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How Do Resource Dependencies Affect Treatment Practices?:

The Case of Outpatient Substance Abuse Treatment Programs

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Abstract

This study uses resource dependence theory to examine how the concentration of client referrals into outpatient substance abuse treatment may affect treatment comprehensiveness. Data were from the 1995, 1999/2000, and 2005 waves of a national longitudinal survey. Results from generalized estimating equation models (sample sizes from 1,350 to 1,375) indicate that more concentrated referral sources were negatively associated with three of the four indicators of treatment comprehensiveness: the percentages of clients receiving routine medical care, mental health care, and financial counseling. Substance abuse treatment programs may be focusing their treatment practices to meet the demands of key referral sources. Given the importance of comprehensive treatment for substance abusing clients, however, these findings raise concerns about the potential implications of continued industry consolidation. The authors suggest strategies for organizations as well as policy makers to mitigate possible negative effects of very high reliance on one or two referral sources.

Keywords

referrals; resource dependence; treatment comprehensiveness; substance abuse treatment; ancillary services

Outpatient substance abuse treatment (OSAT) facilities typically do not act as independent entities but instead depend on a range of external actors such as referral sources, payers, licensing and accrediting bodies, and in some instances, parent organizations with varying standards about what constitute “best” or appropriate treatment (Lemak & Alexander, 2001). Previous research in hospitals, long-term care facilities, and substance abuse treatment

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²It was plausible for a program’s total percentage of referrals to be less than 100% because the categories provided in the interview were not exhaustive of all possible referral sources. However, the categories were mutually exclusive, and thus the total should not have exceeded 100%. In 275 of the 1,607 cases in the final analytic sample, however, the sum of the percentages provided by the clinical supervisor did exceed 100%, although only 37 exceeded 110%. To preserve proportionality while correcting for these apparent errors, when the total exceeded 100%, we reduced each referral by the percentage excess of the total, thus forcing the sum to 100%. The results below reflect this construction. However, neither running models with referrals concentration based on the original numbers provided by supervisors nor omitting all cases in which the total had originally exceeded 100% led to different results. This indicates that the results are robust across constructions of concentration.

programs indicates associations between dependence on particular client referral sources and the ways organizations provide services to those clients. For example, Friedmann, Lemon, Stein, and D'Aunno (2003) demonstrated that clients referred from employee assistance programs and criminal justice to substance abuse treatment programs were more likely to be treatment "naïve" and thus require different forms of treatment than those clients with comorbidities or those with prior treatment experience. Similarly, Miner, Rosenthal, Hellerstein, and Muenz (1997) found that substance abuse patients referred from mental health providers were often noncompliant with treatment and therefore required stringent follow-up and case management. Atkinson, Misra, Ryan, and Turner (2003) showed that referral source for alcohol-dependent men effectively differentiated needs of patients and likelihood of successfully completing treatment. Specifically, referrals from health or social services sources displayed high levels of psychological and physical dysfunction. Those from legal sources were healthiest, and those who self-referred tended to have prior treatment for alcoholism and suffer from depression.

Recent research also indicates that OSAT programs vary considerably in terms of their number of referral sources (Wells et al., 2007). Whereas all organizations to some degree must rely on a variety of resource providers to support their work, there has been little research on the organizational consequences of how reliance on relatively few or resource providers affects substance abuse treatment organizations. This article examines the effects of OSAT programs' concentration of referral sources on key treatment practices in those programs. Using resource dependence theory (Pfeffer & Salancik, 1978) as the theoretical framework for this analysis, we test associations between diversity of referrals and treatment practices in a sample of 837 OSAT programs during a 10-year period. We then discuss potential implications of concentrated referrals to OSAT, and what these imply for efforts to provide optimal treatment for client populations. From a public policy perspective, findings from the study will contribute to understanding how treatment practices are aligning with the needs of client populations coming from relatively different or similar referral sources.

New Contribution

Adoption and implementation of best practices in health organizations are receiving considerable attention from policy makers and health services researchers as the uptake of such practices has failed to keep pace with scientific evidence regarding effective treatment strategies (National Quality Forum, 2007). Research has typically focused on the patient level and organizational factors that might explain variation in treatment practices. However, environmental forces and external resource dependencies of these organizations have attracted much less attention. To the extent that organizations depend on external actors for critical resources, such dependencies may enable these external actors to influence treatment delivery. In this study, we use such resource dependence arguments to explain variation in treatment practices across OSAT providers in regard to several aspects of comprehensive services to clients. Such services are seen as a necessary (albeit not sufficient) condition to appropriate tailoring of services to meet client needs.

In the context of substance abuse treatment, the current study is designed to complement organization and client-level analyses of treatment practice implementation in OSAT

programs by examining the role of *external* dependencies in shaping organizational approaches to treatment practices. Specifically, we consider how the concentration of referral sources to OSAT programs is associated with their choice of treatment strategies. The study advances the behavioral health services literature by identifying key structural characteristics of OSAT environments that affect provider behavior through the analysis of a longitudinal nationally representative sample of substance abuse treatment organizations.

