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Outpatient Mental Health Care, Self-Help Groups, and Patients' One-Year Treatment Outcomes

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Objective: To examine the association between the duration and amount of outpatient mental health care, participation in self-help groups, and patients' casemix-adjusted one-year outcomes. Methods: A total of 2,376 patients with substance use disorders, 35% of whom also had psychiatric disorders, were assessed at entry to treatment and at a one-year follow-up. Information about the duration and amount of outpatient mental health care was obtained from a centralized health services utilization database. Results: Patients who obtained regular outpatient mental health care over a longer interval and patients who attended more self-help group meetings had better one-year substance use and social functioning outcomes than did patients who were less involved in formal and informal care. The amount of outpatient mental health care did not independently predict one-year outcomes. Conclusions: The duration of outpatient mental health care and the level of self-help involvement are independently associated with less substance use and more positive social functioning. The provision of low intensity treatment for a longer time interval may be a cost-effective way to enhance substance abuse and psychiatric patients' long-term outcomes. © 2001 John Wiley & Sons, Inc. *J Clin Psychol* 57: 273-287, 2001.

Keywords: outpatient care; substance use disorders; continuity of care; self-help groups; treatment outcome

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A considerable body of research has focused on variations in the duration and amount of outpatient mental health care and their associations with the outcome of treatment (Finney & Moos, 1997; Luborsky, Crits-Christoph, Mintz, & Auerbach, 1988; Orlinsky & Howard, 1986). Some studies suggest that brief treatment may be as effective as longer treatment (for reviews, see Bien, Miller, & Tonigan, 1993; Steenbarger, 1994), whereas others imply that a higher amount and longer duration of outpatient care are associated with better outcomes (Gilbert, 1988; Orlinsky & Howard, 1986; Vannicelli, 1978). To clarify these apparent discrepancies, it is important to examine the independent associations between the duration and amount of treatment and different outcome criteria, and to find out whether specific patient subgroups, such as those with more severe disorders, are especially likely to benefit from more treatment. In addition, many patients obtain informal care, which may influence the associations between the amount of treatment and outcome.

We focus here on continuing formal and informal care among patients with substance use and psychiatric disorders and address three questions: (1) What are the associations between the duration and amount of outpatient mental health care and patients' one-year substance use, psychological symptom, and social functioning outcomes? (2) Is participation in self-help groups associated with better one-year outcomes and, if so, does it add to the influence of outpatient mental health care? (3) Are any of the associations between participation in continuing formal and informal care and one-year outcomes moderated by patients' baseline personal characteristics, such as diagnosis, treatment goal, or social resources?

Outpatient Mental Health Care and Outcome

Evidence for an association between the amount of outpatient treatment and outcome began to accrue more than 40 years ago (Bartlett, 1950; Conrad, 1952; Seeman, 1954; Standal & van der Veen, 1957). More recently, several studies of outpatient psychotherapy have identified moderately strong "dose-response" relationships between the amount of treatment and patients' outcomes (Bowers & Clum, 1988; Howard, Kopta, Krause, & Orlinsky, 1986; Steenbarger, 1994; Svartberg & Stiles, 1991). Both these and the earlier studies focused primarily on the amount of outpatient care (number of sessions) and did not separately consider the duration (number of weeks or months in which care is provided) or intensity (number of sessions per week or month) of care.

In an attempt to examine the amount and intensity of outpatient mental health care while holding constant the duration of care, Lorr, McNair, Michaux, and Raskin (1962) randomly assigned patients to three groups: one outpatient session every other week, one session every week, or two sessions every week. The three groups varied as expected in the number of sessions they received; however, there were no group differences in outcome at four-month or eight-month follow-ups (see also Lorr, 1962). In conjunction with other studies that have failed to identify a relationship between the amount or intensity of outpatient care and patients' outcomes (Fontana & Rosenheck, 1996; Luborsky et al., 1988), these findings suggest that the duration of care may be more important than the amount of care.

