Health Services for Women in Outpatient Substance Abuse Treatment

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Objective. To evaluate how a sample of outpatient substance abuse treatment units respond to organizational and environmental influences by adopting and implementing treatment services for women.

Data Sources. The National Drug Abuse Treatment System Survey from 1995 and 2000, a national survey of outpatient substance abuse treatment units.

Study Design. Health services for women are the dependent variables. The predictors include organizational and environmental factors that represent resource dependence and institutional pressures for the treatment unit. Logistic regression and Heckman selection models were used to test hypotheses.

Data Collection. Program directors and clinical supervisors at each treatment unit were interviewed by telephone in 1995 and 2000.

Principal Findings. Units that depended on specific funding for women's programs and that depended on government funds were more likely to adopt, but not necessarily implement, women's services. Methadone units and units that train more staff to work with women were more likely to adopt as well as implement women's services. Private not-for-profit units were more likely to adopt some services, while for-profit units were less so. However, in general, neither for-profit nor not-for-profit units significantly implemented services. There was evidence that the odds of adopting services were greater in 2000 than 1995 for two services, but were otherwise stable.

Conclusions. There is considerable variation in the adoption and implementation of women's services. In addition, not all adopted services were significantly implemented, which could reflect limited organizational resources and/or conflicting expectations. This also suggests that referral mechanisms to these services, and therefore access, may not be adequate. Government funds and specific funds for women's programs are important resources for the provision of these services. Women's services appear more available in methadone units, suggesting that regulation has been influential and that the recent methadone accreditation system should be evaluated. Staff training may be one strategy to encourage implementation of these services. For the most part, the adoption of services for women did not change between 1995 and 2000.

Key Words. Substance abuse treatment, access, women, health services, organizational characteristics

There is growing recognition that the transfer of substance abuse treatment technology from the research community to practice has lagged (Institute of Medicine [IOM] 1998; Brown and Flynn 2002). Such a gap is particularly

acute for treatment services for women (Breitbart, Chavkin, and Wise 1994; Finkelstein 1994; Chavkin and Breitbart 1997).

Women present at substance abuse treatment with higher addiction severity and more medical and psychological problems than men (Stein and Cyr 1997; Kandell, Warner, and Kessler 1998; Greenfield 2002). Critics charge that traditional treatment programs are male-oriented and lack services specific to the medical and mental health needs of women (Finkelstein 1994; Nelson-Zlupko, Kauffman, and Morrison Dore 1995; Reed and Mowbray 1999). Gender-sensitive treatment that includes women's services has been shown to be associated with improved outcomes, as measured by increased abstinence, retention in treatment, and improved self-esteem (Marsh, D'Aunno, and Smith 2000; NEDS 2001; Ashley et al. 2003). Failure to provide services that are sensitive to women's needs may dissuade them from engaging or continuing in treatment, and those clients who do proceed with services may receive less appropriate care.

This study addresses an important gap in the literature by evaluating the organizational and environmental determinants of the adoption and implementation of important health services for women by outpatient substance abuse treatment (OSAT) organizations. The extent to which treatment organizations adopt and implement services for women has direct implications for access to care and indirect implications for the effectiveness of care provided to women in substance abuse treatment. "Adoption" indicates whether or not a treatment organization offers a service, while "implementation" indicates whether the technology is actually used. Services must be implemented in order for clients to benefit. Unlike most previous studies, we examine both service adoption and implementation, and analyze how this has changed over time. The study focuses on outpatient programs because they comprise 82 percent of the substance abuse treatment system and are the primary method of delivering services (Horgan et al. 2001).

We evaluate treatment services for women that reflect federal recommendations, as well those found in the substance abuse treatment literature (CSAT 1994; Finkelstein 1994; NEDS 2001). Reproductive services include gynecological exams, contraceptive counseling, and prenatal care. These

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services are important to women who use substances as they are at higher risk for sexually transmitted diseases, unwanted pregnancies, and lack prenatal care that addresses their substance use. Physical exams, mental health care, and HIV testing are also examined, because women substance users suffer a high burden of mental health problems (Blume 1990), have a quicker progression than men to the physical co-morbidities of substance abuse (Stein and Cyr 1997), and are at high risk of HIV transmission (CDC Fact Sheet 2001).

CONCEPTUAL FRAMEWORK

We use resource dependence and institutional theories to explain the variation in the adoption and implementation of services for women. Resource dependency theory emphasizes how an OSAT unit's dependence on necessary resources determines its selection of service technology. OSAT units are heavily dependent on their environment for financial and nonfinancial (i.e., clients and staff) resources that are critical to their survival, making them vulnerable to the demands of external actors that control those resources (Pfeffer and Salancik 1978). OSAT units' response to those demands is a function of their dependence on the resource (Pfeffer and Salancik 1978). An OSAT unit will be likely to adopt and/or implement women's services if it is pressured by an important external actor that controls important resources.