Resource Dependence and Treatment Practices in OSAT Programs

Resource dependence theory focuses on why organizations are subject to control by external actors that control resources vital to the organization and how organizations attempt to avoid reliance on external actors for critical resources or buffer themselves from the constraints such dependencies may impose (Pfeffer & Salancik, 1978). As Lemak and Alexander have shown, drug abuse treatment centers are often not large or powerful enough to enact such avoidance strategies (Lemak & Alexander, 2001). Under these conditions, resource dependence theory predicts that treatment programs will be particularly responsive to the demands of external stakeholders when supply of critical inputs or outputs is concentrated in relatively few sources (Pfeffer & Salancik, 1978). In the context of treatment, the most salient examples of such resources are clients.

Resource concentration reflects the extent to which power and authority over critical resources in the environment are widely disbursed or concentrated in a few sources (Pfeffer & Salancik, 1978). Organizations that receive resources from highly concentrated sources typically deal with less uncertainty in their operations and strategies and have reduced potential for interorganizational conflict because of fewer suppliers with which to coordinate. However, resource concentration also makes the focal organization more susceptible to the demands of external actors, and therefore limits the autonomy of the focal organization for taking actions that are locally based and in the best interest of their clients.

Specifically, the literature cites several consequences of resource contributions from concentrated sources. The first is goal displacement that occurs when goals and activities are modified to satisfy the interest of key resource contributors (Oliver, 1991; Smith & Lipsky, 1993). Other consequences associated with high levels of resource dependence include process and structural change in organizations. For example, studies have cited instances of organizations becoming entangled in an increasingly dense web of rules and regulations and thus losing control over their own policies, procedures, and programs (Nielsen, 1979; Peterson, 1986).

One way of managing these dependencies is to avoid reliance on a very limited number of resource suppliers and maintain alternative sources of key inputs. This, in effect, renders the focal organization less dependent on any one resource provider and increases their autonomy to practice as they see fit. From a resource dependence perspective, resource diversification is generally viewed positively as it is associated with reduced dependence on one or few sources of critical inputs (Tuckman & Chang, 1991). Such dependence reducing strategies in principle should allow the organization to pursue practices that are in the best interest of its clients.

However, resource dependence theory does not take into account the possibility that a greater variety of resource providers may lead to a corresponding increase in treatment and administrative demands programs face, and that satisfying the criteria for one provider may preclude satisfying those of another. The result may be that goal conflicts are heightened and organizational tensions may be more difficult to manage (DiMaggio, 1986). This is because disparate types of resource providers tend to differ in their priorities and views of effectiveness, thus leading to competing demands on the focal organization.

In sum, all resource sources have advantages and disadvantages for substance abuse treatment programs stemming from the constraints they place on organizational practices, strategies, and staffing. The ideal state of continual flows of resources and clients for OSAT organizations that do not encumber the basic mission of the organization is simply not a reality.¹ As research has shown, a variety of funding sources exists for organizations, and each is associated with particular constraints and management tasks (Lemak & Alexander, 2001; Wells et al., 2007). Whereas these studies have demonstrated that client profiles and treatment expectations differ by individual referral source, there have been no previous studies that have considered the relative diversity of referral sources on substance abuse treatment. The current study is intended to assess how the concentration of resource support for OSAT programs may affect organizational practices—specifically that of providing clients with comprehensive health and social services.

Hypotheses

Most individuals in substance abuse treatment have significant problems in physical health, psychiatric functioning, family relations, and/or financial self-sufficiency (Weisner et al., 1996). Studies have shown that specialized medical and social services focusing on these addiction-related problems can be effective in improving treatment results (McLellan et al., 1997). For purposes of this study, we therefore examine *comprehensive treatment practices* such as medical and mental health care and life skills counseling (McLellan et al., 1997). Based on 30 years of studies and expert consensus, the National Institutes of Health have identified such a holistic approach to treatment as a key dimension of effective practice (National Institute on Drug Abuse, 2000). Other groups such as the National Quality Forum (2007) also emphasize the need for addressing comorbidities, although the current investigation does not consider additional fundamental elements of substance abuse treatment practice such as identification, initiation, and engagement in service receipt (Garnick et al., 2002).

¹Resource dependence theory allows for the possibility that organizations can diversify their resource base to reduce dependence on powerful external actors and thereby reduce the likelihood that they can impose demands on the focal organizations. We argue that OSAT programs are generally small and vulnerable organizations that do not have the necessary size, skill set, or capital to diversify their product lines or resource base in any appreciable ways to lessen dependence on a particular type or source of resource. Further, in the case of OSAT units, their markets are largely local, placing even more constraints on their flexibility to diversify their resource base. Finally, existing client referral patterns within or between other area providers (e.g., from a hospital's emergency room to its own substance abuse treatment unit) may constrain units from diversifying their client base.