There is evidence for an association between participation in outpatient mental health care and better short-term outcomes after completion of an episode of intensive inpatient or community residential care (Devine, Brody, & Wright, 1997; Ito & Donovan, 1990; Vannicelli, 1978; Walker, Donovan, Kivlahan, & O'Leary, 1983). One study reported that patients who obtained regular outpatient mental health care over a 9- to 12-month interval

had better substance use outcomes than did patients who had less regular care (Ouimette, Moos, & Finney, 1998). However, none of these prior studies focused on the independent effects of the amount versus the duration of outpatient care.

Another issue is whether the associations between the duration or amount of outpatient mental health care and outcomes vary for different outcome criteria. Consistent with Howard, Lueger, Maling, and Martinovich's (1993) phase model, the relationships between the amount of care and outcomes seem to be stronger for acute distress and disorder-specific symptoms than for more severe psychiatric symptoms and indices of interpersonal functioning (Barkham et al., 1996; Steenbarger, 1994). In this vein, Kopta, Howard, Lowry, and Beutler (1994) found that about 50% of patients improved on minor anxiety and depression symptoms after four outpatient sessions and 70% improved after 26 sessions, whereas comparable improvement rates for more severe psychiatric symptoms were only 20% and 40%, respectively. Here we examine the associations between the duration and amount of outpatient mental health care and patients' substance use, psychological symptom, and social functioning outcomes.

Participation in Self-Help Groups and Outcome

Self-help and mutual support groups, such as Alcoholics Anonymous (AA), play a key role in preventing relapse following substance abuse treatment. In fact, several studies have identified a positive association between self-help group attendance and more favorable substance use outcomes (Emrick, Tonigan, Montgomery, & Little, 1993; Timko, Finney, Moos, & Moos, 1995; Tonigan, Toscova, & Miller, 1996). These better outcomes occur even though there is an adverse selection process such that patients with worse prognoses are more likely to participate in self-help groups (Humphreys & Moos, 1996). However, little is known about the associations between self-help participation and patients' psychological symptom and social functioning outcomes.

An important related issue involves the combined effects of participation in outpatient mental health care and self-help groups, especially on outcomes other than substance use. Johnsen and Herringer (1993) found that patients who participated in both outpatient care and 12-step self-help groups were more likely to be abstinent at a six-month follow-up than were patients who participated only in one or the other type of care. Ouimette et al. (1998) obtained similar findings with respect to one-year substance use outcomes. We focus here on whether patients' participation in outpatient mental health care and in self-help groups contributes independently to one-year symptom and functioning as well as substance use outcomes.

Potential Moderators of the Influence of Outpatient Care

Three patient characteristics have been implicated as potential moderators of the influence of continuing mental health care on patients' outcomes (Steenbarger, 1994). Most salient, more severely disturbed patients, such as patients with both substance use and psychiatric disorders, might be expected to need longer and more intensive treatment (Gedo, McGlashan, Goodrich, & Fritsch, 1991; Gelso & Johnson, 1983). However, Ouimette et al. (1998) identified comparable relationships between outpatient mental health care and treatment outcomes among patients with both substance use and psychiatric disorders as among patients with substance use disorders only.

Patients who espouse a goal of complete abstinence from substance use and who have more supportive relationships with family members and friends tend to have more

positive treatment outcomes (Moos, Finney, & Cronkite, 1990). These patients are more motivated to change and better able to mobilize practical support and guidance and thus should need less treatment. Also, in an earlier study, we found that brief treatment may be sufficient for depressed patients who have a close confidant and are in more supportive social contexts, whereas patients who lack a confidant and are in less supportive contexts may need more intensive care (Moos, 1990). Here we examine these three potential moderators (diagnosis, abstinence goal, and social resources) of the influence of outpatient mental health care and self-help groups on patients' one-year outcomes.