Female clients and government funding agencies are two key actors for OSAT organizations that are likely to consider women's services important to provide. A highly competitive environment often suggests scarcity of resources and presents OSAT units with uncertainty about the stability of future resources, making them reluctant to provide additional services. Managed care organizations typically focus on saving costs, and are unlikely to encourage the provision of ancillary services.

Therefore, we hypothesize that the percentage of government funds received by an OSAT unit, the receipt of funding for women's programs, and the percentage of female clients will be positively associated with the adoption and implementation of women's health services. We also expect that the perception of a cost-based competitive environment and the percentage of managed care clients will be negatively associated with the adoption of women's health services.

Institutional theory focuses on the response of OSAT units to widely held norms and rules in their environment. OSAT units are embedded in a highly institutionalized environment comprised of government agencies,

professional associations, accrediting bodies, and licensing and funding sources (Hasenfeld 1983; D'Aunno and Vaughn 1995). These constituents exert pressures to conform to various regulations, norms, laws, and societal expectations (Meyer and Rowan 1977; DiMaggio and Powell 1983). Key to the survival of human service agencies is the legitimacy and support gained from conforming to these pressures (Hasenfeld 1983). OSAT units depend less on the technical proficiency of their work, which is difficult to demonstrate, and more on conformity to dominant belief systems and institutional rules in their environment. If an OSAT unit gains legitimacy and support from constituents by adopting and implementing women's services, it is more likely to do so (Hasenfeld 1983).

Institutional influences on organizational behavior include an organization's mission and goals, affiliation, accreditation, staffing characteristics, regulatory environment, and practice ideologies (e.g., 12-step model). Ownership represents differences in OSAT units' goals, with for-profit units less likely to offer unprofitable services. Units affiliated with parent organizations may be aligned with their parent organizations' treatment goals and practices. Accredited units would be likely to represent the standards and norms in a field, and female staffing of OSAT programs may promote the provision of women's services as a reflection of the professional or ideological orientation of its providers. Methadone units' regulatory environment requires the provision of some services for women (IOM 1995). More traditional practice ideologies may inhibit the provision of services, particularly those that do not conform to the 12-step model (Kaskutas 1994).

Therefore, we hypothesize that private not-for-profit ownership (relative to public), methadone modality, Joint Commission on Accreditation of Healthcare Organizations (JCAHO) accreditation, a higher proportion of female treatment staff, female director of the OSAT program, and staff training to work with women will be positively associated with the adoption and implementation of women's services. We also hypothesize that hospital affiliation will be positively associated with the adoption and implementation of reproductive services, HIV testing, and physical exams, while mental health center affiliation will be positively associated with the adoption and implementation of mental health care. Finally, we hypothesize that private for-profit ownership and a belief in the efficacy of the 12-step method will be negatively associated with the adoption of women's services.

Given the strong institutional environment of OSAT units, and the growing awareness in the 1990s of the importance of services for women (Finkelstein 1994), we hypothesize that, overall, units will be more likely to adopt services for women in 2000 compared with 1995.

METHODS

This study used data from two large samples of outpatient substance abuse treatment units, surveyed in 1995 and 2000, as part of the National Drug Abuse Treatment System Survey (NDATSS). The NDATSS is a longitudinal study of OSAT units conducted by the Institute for Social Research, University of Michigan. In the NDATSS, an OSAT unit is formally 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. Programs run by the Veteran's Administration and by correctional facilities are excluded from the sample.

The sampling method and procedures of the NDATSS have been described previously (Heeringa 1996; Adams and Heeringa 2001). Briefly, the NDATSS uses a mixed panel design, which combines elements from panel and cross-sectional designs (Heeringa 1996; Adams and Heeringa 2001). Data are collected from the same national sample of outpatient drug abuse treatment units that have been sampled and screened as part of prior waves of the study. These panel units are refreshed at subsequent waves by a new group of randomly selected OSAT units. After screening and nonresponse, the fourth wave of the NDATSS (Wave 4) included 618 units, with a response rate of 88 percent. There were 571 units from the fifth wave of the NDATSS (Wave 5) used in this study, with a response rate of 89 percent.

Data Collection

The NDATSS is a telephone survey of the administrative director and clinical supervisor at each OSAT unit. Unit directors provided information concerning the unit's ownership, funding, affiliation with other organizations, accreditation, parent organizations, and managed care arrangements. Clinical supervisors provided information about administrative and clinical staff, client characteristics, core treatment practices, treatment protocols, and ancillary services.

Several procedures were employed to produce reliable and valid data. Two pretests were performed for each study wave. Intensive interviewer training on the survey instruments was conducted, and interviewers were provided written definitions for the survey items. Interviewers used frequent probes and follow-up questions. Extensive checks for consistency within and between sections of the survey instrument were conducted on key variables (i.e., numbers of clients and number of treatment hours provided). These

checks indicated high levels of consistency. When necessary, respondents were re-contacted for clarification.

MEASURES

Specifications of the variables' measurement are contained in Table 1. The dependent variables measure the adoption and implementation of gynecological exams, contraceptive counseling, prenatal care, physical exams, mental health care, and HIV testing. These were reported by the clinical supervisor.