We also assume that the reciprocal interdependence is not likely to operate in a way to negate our main hypotheses. Relatively speaking, major referrers typically have options for treatment sources by virtue of their market power and the likelihood that multiple providers are available to serve their needs. By contrast, smaller less powerful referrers may be highly dependent on a particular OSAT program, but this would not obviate our basic argument that dependence between *concentrated* referral sources and OSAT programs usually works in one direction.

Although the client's ability to engage in his or her own treatment plan may change during the course of treatment, it is often difficult initially to ascertain from substance abusing individuals what range of issues are relevant to their recovery. This creates situations of ambiguity in which organizational stakeholder norms of practice may be particularly influential and subject to variation (D'Aunno, Sutton, & Price, 1991). Based on this assumption, we began with the premise that different referral sources would identify substance abuse problems in different ways and would thus refer clients with varying need profiles. For example, clients referred from the criminal justice system have been shown to enter treatment with different, often greater needs than voluntary clients (Brochu, Guyon, & Desjardins, 1999; Klag, O'Callaghan, & Creed, 2005). In addition, we expected that perspectives on the "best" or most appropriate form of substance abuse treatment could also vary across referral sources. Based on the resource dependence discussion above, two competing hypotheses may be advanced.

First, concentration of referrals for critical inputs (clients) may reduce the extent to which OSAT programs engage in comprehensive treatment practices because they become more susceptible to the demands of external actors that control critical inputs and have less autonomy over treatment decisions and practice patterns. Because such powerful external actors are removed from the actual locus of treatment, they are unlikely to take into consideration the particular needs of the client population but instead adopt a more standardized set of treatment requirements, characterized by a narrow focus on treating addictions without regard for their health and psychosocial contexts.

Alternatively, more equal dependence across many referral sources may have the effect of diversifying resources, thus making the OSAT program less susceptible to the demands of external actors and freeing them to pursue their treatment preferences, including providing a comprehensive range of services for their clients.

Hypothesis 1 Ceteris paribus, the greater substance abuse treatment program reliance on fewer, more concentrated referral sources, the less comprehensive treatment will be.

Alternatively, more dependence on many, more equally distributed sources of referral for clients may increase administrative burden on OSAT programs, much of which is likely to fall on providers themselves (Alexander & Lemak, 1997; Alexander, Lemak, & Campbell, 2003). This will constrain OSAT programs from engaging in "best" treatment practice as resources are diverted from treatment and client needs to managing multiple dependencies. Treatment goals and expectations are also likely to become unclear and even conflicted under conditions of multiple revenue streams, making sustained adherence to "best" practices difficult. Similarly, dependence on fewer sources of input will reduce the uncertainty associated with operating the organization.

Hypothesis 2 Ceteris paribus, the greater substance abuse treatment program reliance on fewer, more concentrated referral sources, the more comprehensive treatment will be.

Methods

Data were from 1995, 1999/2000, and 2005 interviews with directors and clinical supervisors of outpatient drug abuse treatment programs surveyed through the National Drug Abuse Treatment System Survey (NDATSS). The NDATSS is a longitudinal study of OSAT programs conducted by the Institute for Social Research at the University of Michigan. In the NDATSS, an OSAT program is defined as a physical facility with a majority of resources (>50%) dedicated to treating individuals with substance abuse problems (including alcohol and other drugs) on an outpatient basis. The sample does not include programs run by the veteran's administration and by correctional facilities.

Previous publications describe the sampling method and procedures of the NDATSS (Heeringa, 1996). Briefly, the NDATSS uses a mixed panel design that combines elements from panel and cross-sectional designs (Heeringa, 1996). Data are collected from the same national sample of treatment programs that have been sampled and screened as part of prior waves of the study. These panel programs are replenished in each wave with new randomly selected treatment programs. New sample programs are selected so that, when combined with the panel, the full sample will be more representative of the U.S. outpatient treatment system in a given year. In general, these additional programs have tended to be private for-profit, small, and young. After screening and nonresponse, the total number of programs completing interviews in 1995 was 618 (86% of the sampling frame). There were 571 programs in 1999/2000, reflecting a response rate of 89%. In the sixth and most recent wave, the 2005 sample was composed of 566 programs, with an 88% response rate.

Data were collected through telephone surveys of the administrative director and clinical supervisor at each treatment program. Experienced staff conducted the survey from the University of Michigan Survey Research Center. Extensive interviewer training on the survey instruments was conducted, as well as two pretests for each study wave. When necessary, respondents were recontacted for clarification.

Data for the treatment practices examined in this study were present for 1,607 observations, representing 837 unique programs, averaging two waves each. After list wise deletion, the final sample sizes ranged from 1,350 to 1,375 unit years.

Measures

Dependent variables—Four measures indicated the comprehensiveness of services provided (a) the percentages of clients receiving routine medical care, (b) mental health care, (c) employment counseling, and (d) financial counseling ("Principles," National Institute on Drug Abuse, 2000). All of these variables had heavy right tails. We therefore recoded each to a four category ordinal measure, as shown in Table 1.