Sample and Method

As part of a prospective longitudinal evaluation, we conducted an intake assessment of 2,822 patients with substance use disorders who entered intensive care in one of a representative sample of 88 community residential facilities (CRFs) nationwide. These CRFs had contracted with the Department of Veterans Affairs (VA) to provide community care for VA substance abuse patients. Patients completed an Intake Information Form (IIF) on admission to the CRF and a CRF staff member completed a Discharge Checklist when the patient left the facility (for more details, see Moos & King, 1997; Moos, King, Burnett, & Andrassy, 1997). About 12 months after discharge from the CRF, patients were asked to complete a Follow-up Information Form (FIF) that covered the same content as the IIF.

Of the 2,822 patients assessed at intake, 65 (2.3%) had died prior to the completion of the one-year follow-up. Of the remaining 2,757 patients, complete data were obtained at discharge and at follow-up from 2,376 (86% of those not known to have died). The VA nationwide inpatient database captured information on patients' clinical diagnoses and inpatient treatment utilization in the year before and the year after admission to CRF care.

The successfully followed patients were almost all men (99%); a total of 52% were Caucasian and 37% were African American. On average, they were 42 years old ($SD = 8.3$) and had completed almost 13 years of education ($SD = 1.7$). Only 9% were currently married. A total of 65% of the patients had only substance use disorder diagnoses; 35% had both substance use and psychiatric diagnoses. A substantial proportion of patients (37%) had had inpatient substance abuse or psychiatric treatment in the year prior to the CRF episode of care. On average, patients stayed in the CRF for 57 days ($SD = 50$ days). There were no significant differences between the successfully followed and the unfollowed patients on any of these indices.

Measures

We obtained information on patients' participation in outpatient mental health care and 12-step self-help groups, patients' one-year outcomes, and the three patient characteristics hypothesized as potential moderators of the influence of continuing care on outcomes.

Patients' Participation in Continuing Care. We focused on two indices of patients' involvement in continuing formal and informal care: (1) Outpatient mental health care was assessed from the VA outpatient clinic database by the number of outpatient mental health contacts each month for the 12-month follow-up interval. Patients could have two or more contacts in one day if, for example, they were seen in individual and group treatment or in two or more group sessions. We focused primarily on the duration (number of months with two or more contacts) and amount (total number of contacts in the 12-month interval) of outpatient care. We chose two or more contacts per month because

some evidence suggests that this level of care is associated with better short-term outcomes for this patient population (e.g., Peterson, Swindle, Phibbs, Recine, & Moos, 1994). (2) Self-help group involvement was assessed by patients' reports of the number of 12-step self-help group meetings attended in the three months prior to the one-year follow-up.

Patients' One-Year Outcomes. To assess varied aspects of patients' functioning, we used six indices of one-year outcome. The outcomes were dichotomized to provide more clinically meaningful indices of remission. The two substance use outcomes reflect the patient's status in the three months before intake and the three months prior to follow-up, and were assessed using items from the Health and Daily Living Form (Moos, Cronkite, & Finney, 1990) and the Treatment Outcome Prospective Study (TOPS; Hubbard et al., 1989): (1) abstinence from alcohol and drugs, and (2) no current problems due to substance use, as indexed by responses of "never" to each of 15 items covering health problems, job problems, legal problems, arguments with spouse/partner and/or other family members, and so on.

The two psychological outcomes also reflect the patient's status in the three months before intake and the three months prior to follow-up: (1) clinically significant distress was assessed by responses of "quite a bit" or "extremely" on five or more of 12 items (such as "feelings of worthlessness," "thoughts of ending your life," and "spells of terror or panic") on the Depression and Anxiety Scales of the Brief Symptom Inventory (BSI; Derogatis, 1993); and (2) clinically significant psychiatric symptoms were assessed by responses of "quite a bit" or "extremely" on four or more of ten items (such as "feeling that you are watched or talked about by others," "the idea that someone else can control your thoughts," and "the idea that something is wrong with your mind") on the BSI Paranoid Ideation and Psychoticism Scales.

The two social outcomes are: (1) arrested in the last year (yes/no), and (2) residential stability (yes/no) as assessed by living in a house, apartment, rooming house, or halfway house for most of the past 12 months and never or seldom losing a place to live in the three months prior to follow-up.

