and scheduling of aftercare.

METHOD

Subjects

Forty subjects were randomly selected from a large group of patients admitted over a 2-year period to the Alcohol Treatment Unit of the Jackson Veterans Administration Hospital. Subjects had to meet two criteria for inclusion in the study: (a) completion of the full treatment program, and (b) nonresidents of the city of Jackson, Mississippi. Jackson residents were excluded because critical distance variables, which were of primary concern in this study, would not be likely to play a role in Jackson residents' attendance at aftercare services. Consequently, these patients were considered as a distinctly different population. On the basis of the first criterion less than 10% of the sample originally drawn were replaced. On the basis of the second criterion, approximately 30% of the sample drawn had to be replaced. This latter proportion, 30%, is approximately the same as the proportion of Jackson residents in the program's entire population. The mean age of subjects was 45 years (range: 26 to 59). Data obtained from the subjects indicated a mean of 11.27 years of problem drinking (range: .5 to 28) and a mean daily consumption of 23.4 ounces of alcohol (range: 8 to 52). Most of the subjects were employed (87.5%); had valid drivers licenses (95%); and owned automobiles (87.5%). Fifty-five percent of the subjects were married at the time of the study. Subjects lived from 12 to 378 miles round trip from the aftercare site ($\bar{x}$ = 154.25; *S.D.* 72.49).

Treatment Program

The treatment program offered to alcoholics at the Jackson VA Hospital has a social-learning emphasis, with importance placed on identifying and changing variables related to the individual's abusive drinking. The specific treatment components included alcohol education, self-management skills training, vocational interpersonal skills training, relaxation training, as well as individual and group therapy. In addition, controlled drinking training was available to those patients who desired it. The actual duration of the program varied for each patient, but length of stay averaged approximately 4 weeks.

Aftercare Treatment

At the time of discharge from the program each patient was given a scheduled appointment to return for an aftercare session in approximately 2 weeks. Thereafter appointments were scheduled every 2 weeks for a 2-month period and then every 4 weeks for the subsequent 3 months. During the treatment program the importance of follow-up attendance to success in treatment was stressed. Immediately prior to discharge the format of aftercare treatment was described to patients. The format of the aftercare sessions primarily consisted of individual, problem-oriented counseling. Continuity of treatment personnel was maintained by having the same staff members who delivered treatment deliver aftercare services.

Measures

Data for this study were obtained by reviewing records maintained by the Alcohol Treatment Unit. The following measures were obtained for each patient: (1) percentage of the first five follow-up visits scheduled that the patients actually attended (this would cover the first 3 months following discharge); (2) employment status at the time of discharge (yes/no); (3) marital status at the time of discharge; (4) the number of miles from the patient's home to the nearest major highway ("miles to"); (5) the number of miles traveled on the major highway ("miles on"); (6) the total number of miles traveled to reach the treatment facility; (7) possession of a valid driver's license at the time of discharge (yes/no); (8) ownership of an automobile at discharge (yes/no).

The last five measures above were selected for analysis in the study primarily because the personality and demographic factors heretofore examined have not accounted for a large proportion of the variance in dropout rates from aftercare treatment. The five factors were hypothesized to vary systematically with the patient's probability of attending follow-up and would therefore be of interest in attempts to influence aftercare attendance. Distance factors were of particular concern. It was hypothesized that differences in the response cost of travel on highways versus nonhighways would differentially affect attendance: An effect which would be in addition to that found from a simple total distance measure.

RESULTS

The results of this study indicated that the number of "miles to" and "miles on" the highway to return for aftercare treatment do significantly affect the probability of aftercare attendance. A multiple-regression analysis of the predictor variables with percent attendance at aftercare for the first five scheduled visits as the criterion variable supports this conclusion. The results of the data analyses are provided below following a brief review of how the predictor variables were screened for analyses.

The data for the four predictor variables which were scored in a dichotomous fashion (yes/no) were screened to insure sufficient variability between the two categories of each variable. Serious departures from a 50/50 split on these variables would arbitrarily restrict their correlation with the criterion variable making a correlational analysis less meaningful with respect to these variables. Three of the four dichotomous variables had to be dropped from the analysis, since a large percentage of clients in the selected sample were employed (87.5%), owned automobiles (87.5%), and possessed valid driver's licenses (95%) at discharge.