Independent variables—The predictor of interest was the concentration of client referrals, which was calculated as the inverse of the diversity of referrals index, as shown in Table 1. Higher scores on the diversity index reflect a more equal distribution of clients referred from a greater number of referral sources. Conversely, lower scores reflect a more unequal distribution of clients referred from fewer sources.

As also outlined in Table 1, we controlled for program affiliations with hospitals and mental health centers; the nature of program ownership; the number of clients, used as a proxy for program size; and whether the program offered methadone treatment. Prior research suggests that methadone treatment facilities are sufficiently different in their approach to treatment, staffing, client base, and source of referrals that such a control is necessary to account for the possibility that “treatment modality” rather than referral concentration needs to be accounted for as an alternative explanation. All of these first six measures except the number of clients also adjusted the sample for sampling stratification. Several attributes of client populations expected to affect treatment practices were also included as controls: The percentages who had had previous substance abuse treatment, experienced multiple drug addictions, were dual diagnosed with mental illness, unemployed, and African American, respectively. This last measure was included because of previous evidence of associations between service to higher percentages of Black clients and treatment practices (Alvidrez & Havassy, 2005; Campbell, Weisner, & Sterling, 2006; Kidorf et al., 2005). To control for sources of monetary resources to the OSAT, we also included in the model the percentages of revenue from the following sources: federal sources, Medicaid, non-Medicaid state sources, local sources, insurance, self-paid clients, and donations.

To control for potential differences in associations across waves of survey administration, a dichotomous variable was included for observations from 1995 and another for 1999/2000. Incorporating multiple waves of data makes it possible to test enduring associations. Including covariates for waves tests whether each dependent variable has changed over time.

Analytic Strategy

NDATSS developed nonresponse-adjusted selection weights to adjust for oversampling of certain types of programs and for nonresponse. Using these weights yielded descriptive statistics with generality to the national population of OSAT programs. In the multiple regression models, stratification variables accomplished the same level of generality. We used generalized estimating equations with SAS 9.1 PROC GENMOD to obtain estimates for the regression models that accommodate correlations within centers across waves (Liang & Zeger, 1986). This procedure yields regression coefficient estimates with independent correlation structures and robust standard errors. We employed ordinal logistic regression to analyze the association between predictors and the odds of providing comprehensive treatment practices and systematic case management to greater proportions of clients (Agresti, 2002).

Three of the five ordinal dependent variables differed significantly from the proportionality assumed in ordinal logistic regression. However, we kept this form for three reasons: (a) Conceptually, there was a clear ordering in each set of response options (from 0% to 100%); (b) tests of proportionality are very sensitive to sample size (Scott, Goldberg, & Mayo, 1997), and this was a very large sample; and (c) ordinal models are substantially more interpretable than multinomial models.

Results

Descriptive Results

The mean concentration index across all three waves was 0.10 (Table 2). The observation with the lowest concentration of client referrals received 27% of its clients from courts; 18% from other substance abuse treatment programs; 14% from mental health agencies; 14% from hospitals and other health care providers; 9% from rehab facilities; and 18% from schools, employee assistance programs, and other sources. The program with the highest concentration index reported only one source of clients.

Additional analyses reveal that there was a steady increase in the concentration of client referrals during the study period, from a mean of 0.09 in 1995 to 0.10 in 1999/2000 and 0.12 in 2005 ($p < .001$ for PROC GENMOD test of change between 1995 and 1999/2000 and $p < .01$ for change between 1999/2000 and 2005). To illustrate what this means, a program that gets 60% of its clients from courts; 10% from other substance abuse treatment facilities; 2% each from mental health agencies and health care providers; 1% from vocational rehab programs; and 25% from schools, employee assistance programs, and other sources would have a concentration index of 0.09, the 1995 mean. An increase to the 2005 mean concentration index of 0.12 could occur through a shift to relying on courts for 85% of client referrals, along with a decrease in the proportions from other substance abuse treatment programs and from schools and other sources to 5% each. In other words, small shifts in the concentration index reflect big changes in referral patterns.

A minority of programs was affiliated with hospitals (11%) or mental health centers (21%). Just more than half (53%) were nonprofits and another 19% were for-profit; the remainder were publicly owned. The mean number of clients served in the most recent year was 509. Fourteen percent provided methadone maintenance. On average, almost two thirds of clients (64%) had had prior substance abuse treatment. The same percentage abused multiple drugs. One third of clients (33%) also had mental illness diagnoses. On average 41% of clients were unemployed. Just more than a fifth (23%) were African American. On average, unit directors reported receiving 13% of their funding from federal sources, 37% from state sources (predominantly Medicaid), 13% from local sources, 9% from private insurance, 20% from self-paying clients, and 2% from donations. The average percentages of clients receiving medical care, mental health care, and employment counseling were very similar, at 28%, 26%, and 26%, respectively. Far fewer clients received financial counseling, at an average of 16%.