Two levels of measurement were analyzed for each service: (1) whether or not the unit offers the service (adoption) and (2) of the units which offer the service, the percentage of clients at the unit that actually receive this service (implementation). A definition of adoption includes whether the unit provides the service on-site or through referral to outside organizations.

Five measures represent resource dependency: the percentage of government funding, receipt of funding for women's programs, the percentage of female clients at the unit, cost-based competition, and the percentage of managed care clients.

Institutional norms are characterized by six variables: ownership, affiliation, accreditation, methadone modality, staffing characteristics, and traditional ideology. Ownership is represented by private for-profit and not-for-profit variables, with public as the referent. Affiliation is measured as OSAT unit affiliation with a hospital, mental health center, or other organization, with freestanding as the referent. Accreditation indicates JCAHO accreditation. Methadone modality indicates whether or not a unit provides methadone treatment. Staffing characteristics include three measures: (1) whether the director of the unit is female; (2) the percentage of staff that are female; and (3) the percentage of staff that received training to work with women. Finally, traditional ideology is indicated by the clinical supervisor's rating of the effectiveness of 12-step programs.

Several variables that present alternative explanations for variation in service delivery are included in the multivariate models to control for potential confounding. Previous research has shown the internal resources of an OSAT unit will affect its ability to offer services (D'Aunno and Vaughn 1995; Friedmann, Alexander, and D'Aunno 1999). OSAT unit size, a more severe client population (unemployed clients, African-American clients, dually diagnosed clients), average client age, and unit age offer alternative explanations for

Table 1: Study Measures

Concept	Type of Measure			Source
	Measure	First Level	Second Level	
<i>Dependent variables</i> Health services	Regular gynecological exams	Did unit offer service? (yes = 1, no = 0)	Percentage of clients received services	Supervisor
	Contraceptive counseling	Did unit offer service? (yes = 1, no = 0)	Percentage of clients received services	Supervisor
	Prenatal care	Did unit offer service? (yes = 1, no = 0)	Percentage of clients received services	Supervisor
	Physical exams	Did unit offer service? (yes = 1, no = 0)	Percentage of clients received services	Supervisor
	Mental health care	Did unit offer service? (yes = 1, no = 0)	Percentage of clients received services	Supervisor
	HIV testing	Did unit offer service? (yes = 1, no = 0)	Percentage of clients received services	Supervisor
<i>Independent variables</i> Resource dependence	Female clients	Percentage of all clients	NA	Supervisor
	Perceived cost-based competition	Scale of 1 to 5 (1 = none; 5 = a great extent)	NA	Director
	Percentage of managed care clients	Percentage of all clients	NA	Director
	Percentage of government funding	Percentage of all funding	NA	Director
	Funding for women's programs	Private funds comprise the remainder Dichotomous (yes = 1; no = 0)	NA	Director
Institutional theory Ownership	Private for-profit	Dichotomous (yes = 1; no = 0)	NA	Director
	Private not-for profit	Dichotomous (yes = 1; no = 0)	NA	Director
	Public (referent)		NA	

continued

Table 1: *Continued*

Concept	Measure	Type of Measure		
		First Level	Second Level	Source
Affiliation	Hospital	Dichotomous (yes = 1; no = 0)	NA	Director
	Mental health center	Dichotomous (yes = 1; no = 0)	NA	Director
	Other	Dichotomous (yes = 1; no = 0)	NA	Director
	Freestanding (referent)		NA	
Accreditation	JCAHO	Dichotomous (yes = 1; no = 0)	NA	Director
	Methodone	Dichotomous (yes = 1; no = 0)	NA	Supervisor
	Female director	Dichotomous (yes = 1; no = 0)	NA	Director
	Percentage of female treatment staff	Percentage of all clients	NA	Director
Traditional ideology	Percentage of staff trained to work with women	Percentage of treatment staff	NA	Supervisor
	Twelve-step effectiveness	Scale of 1 to 5 (1 = not effective; 5 = very effective)	NA	Supervisor
Control variables				
Unit variables				
Size	FTEs	# of full-time equivalent staff	NA	Director
Client need	Percentage of African-American clients	Percentage of all clients	NA	Supervisor
	Percentage of dual diagnosed clients	Percentage of all clients	NA	Supervisor
	Percentage of unemployed	Percentage of all clients	NA	Supervisor
	Client age	Average age of clients in recent fiscal year	NA	Supervisor
Unit age	Unit age	Years unit in operation	NA	Director
Referrals	Percentage of clients referred	Average percentage of clients referred from other treatment units, mental health centers, general health sector, EAPs	NA	Director
Environmental variables				
Managed care presence	HMO penetration in county		NA	ARF

