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Criterion Intervals for Pretreatment Drinking Measures in Treatment Evaluation[1]

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SUMMARY. *Drinking during a 30-day pretreatment period was found not to be representative of longer pretreatment intervals, especially in a population of seriously impaired inpatient alcoholics.*

PATIENTS' SELF-REPORTS of drinking and related behaviors are usually the primary source of data in alcoholism treatment evaluation studies. Skepticism about such reports abounds, however, because popular beliefs portray alcoholics as minimizing and denying their drinking problems. If self-reports about drinking are inaccurate, then we should rely less on such reports and judiciously qualify any conclusions based on them. Despite the importance of determining the validity of alcoholics' self-reports, this area has only recently received attention.

Data from several studies (1–5) show that when alcoholics are interviewed in a treatment context, their self-reports of verifiable events (e.g., arrests and hospitalizations) are highly valid. The accuracy of alcoholics' self-reports of drinking behavior has also received some attention. To date, three methods have been used to

investigate the validity of self-reports of drinking: (a) in-field breath tests have been used on a probe-day basis to validate self-reported current drinking behavior (6, 7); (b) liver function tests have been used to validate self-reports of recent heavy drinking episodes (8–11)[5]; and (c) alcoholics' self-reports of their drinking and related behaviors have been compared with reports from collateral informants (12–15). The results of these studies suggest that alcoholics, when interviewed in a treatment context, usually provide relatively accurate self-reports of their drinking behavior. Moreover, discrepancies between collaterals' and patients' reports generally result from the subjects' describing their drinking in more negative terms than their respective informants. Finally, recent research (4) has shown that the validity of alcoholics' self-reports of drinking history and demographic data varies with population type.

In evaluating treatment outcome, recent national studies (16–18) have used a 30-day pretreatment interval as the basis for determining treatment effectiveness. Besides failing to establish the reliability and validity of their interview instruments, these studies have also failed to evaluate empirically the adequacy of a "30-day window" as a pretreatment baseline (i.e., whether it is representative of extended pretreatment functioning). The 30 days prior to treatment could be a time when certain events (e.g., incarceration, loss of job, alcohol-related physical consequences) occur which motivate alcoholics to seek treatment. If so, the use of a 30-day pretreatment interval could result in positively biased treatment outcome results. Such a bias would result from regression effects (19) in the patients' drinking during the 30 days preceding treatment. Their drinking during these 30 days would not reflect their typical pretreatment drinking, but rather a period of intense crisis. If this were the case, even a return to typical levels of pretreatment drinking might be erroneously interpreted as resulting from the beneficial effects of treatment when compared with the 30-day baseline of highly impaired functioning. Conversely, it might be argued that some people enter treatment only after experiencing difficulty in trying to reduce or stop their drinking. In such cases, drinking behavior immediately preceding treatment might negatively bias outcome conclusions, since the patients' drinking during the 30-day pretreatment period

[5] Also, POMERLEAU, O., PERTSCHUK, M., ADKINS, D. and BRADY, J. P. Comparison of behavioral and traditional treatment for problem drinking. Presented at the annual meeting of the American Association for Behavior Therapy, December 1976.

may be less than their typical intake. Furthermore, the representativeness of the 30-day window could also vary with respect to population type. There is, therefore, need to determine adequate and representative pretreatment criterion intervals for use in treatment outcome studies.

The present study evaluated the validity of self-reports of verifiable alcohol-related events in two different populations of problem drinkers and investigated the length of pretreatment interval sufficient for comparison with posttreatment functioning.

METHOD

Subjects

Two groups of men, selected to differ markedly on a number of factors that define severity of alcohol misuse, served as subjects—24 outpatients participating in a voluntary treatment program at the Dede Wallace Center Alcohol Programs in Nashville, Tennessee, and 24 inpatients participating in a voluntary residential treatment program for alcoholics run by the Nashville Salvation Army. Men who had been in treatment for more than 30 days before the interview or who exhibited primary psychiatric problems, mental retardation or organic brain disorders were excluded from the study. Eligible subjects in both programs were asked to participate in the study; only 4 prospective subjects, all from the Salvation Army program, refused to participate. All subjects were informed that their participation would not affect their treatment in any way and were assured that their interview answers would not become part of their clinical records. Finally, all subjects were free of alcohol withdrawal symptoms and were not intoxicated when interviewed.