Multivariate Results

Hypothesis 1, which predicted that programs with more concentrated referral sources would provide less comprehensive treatment, received substantially more support than hypothesis 2, which had posited that such concentration would be associated with more comprehensive treatment. Specifically, greater referral concentration was associated with significantly *lower* odds of providing routine medical care (OR 0.028, $p < .01$), mental health care (OR 0.003, $p < .001$), and financial counseling (OR 0.043, $p < .05$) to higher proportions of clients. The

concentration of referrals measure was not significantly associated with the likelihood that programs provided employment counseling to higher proportions of clients.

A number of the control variables exhibited statistically significant associations with use of health and ancillary social services. Clients in programs affiliated with mental health centers were less likely to use routine medical care (OR 0.718, $p < .05$), but, unsurprisingly, more likely to use mental health treatment (OR 1.480, $p < .05$) than clients in other programs. Clients in programs that provided methadone were much more likely than those in drug-free programs to receive routine medical care (OR 2.229, $p < .001$).

Indicators of client severity were positively associated with service use. Clients in programs with a higher proportion of clients who had previously received substance abuse treatment were more likely to receive routine medical care (OR 1.006, $p < .01$), employment counseling (OR 1.011, $p < .001$), and financial counseling (OR 1.006, $p < .01$). Similarly, higher percentages of clients abusing multiple drugs were associated with more employment counseling use (OR 1.006, $p < .01$) and financial counseling (OR 1.005, $p < .01$), and higher percentages of substance abuse clients who also had mental illness diagnoses were associated with greater use of routine medical care (OR 1.006, $p < .01$) and mental health care (OR 1.052, $p < .001$). Greater percentages of unemployed clients were associated with greater routine medical care use (OR 1.005, $p < .05$) as well as with more use of employment counseling (OR 1.006, $p < .05$).

Source of revenue displayed significant associations with several of the dependent variables. Specifically, percentage of revenue from self-pay sources was negatively associated with all forms of comprehensive treatment except financial counseling (OR ranging from 0.987, $p < .01$, to 0.991, $p < .05$). Revenue from donated sources displayed significant and positive associations with employment services (OR 1.025, $p < .01$) and financial counseling (OR 1.018, $p < .05$). Other sources of revenue (e.g., state non-Medicaid, local sources, insurance) were associated with only one of the four types of comprehensive services examined.

Finally, as a test of robustness, we ran the model separately for the most recent wave of the survey (2005) alone. The pattern associations between the concentration of referrals and units' likelihoods of providing each type of service to a higher proportion of clients remained negative in the Wave 6 model, thus supporting the findings in the cross-wave analyses.

Discussion

As in any service focused on behavioral change (Safran et al., 1998; Starfield & Shi, 2002), a comprehensive approach to substance abuse treatment is necessary to address the interrelated factors involved (McLellan et al., 1997, p. 30). Given the complex set of interrelated obstacles to addiction recovery (Weisner et al., 1996), integrated medical and social services can be vital elements of substance abuse treatment (McLellan et al., 1997). However, research has also shown that OSAT programs differ widely in the extent to which they offer such expanded services to their client populations (Wells et al., 2007).

This study has implications for managers and policy makers in substance abuse treatment as well as potentially in other forms of health care provided by small organizations that rely heavily on referrals for patients (e.g., home health care providers, nursing homes, and mental health care agencies). Organizations that rely on one or two sources may be subject to goal displacement, in which the organization may restrict the range of services as they seek to meet the demands of the dominant referral source(s) (Oliver, 1991; Smith & Lipsky, 1993). Despite the intuitive appeal of major referral sources, directors of the receiving agencies might better protect their treatment discretion by increasing the diversity of client sources. If a dominant referral source is unavoidable, the organization might employ political strategies to buffer their agency's technical core (Pfeffer & Salancik, 1978). For instance, one possibility is to recruit a key player from the referral source (e.g., a director of another agency) to serve on the organization's board, and then educate that individual about the benefits of comprehensive treatment as well as the costs of the demands they are making. This process may entail the use of such legitimation techniques as the use of treatment criteria from the American Society of Addiction Medicine and/or accreditation. The significance of such markers, however, may not be readily available to individuals in other health and human service sectors, hence the importance of personal communication.

For entities that refer clients into OSATs, this study's findings indicate the importance of understanding the potential negative consequences of either their own power or that of another referral source. If they are referring most of the OSAT program's clients, they may better serve those clients by attending to potential unintended consequences of the priorities they emphasize. For instance, if a court focuses solely on client attendance at specified therapy sessions, attendance at AA meetings, and negative drug test results, the paradoxical result may be a restricted range of treatment services, and thus less holistic support for long-term abstinence. Conversely, if an agency discovers that its referrals constitute only a small percentage of an OSAT program clients, the referring director may need to be more proactive than he or she had previously realized to communicate their treatment priorities; otherwise, the dominant referral source's voice may be heard to the exclusion of others.