The number of HMO enrollees divided by the total county pop. Source was the 1998 Area Resource File			
State policies	Punitive legal environment for pregnant drug users Women-friendly health policies	Dichotomous (punitive = 1, nonpunitive = 0) Number of female-friendly health policies	NA NA
Urbanicity	Degree of Medicaid managed care risk	Scale from 1 to 4 (FFS = 1; completely managed = 4)	NA
	Urban locale	Unit is located in an area of at least 1 million (yes = 1; no = 0). Source is 1995 rural-urban continuum codes from U.S. Dept. of Agriculture	NA ARF

Women's Health Law Project
Nat'l Women's Law Center
NASHP
ARF

¹A "1" indicates that: (1) the state has mandated the reporting of prenatal substance exposure to child protection authorities; (2) parental rights have been terminated because of prenatal substance abuse; or (3) prenatal substance abuse has been criminalized. A "0" indicates that a state has taken no legal action at all, or has engaged in a public health approach. The latter approach includes creating and/or funding treatment programs, or giving priority access to treatment for substance abuse to pregnant women (applies to Medicaid enrollees only). The definition of this measure is based on consultation with Peter Jacobson, J.D., M.P.H. (Zellman, Jacobson, and Bell 1997).

²This measure is based on a comprehensive national report on health policies, "Making the Grade on Women's Health: A National and State-by-State Report Card, 2001," conducted by the National Women's Law Center. Five measures were chosen that would indicate the generosity of state health policies for women: (1) Medicaid coverage at 200 percent of the poverty level; (2) presumptive Medicaid coverage for pregnant women; (3) application for a waiver to provide family planning services to Medicaid clients; (4) state funding for abortion; and (5) a state requirement that private insurers cover annual mammograms and breast cancer screening. These measures were based on 2000 data, with the exception of the family planning waivers, which reflects 2001 data. These measures were summed to make a count variable of the number of women-friendly health policies in the state, and ranges from 1 to 5.

³This was an ordinal measure that indicated the degree of managed care in a state's Medicaid program. Each state's Medicaid program is classified as one of the following: (1) strictly fee-for-service; (2) primary care case management (PCCM), a form of managed care; (3) both PCCM and risk-based; or (4) completely managed (all risk-based) (Lemak, Alexander, and D'Aunno 2001). The source for these data are 1996 and 2000 reports from the NASHP on state Medicaid managed care activity (NASHP 1996; National Academy for State Health Policy 2001).

JCAHO, Joint Commission on Accreditation of Healthcare Organizations; EAP, Employee Assistance Programs; NASHP, National Academy for State Health Policy; ARF, Area Resource File; HMO, health maintenance organization; FFS, Fee-for-service; NA, not applicable.

service adoption and implementation (D'Aunno and Vaughn 1995; Friedmann, Alexander, and D'Aunno 1999). The percentage of referrals from providers and other organizations with more managed care clients reflects the treatment units' experience with managed care (Lemak, Alexander, and D'Aunno 2001).¹

Environmental conditions that offer alternative explanations for the adoption and implementation include: women-friendly health policies in the state; punitive state policy towards the treatment of drug-dependent women (Zellman, Jacobson, and Bell 1997); urban locale (D'Aunno and Vaughn 1995); county managed care penetration (Lemak, Alexander, and D'Aunno 2001); and Medicaid managed care risk (Lemak, Alexander, and D'Aunno 2001).

DATA ANALYSIS

The analysis focuses on the main effects of study predictors on a series of dependent variables representing the adoption and implementation of services for women in OSAT programs. For the purposes of hypothesis testing, two types of regression analyses were conducted for each service.² First, we conducted logistic regression using generalized estimating equations (GEEs)³ on the pooled 1995 and 2000 samples ($n = 1,188$) for the dichotomous service variables (adoption).

Second, Heckman sample selection models were run for variables reflecting the percentage of clients receiving a service (implementation). Concerns about selection bias arise as the research questions and corresponding analyses are concerned with only those units in which the service is available. Because those units that offer these services were nonrandomly selected (i.e., selection may be based on other factors, such as ownership) from the whole population, coefficient (coef.) estimates based on only these units were likely to be biased and inconsistent (Winship and Mare 1992; Breen 1996). Therefore, Heckman sample selection models were conducted in *STATA*.^{4,5} Missing data were multiply imputed.⁶ When the dependent variable had a skewed distribution, logarithms were taken.

DESCRIPTIVE RESULTS

The adoption of regular gynecological exams decreased from 44 percent of units in 1995 to 35 percent of units in 2000. The adoption of contraceptive

counseling services by units was essentially unchanged from 1995 to 2000 (36 versus 39 percent), as was the adoption of prenatal care (35 versus 34 percent).

The percentage of units that had adopted physical exams was high (80 percent in 1995 and 78 percent in 2000). The percentage of OSAT organizations that had adopted mental health care was even higher (86 percent in 1995 and 87 percent in 2000). The percentage of units that adopted HIV testing reached 63 percent in 1995 and 2000.

The percentage of clients that received regular gynecological exams was consistent between 1995 and 2000 (37 versus 36 percent). The percentage of clients that received contraceptive counseling services increased from 36 percent in 1995 to 54 percent in 2000. The percentage of clients that received prenatal care also increased from 16 percent in 1995 to 28 percent in 2000.