Treatment Goal and Social Resources. To examine potential moderators other than patients' diagnoses, we assessed two additional characteristics of patients at intake: (1) abstinence goal, whether the patient's goal was to abstain from all substance use (yes/no); and (2) support from friends ($\alpha = .83$; range = 0–32), as reflected by eight items (such as "Can you count on him or her to help you when you need it?") rated on five-point scales varying from "never" to "often," adapted from the Life Stressors and Social Resources Inventory (Moos & Moos, 1994).

Results

We first conducted three sets of hierarchical logistic regression analyses to examine differences in one-year outcomes associated with the duration and amount of outpatient mental health care and with the level of participation in self-help groups. These analyses controlled for four variables that tended to be associated with patients' outcomes: patients' age, marital status, inpatient treatment in the year before the current episode, and the intake value of the outcome criterion. We used the chi square reflecting improvement in the model to index the overall significance of group differences in outcomes associated with involvement in outpatient care and self-help. We then conducted additional logistic regression analyses to examine the independent effects of the duration and amount of outpatient care and self-help involvement on one-year outcomes. In subsidiary analyses,

we focused on the zero-centered interactions between the three hypothesized moderators and continuing formal and informal care on one-year outcomes.

Duration of Outpatient Mental Health Care and One-Year Outcomes

To examine the associations between the duration of outpatient mental health care and one-year outcomes, we divided the patients into four subgroups based on the number of months in which they had two or more outpatient mental health care contacts: 43% of patients had no outpatient care or had two or more contacts for only one or two months; 27% had two or more contacts each month for three to five months, 13% had two or more contacts each month for six to eight months, and 16% had two or more contacts for nine months or more.

After controlling for patients' age, marital status, prior inpatient treatment, and intake functioning on the outcome criterion, there were strong associations between the duration of outpatient mental health care and one-year substance use outcomes. As shown in Table 1, 62% of patients who had two or more outpatient mental health contacts per month for nine months or more were abstinent at one year, compared with only 30% of patients who had no outpatient mental health care or two or more contacts for only one or two months. A longer duration of outpatient care also was associated with a higher likelihood of being free of substance use problems and being in a residentially stable situation, and a lower likelihood of having been arrested. In contrast, there was no significant relationship between the duration of outpatient care and patients' one-year distress or psychiatric symptoms.

Amount of Outpatient Mental Health Care and One-Year Outcomes

Patients obtained a substantial amount of outpatient mental health care during the year: 38% of patients had between 0 and 12 contacts; 34% had between 13 and 48 contacts; 13% had between 49 and 96 contacts; and 15% had 97 contacts or more. After controlling for the same four patient characteristics as before, there were significant associations between the amount of outpatient care and one-year substance use and social functioning outcomes (Table 2). These associations were comparable to those identified earlier for the duration of care.

Table 1
Patients' One-Year Symptom and Functioning Outcomes by the Duration of Outpatient Mental Health Care

Outcome Index	Outpatient Mental Health Care				Chi Square
	0-2 Months (N = 1030)	3-5 Months (N = 642)	6-8 Months (N = 311)	9-12 Months (N = 390)	
Abstain (%)	30.0	34.1	39.3	62.4	111.32**
Substance Use Problems (% None)	27.1	31.0	32.9	46.5	42.67**
Distress (%)	31.6	32.8	36.8	27.7	<1
Psychiatric Symptoms (%)	28.9	29.3	32.8	27.5	<1
Arrested (%)	31.4	27.8	19.1	13.0	63.43**
Residentially Stable (%)	61.3	60.2	64.3	70.8	10.72**

**p < .01

Table 2
Patients' One-Year Symptom and Functioning Outcomes by the Amount of Outpatient Mental Health Care