Finally, this study's findings illustrate what can happen when health and human service agencies are not adequately connected. Although a variety of interagency ties may benefit clients (e.g., better local information systems that prevent addicts from emergency room "shopping"), arguably the litmus test of such cooperation is whether people get the types of treatment they need. If agencies were consistently referring people who needed multifaceted assistance to the most qualified providers, diverse referral bases should be the norm, yet trends in OSAT are moving in the opposite direction. One potentially useful policy intervention might be to create incentives for health and human service organizations to identify and make referrals for multiple client needs; these would need to be structured with cognizance of the overall incentive structures participating agencies face. Another way to create more functional incentives would be for government and foundation grants to be awarded only to multiagency applicants in areas where such a range of providers exists. Of course, expanding Medicaid eligibility could also have a tremendous impact; when people are not insured, they are far less likely to get into any type of needed treatment (Appel, Ellison, Jansky, & Oldak, 2004).

This study also demonstrates the applicability of resource dependence theory to understanding the treatment practices of small health care providers. Our objective was not to fully test all components of resource dependence theory, but to use it as a way of framing the problem of concentration of referral sources, on one hand, and treatment practices in OSAT units, on the other. Specifically, we proposed that resource dependence theory (Aldrich, 1976; Pfeffer & Salancik, 1978) might be helpful in understanding how OSAT organizations respond to external pressures to pursue either narrowly or broadly defined approaches to treatment for their clients. When there is a limited or uncertain supply of resources, organizations must find ways to ensure a stable and steady flow of them, including securing resources through transactions with other organizations. Given that OSAT organizations depend on a variety of exchange relationships to secure a steady flow of clients and revenues, they must constantly make decisions regarding how to respond to the expectations of key external actors.

Data from the longitudinal nationally representative sample examined here indicate that programs that receive more clients from fewer more concentrated referral sources tend to provide less comprehensive care, relative to programs with more diverse referral sources. These findings give credence to the argument that a more diversified set of referral sources may reduce external dependence and thus free the OSAT program to pursue strategies that are in the clients' best interests. When the bureaucratic influences of powerful external actors apply to a greater proportion of organizational resources, they are more likely to restrict organizational practices. This is because the organization is left with a smaller proportion of resources and practices over which they have relative control and simultaneously have fewer alternative sources of resources to avoid such constraints. In other words, there are fewer opportunities to establish practices that are consistent with their own objectives, rather than those of external actors. This may be particularly true for OSAT programs, which compared with other health services providers such as hospitals are smaller, less differentiated, and have a smaller number of administrative and clerical staff to buffer the program from external demands, particularly those that affect the technical core of treatment practices (Flynn, 1993). Our argument has been that greater external dependence will result in less flexibility of the focal organization to engage in providing either tailored comprehensive treatment services for their clients. Inherent in this argument is that external referral sources are both physically and technically removed from the locus of treatment and thus tend to prescribe treatment approaches that narrowly fit their own treatment objectives and that lend itself to simple accountability and standardization. Although it is conceivable that some powerful referral sources could give treatment programs a cart blanche to do anything they felt was necessary to treat their referred clients, this seems unlikely both from a theoretical and a practical perspective.

Several limitations of the analysis should be noted. First, analyses focus only on how comprehensive treatment is in terms of incorporating ancillary health and social services. Although this is a salient aspect of treatment, others not incorporated here, such as the use of evidence-based therapeutic modalities and treatment duration, are also important (McCrary & Ziedonis, 2001; Moos & Moos, 2003). Second, although findings imply that the concentration of referral sources affects OSAT practices, the current data cannot reveal the mechanisms by which these effects may occur. Resource dependence theory posits that

powerful referral sources may focus primarily on core substance abuse treatment services and that substance abuse treatment units may respond to these performance pressures by deemphasizing potentially complementary services such as health care and life skills counseling. Future research might test this explanation by surveying referral sources and substance abuse treatment units about their respective priorities for clients, as well as collect more data on how directly specific referral sources communicated their priorities to treatment units. Third, without outcome measures such as abstinence and health status, assessment of patients' clinical outcomes and their relationship to external dependencies is open to speculation. Additional outcome measures would contribute valuable information about the potential effects of concentration of referrals. Fourth, we rely on proxy measures of client severity, that is, client characteristics that have been shown to be associated with more complex treatment and service needs (client race, unemployment, dually diagnoses clients, and those with prior substance abuse treatment). Finally, the cross-sectional nature of the analyses limits our ability to make causal inferences. It is possible, for instance, that OSATs with more comprehensive treatment approaches attract referrals from a broader range of sources.

Conclusion

The results outlined here suggest that OSAT program dependence on external sources of client referrals affects treatment practices, a pattern of particular concern given a trend toward increasingly concentrated referrals. Future research at the individual client level should investigate how well substance abuse treatment and other facilities are serving individuals referred from courts and other agencies. Such field investigations could build mutual awareness among agencies about the impact of referral concentration—an awareness that we suspect is now generally not present.