The percentage of clients that received physical exams was 54 percent in both years. In 2000, 29 percent of clients received mental health care, similar to 1995 (28 percent). The percentage of clients that received HIV testing decreased from 36 percent in 1995 to 31 percent in 2000.

RESULTS OF HYPOTHESIS TESTING

Table 2 shows the odds ratios (ORs) and 95% confidence intervals for the adoption of services, while Table 3 presents the results for implementation. Results for the resource dependence hypotheses are presented first, followed by the results for the institutional hypotheses, and then for the time effects.

Hypothesis support for predictors was based on the number of significant associations with dependent variables, holding constant other variables in the model. Significant, predicted associations with a majority (four) of the seven women's services examined are considered strong support for corresponding hypotheses. Significant associations for three of the services are considered modest support. A significant association with only one service within a category is considered weak support. For the implementation of services, a significant effect in either year is counted in support of the hypothesis.

Hypotheses for the receipt of funding for women's programming were strongly supported, with significant, positive associations for the adoption of almost all services. The strongest relationships were seen for regular gynecological exams and prenatal care, with the odds of adopting these services being twice as high in a unit that received this funding ($p < .001$).

Likewise, there was strong support for women's program funding and the implementation of services. The receipt of funding for women's programs

Table 2: GEE Logistic Regression of Adoption of Reproductive Services, Pooled Dataset

Variable	Reg. Gynec. Exams		Prenatal Care		Contraceptive		Physical Exams		HIV Testing		Mental Health Care	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Female clients	0.99	(0.92, 1.06)	1.04	(0.96, 1.13)	0.97	(0.89, 1.05)	0.92	(0.85, 1.01) [^]	0.99	(0.91, 1.06)	0.94	(0.86, 1.04)
Government funds	1.06	(1.01, 1.11) [*]	1.06	(1.00, 1.12) [*]	1.05	(0.99, 1.10) [^]	0.99	0.93, 1.05)	1.01	(0.96, 1.07)	1.03	(0.96, 1.10)
Competition	1.10	(0.94, 1.29)	1.23	(1.05, 1.43) ^{***}	1.04	(0.89, 1.22)	1.07	(0.88, 1.32)	1.00	(0.84, 1.19)	1.33	(1.06, 1.67) [*]
Managed care	1.04	(0.95, 1.13)	1.04	(0.95, 1.14)	1.09	(0.99, 1.18) [^]	1.02	(0.92, 1.12)	1.01	(0.93, 1.09)	1.03	(0.91, 1.17)
Womens' funds	1.96	(1.37, 2.80) ^{***}	2.04	(1.42, 2.96) ^{***}	1.53	(1.08, 2.16) [*]	1.79	(1.07, 3.00) [*]	1.55	(1.05, 2.30) [*]	1.61	(0.87, 2.98)
Private for-profit [†]	0.97	(0.54, 1.75)	0.91	(0.50, 1.65)	0.91	(0.50, 1.68)	0.43	(0.21, 0.85) [*]	0.29	(0.16, 0.53) ^{***}	0.62	(0.28, 1.37)
Private not-for-profit [‡]	1.75	(1.20, 2.54) ^{***}	1.45	(1.01, 2.08) [*]	1.41	(0.97, 2.05) [^]	0.65	(0.40, 1.05) [^]	0.82	(0.55, 1.23)	0.82	(0.46, 1.49)
Hospital [‡]	1.73	(0.99, 3.03) [^]	1.48	(0.81, 2.72)	1.77	(0.96, 3.27) [^]	1.48	(0.65, 3.37)	1.24	(0.67, 2.31)	1.28	(0.57, 2.89)
Mental health center [‡]	1.04	(0.65, 1.67)	0.99	(0.62, 1.59)	1.36	(0.85, 2.19)	0.64	(0.38, 1.07) [^]	0.86	(0.53, 1.37)	2.30	(1.06, 5.01) [*]
Other [‡]	1.20	(0.84, 1.70)	1.35	(0.94, 1.93)	1.33	(0.92, 1.91)	1.32	(0.87, 2.03)	1.11	(0.78, 1.57)	1.13	(0.71, 1.78)
JCAHO	0.87	(0.58, 1.31)	0.81	(0.52, 1.26)	0.59	(0.37, 0.95) [*]	2.02	(1.11, 3.67) [*]	1.18	(0.75, 1.87)	1.53	(0.82, 2.83)
Methadone	2.77	(1.77, 4.33) ^{***}	1.95	(1.24, 3.07) ^{***}	2.52	(1.62, 3.93) ^{***}	5.77	(2.55, 13.07) ^{***}	3.08	(1.70, 5.60) ^{***}	1.58	(0.85, 2.97)
Female director	1.05	(0.77, 1.42)	1.04	(0.73, 1.47)	0.87	(0.66, 1.14)	0.93	(0.64, 1.36)	0.97	(0.70, 1.34)	0.84	(0.57, 1.23)
Staff training	1.08	(1.05, 1.12) ^{***}	1.07	(1.04, 1.11) ^{***}	1.12	(1.08, 1.16) ^{***}	1.07	(1.02, 1.12) ^{***}	1.04	(1.01, 1.08) [*]	1.08	(1.02, 1.14) ^{***}
Female Tx. staff	1.02	(0.89, 1.01)	1.02	(0.97, 1.08)	1.02	(0.97, 1.08)	0.95	(0.89, 1.01) [^]	1.01	(0.96, 1.07)	1.01	(0.94, 1.08)
AA effectiveness	0.97	(0.83, 1.12)	0.88	(0.76, 1.03)	0.90	(0.76, 1.06)	0.94	(0.78, 1.14)	0.91	(0.77, 1.07)	0.97	(0.79, 1.20)
FTEs	1.19	(1.01, 1.41) [*]	1.31	(1.08, 1.59) ^{***}	1.53	(1.26, 1.86) ^{***}	1.52	(1.24, 1.86) ^{***}	1.52	(1.28, 1.81) ^{***}	1.48	(1.19, 1.83) ^{***}
Dual diagnosis	1.01	(0.96, 1.07)	1.02	(0.96, 1.08)	1.03	(0.97, 1.10)	1.08	(1.00, 1.17) [^]	1.00	(0.94, 1.06)	1.18	(1.05, 1.32) ^{***}
Unemployed	1.04	(0.98, 1.10)	1.05	(0.99, 1.12)	1.03	(0.97, 1.10)	1.05	(0.97, 1.13)	1.04	(0.97, 1.11)	0.97	(0.88, 1.08)
African American	1.01	(0.96, 1.07)	1.00	(0.94, 1.06)	1.00	(0.94, 1.06)	0.99	(0.92, 1.06)	1.02	(0.96, 1.08)	1.02	(0.93, 1.11)
Client age	0.95	(0.72, 1.26)	1.10	(0.82, 1.48)	0.71	(0.53, 0.95) [*]	1.05	(0.77, 1.44)	1.47	(1.13, 1.92) ^{***}	0.90	(0.61, 1.32)
Managed care referrals	1.04	(0.97, 1.12)	1.01	(0.94, 1.09)	1.02	(0.94, 1.09)	1.07	(0.98, 1.18)	1.10	(1.02, 1.20) [*]	1.08	(0.97, 1.21)
HMO penetration	1.08	(1.00, 1.16) [*]	1.02	(0.95, 1.10)	1.00	(0.93, 1.09)	1.04	(0.94, 1.15)	1.06	(0.98, 1.16)	1.02	(0.92, 1.13)