The background and demographic data clearly reflected differences between the two groups. Over-all, the inpatients had more severe alcohol problems and were less stable than the outpatients. The inpatients were older (mean, 43.7 vs 38.7 years), reported longer histories of drinking problems (18.5 vs 7.6 years), reported more severe alcohol-related impairment (hallucinations by 8 vs 4, delirium tremens by 6 vs 4 and seizures by 1 in each group), had more alcohol-related arrests (11.4 vs 4.1) and more alcohol-related hospitalizations (2.8 vs 1.2). Both groups had about 10 years of formal education, but their marital status (15 vs 8 were divorced) and employment status (24 vs 5 were unemployed) reflected obvious differences in stability between the inpatient and outpatient groups.

Procedure

All subjects were interviewed individually at the facility where they were receiving treatment. A standardized questionnaire, which was read to each subject, included questions about demographic charac-

teristics, drinking history and daily drinking disposition during the 360-day period preceding admission to treatment. Reports of daily drinking were coded into six mutually exclusive categories—days of abstinence, days of limited alcohol intake (no more than 3 oz of absolute alcohol), days of heavy alcohol intake (more than 3 oz of absolute alcohol), days incarcerated for alcohol-related reasons (e.g., public drunkenness, drunken driving), days hospitalized for alcohol-related reasons and days spent in residential alcoholism treatment facilities.

The interviews used a specifically developed time-line follow-back interview technique, described at length in previous publications (11, 20), to measure daily drinking behavior. This technique has been demonstrated to have high test–retest reliability in studies (20)[6] of both outpatient and inpatient alcoholics.

The answers subjects gave in interviews were validated by comparing their reports to official records documenting hospital, jail and residential treatment stays. Requests for release of information, signed by the subjects, were sent to the local state psychiatric hospital (this was the primary local facility which provided inpatient alcohol detoxication), the local general medical hospital and the local county sheriff and police departments. These agencies' records were checked for all subjects, irrespective of whether subjects reported any contact with the agency. Signed requests for release of information were also sent to all agencies that subjects reported having had contact with during the year preceding their entry into treatment. Each release requested the records for all admissions (incarcerations) and discharges that had occurred during the pretreatment year.

The adequacy of a 30-day window as a pretreatment criterion interval was examined by comparing the subjects' self-reported drinking dispositions across the following pretreatment intervals: 0–30, 31–90, 91–180 and 181–360 days.

RESULTS

Validity of Self-Reports

Pearson product-moment correlation coefficients were computed between official record data and subjects' self-reports of number of alcohol-related arrests, hospitalizations and stays in residential treatment programs over cumulative pretreatment intervals of 30, 90, 180 and 360 days (Table 1). The correlations generally indicated a high degree of correspondence between subjects' self-reports and official records.

[6] Also, MAISTO, S. A., SOBELL, L. C., COOPER, A. M. and SOBELL, M. B. Comparison of Rand and time-line follow-back interviewing procedures. [Unpublished manuscript, 1979.]

TABLE 1.—*Pearson Product-Moment Correlation Coefficients Between Out-patients' and Inpatients' Self-Reports and Official Record Data on Arrests (A), Hospitalizations (H) and Residential Treatment Admissions (R) Over Four Cumulative Pretreatment Intervals*

Pretreatment Interval	OUTPATIENTS (N = 24)			INPATIENTS (24)		
	A	H	R	A	H	R
30 days	.42*	—ᵃ	—ᵃ	.72†	—ᵃ	.91†
90 days	.67†	—ᵃ	—ᵃ	.83†	.76†	.88†
180 days	.77†	—ᵃ	—ᵃ	.61†	.73†	.87†
360 days	.78†	.93†	—ᵃ	.49†	.78†	.84†

ᵃ Correlations not calculated because the small number of events reported would have produced spuriously high correlations, or because there was no variance in one or both of the measures.
* $P < .05$.   † $P < .01$.

For outpatients, the correlations ranged from $r = .42$ on number of arrests in the 30 days before treatment to $r = .93$ on number of hospitalizations in the 180 days before treatment. For inpatients, somewhat higher validity coefficients were generally found, ranging from $r = .49$ on number of arrests in the 360 days before treatment to $r = .91$ on number of residential stays in the 30 days before treatment. For inpatients, the correlations on residential stays, the most frequently reported event, were uniformly higher and more stable across time intervals than were correlations on arrests and hospitalizations. This suggests that the high correlations were not an artifact of infrequently occurring events.

When discrepancies occurred between inpatients' self-reports and official records they almost always resulted from the subjects' reporting more arrests and hospitalizations than were listed on the records. An exception involved residential treatment stays, on which subjects showed no consistent bias to report more or less admissions than shown on official records. In contrast, all discrepancies between outpatients' self-reports and official records resulted from the subjects' reporting fewer events than were listed on the records. Figure 1 presents scatterplots for both groups of subjects comparing interview with record data on arrests, hospitalizations and residential treatment during the 360 days before treatment.