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Table 1

Description of Study Measures

Measure	Operationalized As	Source/Notes
Concentration of referral sources	$1/(\sum \log P_i)$, where P_i = proportion of referrals from: courts, police, and other law enforcement; other substance abuse treatment facilities; mental health agencies or providers; hospitals, physicians, and other health care providers; vocational rehab or other social service providers; or schools, employee assistance programs, welfare agencies, self-referrals, or other.	Clinical supervisor
Hospital affiliation	Unit is owned by, managed by, or affiliated with a hospital.	Program director (Yes = 1)
Mental health center affiliation	Program is owned by, managed by, or part of a mental health center.	Program director (Yes = 1)
Private not-for-profit ownership	Program control status is private not for profit.	Program director (Yes = 1, Referent group = public)
Private for-profit ownership	Program control status is private for profit.	Program director (Yes = 1, Referent group = public)
Number of clients	Total number of outpatient substance abuse treatment (OSAT) clients in most recent complete fiscal year	Program director (logged in regression models)
Methadone treatment program	Program provides methadone treatment services	Program director (Yes = 1)
Percentage of clients prior treatment	Percentage of current OSAT clients who had previously received substance abuse treatment	Clinical supervisor
Percentage of clients with multiple substance abuse problems	Percentage of current OSAT clients who use two or more substances, including alcohol, cocaine, crack, and others.	Clinical supervisor
Percentage of clients dual diagnosis	Percentage of current OSAT clients who also had mental illness	Clinical supervisor
Percentage of clients unemployed	Percentage of current OSAT clients unemployed	Clinical supervisor
Percentage of clients African American	Percentage of current OSAT clients African American	Clinical supervisor
Percentage of revenues	Percentage of OSAT revenues from federal sources, Medicaid, non-Medicaid state sources, local sources, insurance, self-paid clients, and donations	Unit director
1995	First wave used in analysis	Referent was 2005, the most recent wave
1999/2000	Second wave used in analysis	Referent was 2005
Percentage of clients receiving routine medical care	In the previous year, the percentage of outpatient substance abuse clients who received routine medical care either directly from the program or through an arrangement with another provider.	Clinical supervisor Categorized as 0% = 0; 1% to 33% = 1; 34% to 67% = 2; and 68% to 100% = 3
Percentage of clients receiving mental health care	In the previous year, the percentage of outpatient substance abuse clients who received mental health care either directly from the program or through an arrangement with another provider.	Clinical supervisor Categorized as 0% = 0; 1% to 33% = 1; 34% to 67% = 2; and 68% to 100% = 3
Percentage of clients receiving employment counseling	In the previous year, the percentage of outpatient substance abuse clients who received employment counseling either directly from the program or through an arrangement with another provider.	Clinical supervisor Categorized as 0% = 0; 1% to 33% = 1; 34% to 67% = 2; and 68% to 100% = 3
Percentage of clients receiving financial counseling	In the previous year, the percentage of outpatient substance abuse clients who received financial counseling either directly from the program or through an arrangement with another provider.	Clinical supervisor Categorized as 0% = 0; 1% to 33% = 1; 34% to 67% = 2; and 68% to 100% = 3

Table 2

Descriptive Statistics

Variable	<i>M</i>	<i>SD</i>	Range
Concentration of referrals	0.10	0.04	0.06 to 0.43
Percentage of hospital affiliated	11%		0 to 1
Percentage of mental health cater affiliated	21%		0 to 1
Percentage of private not-for-profit	53%		0 to 1
Percentage of private for-profit	19%		0 to 1
Number of clients (logged in analyses)	508.50	817.08	7 to 17,329
Provided methadone treatment	14%		0 to 1
Percentage of clients who had had prior treatment	64%		0% to 100%
Percentage of clients using multiple drugs	66%		0% to 100%
Percentage of clients dual diagnosis	33%		0% to 100%
Percentage of clients unemployed	41%		0% to 100%
Percentage of clients African American	23%		0% to 100%
Percentage of revenue from federal sources	13%		0% to 100%
Percentage of revenue from non-Medicaid state sources	28%		0% to 100%
Percentage of revenue from Medicaid	9%		0% to 100%
Percentage of revenue from local sources	13%		0% to 100%
Percentage of revenue from private insurance	9%		0% to 99%
Percentage of revenue from self-paying clients	20%		0% to 100%
Percentage of revenue from donations	2%		0% to 100%
Percentage of 1995	39%		0 to 1
Percentage of 1999/2000	28%		0 to 1
Percentage of 2005	33%	0.50	0 to 1
Percentage of clients receiving routine medical care	28%		0% to 100%
Percentage of clients receiving mental health care	26%		0% to 100%
Percentage of clients receiving employment counseling	26%		0% to 100%
Percentage of clients receiving financial counseling	16%		0% to 100%

Note: *N* = 1,399 unit years in pooled sample across 1995, 1999/2000, and 2005. Weighted proportionate to probability of selection.