Urbanicity	0.83	(0.59, 1.16)	0.83	(0.59, 1.17)	0.86	(0.61, 1.22)	0.82	(0.55, 1.24)	1.21	(0.86, 1.71)	0.81	(0.94, 1.08)
Punitive environment	1.03	(0.75, 1.42)	1.31	(0.94, 1.82)	1.10	(0.80, 1.52)	0.90	(0.61, 1.33)	1.23	(0.87, 1.75)	1.01	(0.66, 1.55)
Womens' health policy	0.99	(0.90, 1.10)	1.02	(0.92, 1.13)	0.99	(0.89, 1.10)	1.02	(0.90, 1.15)	0.99	(0.89, 1.11)	0.99	(0.86, 1.14)
Unit age	1.07	0.90, 1.27)	1.10	(0.93, 1.32)	0.98	(0.82, 1.17)	0.97	(0.78, 1.20)	0.93	(0.77, 1.13)	1.15	(0.90, 1.47)
Medicaid risk	0.70	(0.55, 0.88)**	0.77	(0.61, 0.97)*	0.70	(0.56, 0.88)**	0.99	(0.74, 1.31)	0.72	(0.56, 0.93)*	0.88	(0.62, 1.25)
Year 2000	0.88	(0.66, 1.16)	1.18	(0.88, 1.157)	1.50	(1.11, 2.02)**	0.94	(0.65, 1.34)	1.32	(0.98, 1.78)^	1.04	(0.70, 1.54)

[†]Public is referent.

[‡]Freestanding is referent.

[^] $p < .01$,

^{*} $p < .05$,

^{**} $p < .01$,

^{***} $p < .001$.

OR, odds ratio; CI, confidence interval; GEE, generalized estimating equation; reg. gyne., regular gynecological; JCAHO, Joint Commission on Accreditation of Healthcare Organizations; AA, Alcoholics Anonymous; FTE, Full time equivalent; HMO, health maintenance organization.