A summary of the multiple-regression analysis appears in Table 1. As can be seen, the multiple correlation coefficient for after care attendance is $r = .491$, which is statistically significant [$F(3.36) = 3, 79, p < .05$]. The distance measures, "miles to" the highway and "miles on" the highway, make the largest contribution to the variance in aftercare attendance accounting for 14.2% and

TABLE 1
Multiple Regression

Analysis	Variable	R	R^2	Increment in R^2	B
1		0.491	0.242		
	Miles to			0.142	-0.486
	Miles to			0.098	-0.330
	Marital Status			0.001	-0.010

9.8% of the variance in R^2, respectively. Surprisingly, martial status contributes very little (.1%) to the variance in aftercare attendance. the multiple correlation coefficient obtained with the "miles to" and "miles on" measures alone is $R = 0.490$, which is again statistically significant [$F(2, 37) = 5.88$, $p < .01$].

A comparison of the simple correlation for total miles with the multiple correlation for the partition of total miles into "miles to" and "miles on" the highway shows the multiple correlation to be more informative. The simple correlation between total miles from the service facility and aftercare attendance is $r = -.410$ which, though statistically significant [$t(38) = -2.78$, $p < .01$], is still lower than the multiple correlation ($R = 0.49$) for the "miles to" and "miles on" distance measures.

The actual relationship between the partitioned distance measures and aftercare attendance, as measured by beta weights, shows, that "miles to" the highway ($B = -.486$) is relatively more important than "miles on" the highway ($B = -.330$). This observation is consistent with that made by examining the simple correlations for aftercare attendance with these measures. The simple correlation of "miles to" a highway and aftercare attendance is $r = -.37$, which is statistically significant [$t(38) = -2.45$, $p < .05$], whereas the simple correlation for "miles on" is only $r = -.17$ [$t(38) = -1.07$, $p > .05$].

DISCUSSION

The results of this study provide support for the predicted relationship between distance from an aftercare treatment facility and attendance at aftercare sessions. This relationship is important because identification of variables such as distance, as compared with relatively permanent variables (e.g., personality factors), may lead to more informed aftercare related decisions. In some instances past policy has considered distance factors in the assignment of aftercare treatment. For instance, Pratt et al. (1977) limited aftercare to clients within a 40-mile radius of the treatment facility. However, past decisions appear to be based on "best guesses" of important factors. Although the present study supports previous aftercare decisions based on distance, it suggests a more complex relationship. The results indicate that simply considering the inverse relationship between total distance and aftercare attendance precludes concern with other significant distance variables.

The results indicate that partitioning of the distance factor into "miles on" a highway and "miles to" a highway accounts for more variance in the prediction of aftercare attendance than total distance alone. There are a number of possible reasons for this finding. First, rural travel or travel off the highway may constitute a greater effort than highway travel. Second, it may not be the distance factors per se, but rather other variables correlated with the distance variables such as those associated with rural versus urban living (e.g., degree of poverty, age of automobile, community concepts of mental health and treatment) which account for attendance differences. However, the data from the present study may facilitate decisions regarding the nature and format of aftercare delivery. Future research may be able to delineate the range of distance factors as they influence aftercare attendance.

The implications of research on distance and aftercare attendance primarily involve the arrangement of aftercare treatment. Presently most programs attempt to maintain some continuity of care by providing aftercare services to their own dischargees. However, the combination of our results on distance factors and also equivocal information on the importance of maintaining the same therapist for aftercare (Winston et al., 1977) suggests that training community workers, pastoral counselors, friends, and others in the clients' immediate environments may in fact be a more effective procedure in maintaining discharged patients in aftercare services. Also, research needs to be conducted to examine variables that might influence aftercare attendance. The use of prompts and incentives for attendance, the provision of transportation to sessions, the temporal nature of appointment scheduling (e.g., length of interval between sessions), and the content of aftercare sessions all need to be examined for their effectiveness in increasing aftercare attendance rates. Given the constantly increasing financial costs of additional hospitalization, it is important to evaluate critically the efficacy of different aftercare strategies as preventive approaches to inpatient recidivism. Finally, emerging legal requirements to provide aftercare services, as part of the "least restrictive alternative" treatment doctrine (Ensminger & Reilly, 1977), may ultimately force us to consider aftercare treatment issues.

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