Table 3
Final Models of Associations Between Concentration of Referrals and Treatment Practices

Parameter	Routine Medical Care			Mental Health Care		
	OR	LCL	UCL	OR	LCL	UCL
Intercept 1	0.101	0.037	0.272 ***	0.010	0.003	0.031 ***
Intercept 2	0.197	0.074	0.529 **	0.034	0.011	0.106 ***
Intercept 3	0.435	0.163	1.161	0.210	0.068	0.646 **
Intercept 4	2.052	0.769	5.478	10.907	3.534	33.660 ***
Concentration of referrals	0.028	0.002	0.408 **	0.003	0.000	0.058 ***
Hospital based	1.342	0.960	1.877	1.054	0.722	1.540
Mental health center-based	0.718	0.536	0.961 *	1.480	1.076	2.036 *
Private nonprofit	0.954	0.732	1.243	0.825	0.615	1.107
Private for-profit	0.982	0.648	1.489	0.834	0.524	1.329
Number of clients (logged)	0.938	0.851	1.032	0.992	0.890	1.105
Methadone services	2.229	1.689	2.941 ***	0.906	0.667	1.231
Percentage of clients had prior treatment	1.006	1.002	1.010 **	1.004	0.999	1.009
Percentage of clients use multiple drugs	1.003	0.999	1.006	0.998	0.994	1.003
Percentage of clients dual diagnosis	1.006	1.002	1.011 **	1.052	1.046	1.059 ***
Percentage of clients unemployed	1.005	1.001	1.010 *	1.000	0.995	1.005
Percentage of clients African American	0.998	0.994	1.003	1.000	0.996	1.005
Percentage of revenues from federal sources	0.999	0.992	1.006	0.992	0.984	1.000
Percentage of revenues from Medicaid	1.002	0.995	1.010	1.000	0.992	1.008
Percentage of revenues from non-Medicaid state	0.995	0.988	1.001	0.990	0.983	0.997 **
Percentage of revenues from local sources	0.994	0.987	1.001	0.990	0.982	0.998 *
Percentage of revenues from insurance	0.996	0.988	1.005	0.994	0.985	1.003
Percentage of revenues from self-paid	0.989	0.982	0.997 **	0.987	0.979	0.995 **
Percentage of revenues donated	1.005	0.988	1.022	0.997	0.979	1.016
1995	1.120	0.870	1.442	0.812	0.612	1.078
1999/2000	0.963	0.744	1.247	0.978	0.736	1.301

Parameter	Routine Medical Care			Mental Health Care		
	OR	LCL	UCL	OR	LCL	UCL
	<i>n</i> = 1,350			<i>n</i> = 1,375		
Parameter	Employment Counseling			Financial Counseling		
	OR	LCL	UCL	OR	LCL	UCL
Intercept 1	0.020	0.007	0.058 ***	0.029	0.010	0.084 ***
Intercept 2	0.035	0.012	0.100 ***	0.043	0.015	0.122 ***
Intercept 3	0.104	0.037	0.294 ***	0.079	0.028	0.225 ***
Intercept 4	1.114	0.398	3.119	0.510	0.181	1.435
Concentration of referrals	0.285	0.019	4.185	0.043	0.003	0.634 *
Hospital based	1.188	0.845	1.670	1.006	0.708	1.429
Mental health center-based	0.826	0.613	1.113	0.973	0.720	1.315
Private nonprofit	0.854	0.650	1.122	1.118	0.846	1.478
Private for-profit	1.148	0.755	1.745	1.511	0.986	2.315
Number of clients (logged)	0.992	0.898	1.095	0.938	0.848	1.038
Methadone services	1.124	0.851	1.483	1.092	0.822	1.449
Percentage of clients had prior treatment	1.011	1.007	1.015 ***	1.006	1.002	1.010 **
Percentage of clients use multiple drugs	1.006	1.002	1.010 **	1.005	1.001	1.009 **
Percentage of clients dual diagnosis	1.002	0.997	1.006	1.003	0.998	1.008
Percentage of clients unemployed	1.006	1.001	1.011 *	1.002	0.997	1.007
Percentage of clients African American	1.004	1.000	1.009	1.001	0.997	1.005
Percentage of revenues from federal sources	1.001	0.994	1.009	1.009	1.002	1.017 *
Percentage of revenues from Medicaid	1.003	0.995	1.011	1.005	0.997	1.013
Percentage of revenues from non-Medicaid state	1.003	0.996	1.010	1.006	0.999	1.013
Percentage of revenues from local sources	1.003	0.995	1.011	1.006	0.999	1.014
Percentage of revenues from insurance	0.989	0.980	0.997 **	1.004	0.995	1.012
Percentage of revenues from self-paid	0.991	0.983	0.998 *	1.000	0.992	1.007
Percentage of revenues donated	1.025	1.009	1.042 **	1.018	1.001	1.036 *
1995	1.005	0.777	1.300	0.814	0.626	1.060
1999/2000	1.058	0.814	1.376	0.925	0.709	1.206

Parameter	Employment Counseling			Financial Counseling		
	OR	LCL	UCL	OR	LCL	UCL
	<i>n</i> = 1,367			<i>n</i> = 1,356		

Note: OR = odds ratio; LCL = lower confidence limit; UCL = upper confidence limit.

* *p* < .05.
** *p* < .01.
*** *p* < .001.