Table 3: Implementation of Women's Services

Predictor	Physical Exams				Mental Health			
	Wave 4		Wave 5		Wave 4		Wave 5	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Female clients	0.054	0.091	0.029	0.087	0.004	0.004	0.007	0.002***
Government funding	0.055	0.059	0.028	0.068	0.000	0.003	-0.001	0.002
Competition	-0.631	1.749	-0.970	1.889	-0.034	0.065	0.002	0.042
Managed care	0.240	0.101*	-0.034	0.101	0.000	0.002	0.000	0.002
Women's funds	-9.536	3.538**	-0.506	4.277	-0.018	0.114	-0.015	0.099
PPF [†]	-3.668	6.907	-5.137	6.194	-0.162	0.180	-0.133	0.145
PNFP [‡]	-1.342	3.485	-0.325	4.203	0.012	0.088	0.032	0.098
Hospital [§]	-1.821	5.611	15.040	6.688*	-0.225	0.221	-0.150	0.151
Mental health center [§]	-10.378	4.918*	-6.783	5.426	0.090	0.163	0.047	0.112
Other [§]	-8.388	3.878*	-0.401	3.930	-0.048	0.156	-0.040	0.088
JCAHO	11.444	4.594*	-0.846	4.421	0.238	0.170	0.170	0.107
Methadone	28.892	4.496***	43.255	5.126***	-0.286	0.121*	-0.014	0.101
Female director	0.226	3.239	-0.614	3.531	0.036	0.076	0.017	0.082
Staff training	-0.003	0.042	0.109	0.042**	-0.001	0.003	-0.001	0.001
Female Tx. staff	-0.086	0.064	-0.176	0.062**	0.001	0.002	0.002	0.002
AA effectiveness	-1.505	1.680	0.910	1.826	-0.034	0.048	0.075	0.048
FTEs	-1.114	2.113	-5.072	2.102*	0.011	0.110	0.016	0.043
Dual diagnosis	-0.054	0.069	-0.007	0.066	0.021	0.005***	0.022	0.002***
Unemployed	0.269	0.073***	0.196	0.080*	-0.003	0.003	0.001	0.002
African American	0.086	0.063	0.045	0.070	-0.002	0.002	0.000	0.002

	HIV Testing					Contraceptive Counseling				
	Wave 4		Wave 5			Wave 4		Wave 5		
	Heckman [†]		Heckman [†]			Heckman [†]		Heckman [†]		
	Coef.	SE	Coef.	SE		Coef.	SE	Coef.	SE	
Client age	0.535	0.321 [^]	0.278	0.294		0.010	0.009	0.013	0.007 [^]	
Managed care referrals	0.099	0.076	0.208	0.095*		0.006	0.003 [^]	0.003	0.002	
HMO penetration	0.046	0.066	0.189	0.121		0.000	0.002	-0.002	0.003	
Urbanicity	4.944	3.885	-2.049	4.178		0.037	0.102	-0.013	0.094	
Punitive environment	-8.662	3.573*	-4.176	3.825		0.109	0.084	-0.003	0.090	
Women's health policy	0.954	1.104	0.131	1.139		0.009	0.045	0.017	0.029	
Unit age	-0.328	0.204	-0.493	0.194*		-0.001	0.008	0.002	0.004	
Medicaid risk	-0.123	2.917	-4.082	2.938		-0.034	0.065	0.027	0.066	
Constant	34.372	18.324 [^]	48.171	17.035**		1.967	1.265	0.985	0.414*	
Athrho	-0.398	0.162	-0.339	0.172		-0.180	2.261	0.070	0.070	
Rho	-0.378	0.139	-0.327	0.154		-0.169	1.821	0.070	0.069	
Lambda	-11.796	4.515	-10.152	5.011		-0.137	1.547	0.054	0.054	
Predictor	HIV Testing					Contraceptive Counseling				
	Wave 4		Wave 5			Wave 4		Wave 5		
	Heckman [†]		Heckman [†]			Heckman [†]		Heckman [†]		
	Coef.	SE	Coef.	SE		Coef.	SE	Coef.	SE	
Female clients	0.041	0.111	0.003	0.004		0.008	0.005	-0.011	0.177	
Government funding	0.112	0.063 [^]	0.003	0.003		-0.003	0.003	-0.041	0.147	
Competition	-0.515	2.133	0.111	0.087		-0.121	0.097	4.135	3.345	
Managed care	-0.039	0.101	-0.005	0.004		0.003	0.005	-0.174	0.156	
Women's funds	-0.037	4.214	-0.053	0.186		-0.198	0.208	-5.326	8.524	
PFF [‡]	7.581	8.397	-0.369	0.290		-0.496	0.555	-0.489	13.563	
PNFF [‡]	-0.557	4.676	0.090	0.197		0.053	0.195	-13.269	10.458	
Hospital [§]	4.284	6.849	0.048	0.284		-0.069	0.401	-5.435	12.894	
Mental health center [§]	-5.829	5.979	-0.209	0.254		-0.044	0.330	-6.375	9.561	
Other [§]	-2.473	5.037	-0.016	0.170		0.211	0.251	-7.702	7.108	
JCAHO	-3.798	5.237	-0.092	0.208		0.184	0.383	-7.114	9.393	