Representativeness of the 30-Day Window

Subjects who are incarcerated or in residential treatment have little opportunity to drink during this portion of the pretreatment
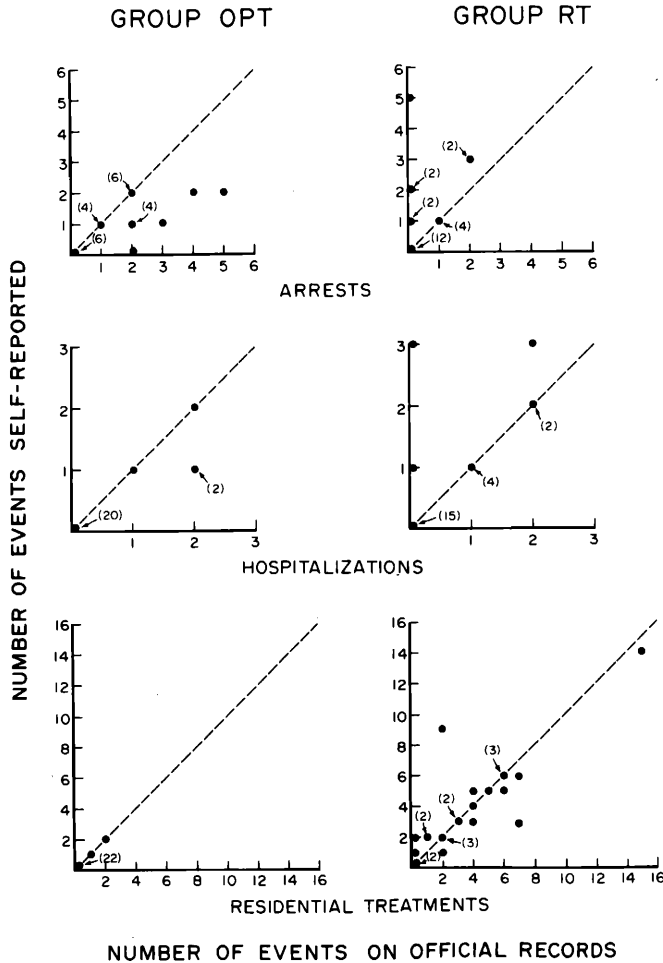
FIGURE 1.—*Scatterplots Comparing Interview with Official Record Reports of Arrests, Hospitalization and Residential Treatment of Outpatients (Group OPT) and Inpatients (Group RT) during the 360 Days before Treatment.* The diagonals indicate perfect agreement.

interval. Large-scale national studies, however, have typically disregarded differences in opportunity to drink. Consequently, in the present study drinking disposition data were analyzed in two ways. First, subjects' self-reported drinking behavior was expressed as the unadjusted proportion of total days in each interval of abstinence, limited alcohol consumption or heavy alcohol consumption. The second analysis equated all subjects on opportunity to drink, or free access to beverage alcohol. Thus, for each subject adjusted propor-

tions of days of abstinence, limited consumption and heavy consumption were calculated as follows: adjusted proportion = unadjusted proportion/access, where access = 1 − [(residential days + days incarcerated)/number of days in interval].

Figure 2 presents group drinking dispositions over the various intervals using both unadjusted and adjusted proportions.

Days of Abstinence. A 2 × 4 (groups × pretreatment interval) analysis of variance on the unadjusted proportions of days of reported abstinence for each interval revealed a significant main effect for groups, outpatients reporting significantly more days abstinent than inpatients ($F = 4.44$, 1/46 df, $p < .05$). No other statistically significant effects were found using unadjusted number of days abstinent as the dependent variable. When this analysis was performed on adjusted proportions, no significant differences were found.

Days of Limited Alcohol Consumption. A similar 2 × 4 analysis of variance on the unadjusted proportions of days of limited alcohol consumption for each interval yielded a significant main effect for groups, outpatients reporting more days of limited consumption
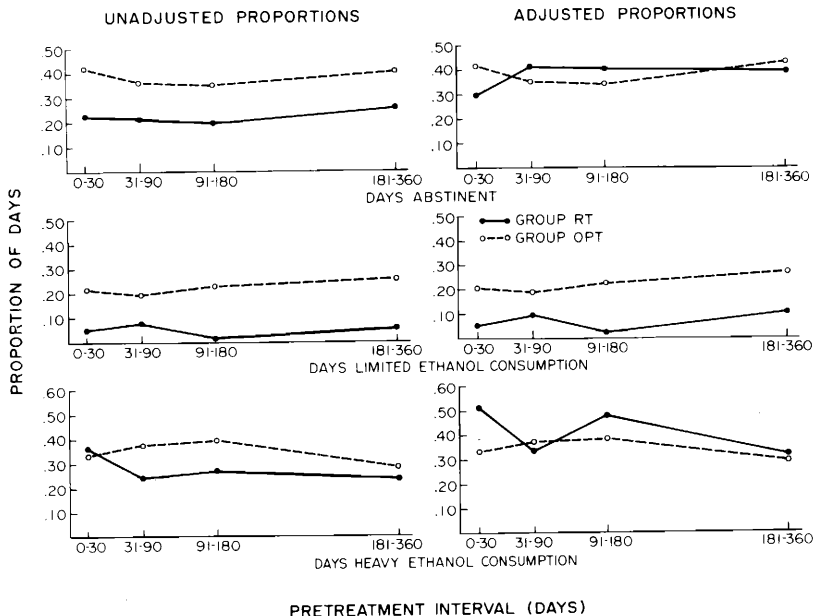