Outcome Index	Outpatient Mental Health Care				Chi Square
	0-12 Contacts (N = 899)	13-48 Contacts (N = 812)	49-96 Contacts (N = 312)	97+ Contacts (N = 350)	
Abstain (%)	30.3	35.4	41.1	58.8	82.73**
Substance Use Problems (% None)	26.8	32.7	31.7	44.8	32.19**
Distress (%)	31.7	32.0	35.4	29.5	<1
Psychiatric Symptoms (%)	28.9	29.3	32.2	27.8	<1
Arrested (%)	31.1	26.9	20.4	14.7	44.37**
Residentially Stable (%)	60.8	63.8	59.2	70.0	5.74*

* $p < .05$. ** $p < .01$

Self-Help Group Participation and One-Year Outcomes

We also categorized patients into four groups based on their participation in 12-step self-help groups in the three months prior to follow-up. Specifically, 34% of the patients did not participate in self-help groups; 30% attended between 1 and 19 meetings; 19% attended between 20 and 49 meetings; and 17% attended 50 meetings or more. After again controlling for patients' age, marital status, prior inpatient treatment, and intake functioning, logistic regression analyses showed that more participation in 12-step self-help groups was associated with better one-year outcomes on all indices except residential stability (Table 3). Thus, in contrast to the findings for the duration and amount of outpatient care, self-help group participation was associated with better psychological symptom outcomes, as well as with better substance use and legal outcomes.

Table 3
Patients' One-Year Symptom and Functioning Outcomes by Participation in Post-CRF 12-Step Self-Help Groups

Outcome Index	Participation in 12-Step Self-Help Groups				Chi Square
	None (N = 812)	1-19 Meetings (N = 703)	20-49 Meetings (N = 451)	50+ Meetings (N = 407)	
Abstain (%)	20.9	32.6	54.0	61.9	256.07**
Substance Use Problems (% None)	27.8	31.0	36.5	37.8	16.43**
Distress (%)	34.7	35.2	32.4	20.5	23.68**
Psychiatric Symptoms (%)	33.2	31.0	27.1	21.0	23.16**
Arrested (%)	29.4	27.2	21.4	21.2	14.54**
Residentially Stable (%)	65.3	58.3	64.1	65.1	<1

** $p < .01$

Independent Predictors of One-Year Outcomes

Next, we conducted logistic regression analyses that included the duration and amount of outpatient mental health care, and participation in self-help groups, as predictors of risk-adjusted one-year outcomes. After instituting the same controls as in prior analyses, these analyses showed that, even after controlling for the amount of outpatient care and participation in self-help groups, the duration of outpatient care significantly predicted one-year abstinence, freedom from substance use problems, a lower likelihood of arrests, and residential stability (Table 4). In these regressions, participation in self-help groups also continued to show strong independent associations with the substance use, symptom, and arrest criteria. In contrast, the amount of outpatient care did not independently predict any of the one-year outcomes.

In order to focus on clinically relevant criteria, we dichotomized three continuous measures of outcome: substance use problems, distress, and psychiatric symptoms. In subsidiary regression analyses, we focused on the duration and amount of outpatient mental health care, and participation in self-help groups, as predictors of continuous risk-adjusted measures of these three outcomes.

The results were identical to those shown in Table 4. Specifically, the duration of care was significantly associated with fewer substance use problems ($\beta = -.11, p < .01$), and participation in self-help groups was significantly associated with fewer substance use problems, less distress, and fewer psychiatric symptoms (β s = $-.07, -.10$, and $-.11$, respectively; all p s $< .01$). In contrast, the amount of care was not significantly associated with any of these three continuous outcomes.

Potential Moderators of Participation in Outpatient Care and Self-Help Groups

We considered three patient characteristics (diagnosis, abstinence goal, social resources) as potential moderators of the influence of participation in outpatient care and self-help

Table 4

Logistic Regression Analyses Predicting Patients' One-Year Substance Use, Symptom, and Functioning Outcomes from Patient Characteristics and Continuing Care (N = 2,376 Patients)