FIGURE 2.—*Proportion of Days of Abstinence, Limited and Heavy Alcohol Intake Reported by Outpatients (Group OPT) and Inpatients (Group RT) during Four Sequential Pretreatment Intervals, with Scores Adjusted and Unadjusted for Access to Alcohol.*

than inpatients ($F = 9.65$, 1/46 df, $p < .01$). Again, no other significant effects were found using unadjusted proportions. The analysis of adjusted proportions yielded results parallel to those for unadjusted proportions; the main effect for groups remained significant ($F = 7.70$, 1/46 df, $p < .01$), with no other significant effects.

Days of Alcohol Consumption. A 2×4 analysis of variance was also performed on the unadjusted proportion of days of heavy alcohol consumption for each interval. This analysis revealed no significant effects. However, the analysis of adjusted proportions revealed a significant main effect for pretreatment interval ($F = 3.26$, 3/125 df, $p < .05$). No other significant effects were found using adjusted proportions. The source of the pretreatment interval main effect was probed using Dunn's t test (21), with the 30-day pretreatment interval serving as the control mean. A significant difference was found between the 30-day and the 181–360-day pretreatment intervals ($p < .05$), a greater proportion of heavy drinking days being reported for the 30-day interval. As shown in Figure 2, this difference derived almost totally from inpatients, although no significant interaction effect was obtained. It seems likely that an interaction effect would have been found had we analyzed the data using planned comparisons. However, the use of planned comparisons would not be justifiable since we did not postulate directional a-priori hypotheses.

DISCUSSION

The present results are consistent with earlier findings (1–5) that most problem drinkers' verifiable self-reports are highly valid. Although the validity of self-reports was relatively high in both populations, some discrepancies did occur. An important finding in this study was that when self-reports and record data were discrepant, inpatients tended to overreport alcohol-related arrests and hospitalizations while outpatients more frequently underreported these events. The source and stability of these differences deserve further study. These data, coupled with similar findings reported by Sobell and Sobell (4), suggest a need to develop differential assessment approaches for different populations of problem drinkers.

The present results also seriously challenge the assumption that a 30-day window reflects drinking behavior representative of longer pretreatment intervals, at least for more seriously impaired alcoholics. Significantly more days of heavy drinking were reported

during the 30-day than during the 181–360-day interval when data were adjusted for opportunity to drink. Technically, for both groups the 30-day interval presented a negatively biased view of subjects' pretreatment drinking which would result in positively biased treatment outcome conclusions. However, Figure 2 quite clearly indicates that the most substantial differences occurred in the inpatients, results for the outpatients being relatively stable across the entire pretreatment year. Further investigations using planned comparisons will likely demonstrate that the 30-day window is an unrepresentative interval only for populations with relatively severe drinking problems. Because the number of days of heavy drinking is central in evaluating patients' functioning, and since the 181–360-day interval represents approximately one-half of the pretreatment year, it is suggested that pretreatment comparison data should represent at least a 1-year interval.

Finally, if this study had not controlled for differential access to alcohol, different conclusions about the nature of the subjects' drinking would have resulted, particularly for inpatients. Thus, in future studies all measures of drinking behavior should be corrected to control for free access to alcoholic beverages.

In summary, this study yielded the following major findings: (a) for the drinking disposition variable of days of heavy alcohol consumption, a 30-day pretreatment interval was not representative of longer pretreatment intervals, especially for more seriously impaired alcoholics; (b) most patients' self-reports of arrests, hospitalizations and residential treatment during the 12 months preceding their entry into treatment were relatively consistent with official record data; and (c) when discrepancies between self-reports and record data occurred, inpatients generally overreported alcohol-related arrests and hospitalizations, while outpatients were more likely to underreport such events. These findings demonstrate that methods of evaluating treatment outcome should be tailored to the population under study and that conclusions should be qualified according to characteristics of the population investigated.

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