Predictors	One-Year Outcomes					
	Abstain	No SA Probs	Distress	Psy Sym	Arrest	Stable Res
Patient Characteristics						
Age (yrs)	.01*	.00	.02**	.01	-.03**	.01
Married (yes)	.14	.14	-.02	.01	.05	.31
Prior MH Episode (yes)	-.34**	-.21*	.27**	.32**	.20*	-.26**
Intake Value of Outcome	.48**	.82**	1.45**	1.59**	.92**	.99**
Continuing Care						
Duration of OPMH Care	.27**	.20**	-.02	.03	-.33**	.16*
Amount of OPMH Care	.07	.05	.04	.01	-.03	-.03
Number of Self-Help Meetings	.61**	.12**	-.22**	-.23**	-.11*	-.02
Intercept	-2.16	-1.09	-2.27	-1.95	0.21	-0.19
Overall Model Chi Square	340.22**	74.95**	287.94**	320.74**	199.10**	153.03**
df	7	7	7	7	7	7

Note. SA Probs = substance abuse problems; Psy Sym = psychiatric symptoms; Stable Res = residential stability.
* $p < .05$, ** $p < .01$

groups on the dichotomous one-year outcomes. To focus on this issue, we conducted three additional sets of logistic regression analyses in which, after controlling for age, marital status, prior inpatient care, and the baseline value of the outcome, we entered one of the three patient characteristics, one of the three indices of continuing care, and the zero-centered interaction term between the patient characteristic and the continuing care index.

As expected, patients with psychiatric disorders had poorer one-year outcomes: They were more likely to have clinically significant distress and psychiatric symptoms and less likely to be residentially stable. However, there were no significant interactions between diagnostic group and either the duration or amount of outpatient care, or the number of self-help meetings attended, on one-year outcomes.

We thought that patients with more severe psychiatric disorders might benefit less from involvement in continuing care than patients with less severe disorders. To examine this idea, we compared the patients with severe Axis I psychiatric disorders (schizophrenia, affective psychoses, and paranoid psychosis; $n = 142$) with the rest of the patients who had psychiatric diagnoses (primarily depression and anxiety disorders and personality disorders; $n = 692$). There were no significant interactions between the type of psychiatric diagnosis and amount of outpatient care. However, the duration of outpatient care and amount of self-help participation were more strongly associated with residential stability among patients with more severe than among patients with less severe psychiatric disorders ($\beta s = -.54$ and $-.42$, respectively; both $p s < .05$).

Patients who at baseline espoused an abstinence goal for treatment experienced better substance use outcomes at one-year. There were only two significant interaction effects: The duration of outpatient care was more strongly associated with freedom from significant distress among patients who had an abstinence goal than among those who did not ($\beta = -.19$, $p < .05$). The amount of outpatient care showed a comparable interaction with abstinence goal on freedom from significant psychiatric symptoms ($\beta = -.25$; $p < .05$).

Patients who had more social resources from friends were more likely to be free of substance use problems and of clinically significant distress and psychiatric symptoms, and to be residentially stable at one year. We identified two interaction effects: duration of outpatient care was more strongly associated with abstinence and freedom from significant psychiatric symptoms at the one-year follow-up among patients who had fewer friendship resources than among those who had more such resources ($\beta s = .08$ and $-.10$, respectively; both $p s < .05$).

Discussion

The key finding suggests that the duration of outpatient mental health care is a more important determinant of substance-abuse patients' substance use and social functioning outcomes than is the amount of care. In addition, participation in outpatient care and in self-help groups each independently contribute to better outcomes.

Outpatient Mental Health Care and Outcome

Most prior studies have focused primarily on the immediacy (such as two or more visits in the first month after inpatient or residential care) and overall amount of outpatient mental health care, rather than on the duration of care per se. Consistent with an earlier study (Ouimette et al., 1998), we found that a longer duration of outpatient care was

associated with better casemix-adjusted substance use and social functioning outcomes. These findings held after controlling for the effects of the amount of outpatient care.

These results imply the need to reevaluate the conclusion that there is a strong "dose-response" relationship between the amount and outcome of outpatient mental health care (Bowers & Clum, 1988; Howard et al., 1986; Svartberg & Stiles, 1991). In studies of weekly outpatient psychotherapy, the amount and duration of treatment typically are closely linked, and conclusions about amount thus may apply equally well to duration. In the only randomized study of which we are aware in which the amount of care was varied independently of duration (Lorr et al., 1962), amount was not associated with outcome. Moreover, the beneficial effects of outpatient maintenance or "booster" sessions (Blackburn, Eunson, & Bishop, 1986; Whisman, 1990) imply that the duration of care may be more important than simply the amount.

Continuing maintenance or follow-up treatment is likely to help reduce the high potential for relapse in addictive disorders and may in part explain the finding that, for an index episode of care, brief treatment is as effective as more intensive treatment. For example, in Project MATCH (Project MATCH Research Group, 1997), an index episode of four planned sessions of motivational enhancement therapy was as effective as an episode of 12 planned sessions of either cognitive behavioral or 12-step facilitation treatment. As we have noted elsewhere (Finney & Moos, 1997), these findings could reflect the fact that patients in all three treatment conditions received five follow-up contacts, which may have functioned as booster sessions and had a therapeutic impact.

The apparent influence of outpatient mental health care was limited to substance use and social functioning indices and did not extend to psychiatric symptoms. This finding probably reflects a primary focus in continuing care on addressing patients' substance use problems, which are closely associated with residential stability and criminal behavior, and tend to fluctuate in line with current life context factors (Moos, Finney, & Cronkite, 1990). In addition, patients mandated to treatment by the criminal justice system are more likely to remain in outpatient care and thus to control their substance use and legal problems. Outpatient treatment may be less directed toward substance abuse patients' psychiatric symptoms, which tend to be more stable over time. Also, we did not assess the use of medications, which may have a stronger influence on psychiatric symptoms than does the duration of psychosocial care.

Self-Help Groups and Outcome

Consistent with prior studies (Emrick et al., 1993; McKay, Alterman, McLellan, & Snider, 1994; Timko et al., 1995), we identified a positive association between participation in 12-step self-help groups and substance use outcomes. As expected from the orientation of AA and other 12-step groups, this association was especially robust for abstinence. Minimum involvement in 12-step groups (1-19 meetings) raised the likelihood of abstinence at one year from 21% to 33%; more extensive involvement (50 meetings or more) was associated with a 62% abstinence rate.

Our findings extend prior results in two main ways: Self-help group participation affected psychological symptom as well as substance use outcomes, and contributed to better outcomes independently of the influence of formal outpatient mental health care. Most prior research on self-help groups has focused on substance use outcomes, although two recent studies have noted associations between participation in 12-step self-help groups and a decline in depression, as well as a rise in support from friends (Humphreys,

Moos, & Cohen, 1997; Ouimette et al., 1998). In fact, the influence of self-help groups on psychological symptoms may be due in part to an increase in their members' social resources and coping skills (Humphreys & Noke, 1997).

The independent influence of participation in self-help groups and outpatient mental health treatment on one-year outcomes emphasizes the importance of integrating formal and informal care for patients with substance use disorders. In addition to our findings, two prior studies have identified independent effects of formal and informal care on substance use outcomes (Johnsen & Herringer, 1993; Ouimette et al., 1998). These findings may reflect the distinctive role of outpatient mental health care in providing practical support, such as access to residential and vocational services, as well as professional clinicians' greater acceptance of relapse prevention and harm reduction approaches in addition to abstinence-oriented treatment. Due to their sense of community and continuing support, however, we would expect self-help groups to have stronger long-term effects on outcome than does outpatient care.

Moderators of the Influence of Continuing Care

We speculated that three factors might moderate the influence of continuing mental health care on one-year outcomes, but found only limited support for these ideas. Consistent with an earlier study (Ouimette et al., 1998), there were no significant interactions between the two overall patient disorder groups and the indices of continuing care on any of the one-year outcomes. The finding that the duration of outpatient care and participation in self-help groups were more closely associated with residential stability among more disturbed psychiatric patients than among the less disturbed supports the idea that patients with more severe problems benefit more from continuous care. Alternatively, however, patients in more stable residential situations may be more likely to maintain their participation in formal and informal care.

Overall, these findings show that formal and informal care may have essentially comparable benefits for patients with both substance use and psychiatric disorders as for patients with only substance use disorders. Outpatient counselors and self-help group members and sponsors typically may be able to accommodate to more severely ill patients' needs. Nevertheless, given dually diagnosed patients' relatively poorer overall outcomes, more work is needed to identify optimal combinations of substance abuse and psychiatric care for such patients, especially patients with Axis I disorders.

Contrary to our initial expectation, patients who had an abstinence goal benefited more from a longer duration of outpatient care, particularly with respect to experiencing less distress. Patient motivation may be an important factor mediating this relationship. Specifically, patients who espouse an abstinence goal may be more likely to remain in outpatient care, which contributes to their continued motivation to abstain and to a reduction in distress.

We obtained minimal support for the proposition that more regular continuing care might be more helpful for patients who at baseline had fewer social resources. These patients did experience worse one-year outcomes overall; those who obtained more regular outpatient care were more likely to be abstinent and free of significant psychiatric symptoms at follow-up. Thus, consistent with the findings for depressed patients (Moos, 1990), substance abuse patients who lack social resources may need to depend more on continuing care. In general, however, the interaction findings were weak, suggesting that there is no firm basis for allocating outpatient mental health care differentially on the basis of the three patient characteristics examined here.

Conclusions and Implications

Although the findings are of potential practical importance, several limitations of the work must be considered. The project focused on a selected sample of men with relatively few social and economic resources and relatively chronic disorders, all of whom were obtaining services within the auspices of one public system of care. The amount of outpatient mental health care may have a stronger influence on outcome among more acute patients; the duration of care also may affect such patients' distress and psychological symptoms.

Another limitation is the lack of random assignment of patients to different patterns of outpatient care. Thus, patients who initially were more motivated to change may have chosen a longer duration and larger amount of continuing care. However, the fact that the amount of care was not independently related to one-year outcomes implies that initial motivation may not be a strong confounding factor. Controlling for patient motivation at treatment intake did not influence Ouimette et al.'s (1998) findings of the association between participation in outpatient care and self-help groups on one-year substance use outcomes. In addition, as we have noted elsewhere (Timko, Moos, Finney, Moos, & Kaplowitz, 1999), motivation probably is as much a proximal outcome of treatment as it is a baseline characteristic of an individual.

From the perspective of decisionmaking about the allocation of outpatient mental health services for substance abuse patients, the most important finding involves the stronger influence of the duration than the amount of outpatient care. Some patients in the cohort we studied here received a substantial amount of outpatient mental health care without an attendant improvement in their one-year outcomes. Accordingly, standardizing the amount of outpatient mental health care at an average of two contacts per month or 24 contacts in a year could be a reasonable way to provide cost-effective services to a larger number of substance abuse patients. Similarly, based on a comprehensive literature review (Finney & Moos, 1997), we concluded that the provision of lower intensity treatment for a longer duration may be an effective strategy for many patients.

A number of issues should be examined to enhance our understanding of the role of specific aspects of continuing outpatient mental health care on patients' outcomes. One question is whether the duration of care is associated with better outcomes when the amount of care is limited to two sessions per month. A related question is whether the amount of outpatient care is more important for patients who enter outpatient care without a just prior episode of inpatient or residential care. We also need to examine the association between the duration of follow-up care in the first year after an episode of acute care and patients' longer-term outcomes.

Other important issues involve the need to identify optimal combinations of formal and informal care; to consider the role of more specific aspects of the continuity of care, such as individualization, comprehensiveness, and flexibility (Bachrach, 1981; Johnson, Prosser, Bindman, & Szmukler, 1997); to examine the orientation and content of care; and to learn more about the determinants of effective continuing care. Overall, better planning and allocation of patterns of outpatient mental health care could enhance substance abuse and psychiatric patients' outcomes without increasing the cost of their care.

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