continued

Table 3: Continued

Predictor	HIV Testing				Contraceptive Counseling			
	Wave 4		Wave 5		Wave 4		Wave 5	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Methodone	17.387	5.828**	1.129	0.223***	0.258	0.228	22.230	20.591
Female director	-3.134	3.656	0.123	0.168	-0.257	0.160	0.359	7.107
Staff training	0.067	0.051	0.002	0.002	0.007	0.003**	-0.073	0.154
Female Tx. staff	-0.049	0.084	0.000	0.003	-0.004	0.004	-0.216	0.123 [^]
AA effectiveness	-3.059	2.106	0.145	0.079 [^]	-0.195	0.100*	7.674	3.759*
FTEs	-5.742	2.570*	-0.045	0.087	0.221	0.107*	-0.768	5.290
Dual diagnosis	-0.032	0.086	-0.003	0.003	-0.006	0.004	0.165	0.134
Unemployed	0.235	0.084**	0.004	0.003	0.008	0.004*	0.216	0.150
African American	0.164	0.081*	0.004	0.003	0.002	0.004	0.186	0.132
Client age	0.493	0.377	-0.008	0.015	0.005	0.018	-0.320	0.837
Managed care referrals	-0.077	0.095	0.004	0.004	0.001	0.005	-0.039	0.165
HMO penetration	0.080	0.082	0.007	0.006	0.002	0.004	0.177	0.214
Urbanicity	-0.378	4.195	-0.040	0.190	-0.032	0.215	-12.351	6.854 [^]
Punitive environment	1.550	4.146	0.189	0.172	-0.020	0.202	6.948	6.861
Women's health policy	0.244	1.236	0.005	0.057	0.041	0.065	5.046	2.232*
Unit age	-0.095	0.261	-0.012	0.008	-0.007	0.011	-0.700	0.377 [^]
Medicaid risk	-2.065	2.766	-0.469	0.142***	-0.206	0.128	-2.196	10.398
Constant	32.463	21.940	2.395	0.818**	3.265	1.036	48.981	45.042
Athrho	-0.343	0.166	-0.107	0.226	-0.022	0.118	-0.421	0.982
Rho	-0.330	0.148	-0.107	0.224	-0.022	0.118	-0.373	0.912
Lambda	-10.843	5.100	-0.130	0.275	-0.026	0.137	-14.220	33.183

Predictor	Regular Gynecological Exam				Prenatal Care			
	Wave 4		Wave 5		Wave 4		Wave 5	
	Tobit [¶]		Heckman [†]		Tobit [¶]		Heckman [†]	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Female clients	0.000	0.003	-0.003	0.005	0.006	0.002**	0.006	0.005
Government funding	0.001	0.002	-0.002	0.004	0.002	0.001	0.003	0.005
Competition	0.019	0.062	-0.063	0.100	0.084	0.041*	0.061	0.121
Managed care	0.003	0.003	0.008	0.006	0.002	0.002	-0.001	0.005
Women's funds	0.370	0.125**	0.285	0.216	0.263	0.080***	0.645	0.285*
PFP [‡]	-0.199	0.264	-0.200	0.424	-0.152	0.179	-1.565	0.454***
PNFP [‡]	0.176	0.132	0.278	0.278	0.072	0.084	-0.814	0.339*
Hospital [§]	0.639	0.217**	0.475	0.438	0.308	0.143*	0.182	0.583
Mental health center [§]	0.192	0.180	-0.122	0.337	0.083	0.118	-0.424	0.385
Other [§]	0.273	0.145 [^]	0.485	0.216*	0.228	0.094*	-0.131	0.238
JCAHO	-0.249	0.171	0.345	0.299	-0.092	0.112	0.182	0.345
Methadone	0.788	0.169***	0.846	0.261***	0.335	0.107**	0.466	0.354
Female director	-0.118	0.110	0.097	0.187	0.033	0.072	0.031	0.260
Staff training	0.005	0.001***	0.001	0.003	0.003	0.001**	0.002	0.003
Female Tx. staff	0.001	0.002	-0.004	0.004	0.001	0.001	-0.003	0.004
AA effectiveness	-0.118	0.061 [^]	0.125	0.120	-0.109	0.040**	-0.063	0.124
FTEs	0.154	0.075*	-0.141	0.113	0.076	0.047	-0.076	0.146
Dual diagnosis	-0.001	0.003	0.007	0.004 [^]	-0.002	0.002	0.002	0.005
Unemployed	0.005	0.003*	0.011	0.005*	0.002	0.002	-0.006	0.005
African American	0.001	0.002	-0.003	0.004	0.002	0.001	0.000	0.005
Client Age	-0.009	0.011	-0.004	0.018	-0.001	0.007	-0.035	0.022

continued

Table 3: Continued

Predictor	Regular Gynecological Exam				Prenatal Care			
	Wave 4		Wave 5		Wave 4		Wave 5	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Managed care referrals	0.004	0.003	0.007	0.005	0.001	0.002	0.004	0.006
HMO penetration	0.004	0.002 [^]	0.000	0.007	0.001	0.002	0.004	0.009
Urbanicity	-0.063	0.131	-0.002	0.210	-0.093	0.085	0.046	0.288
Punitive Env.	0.140	0.128	-0.251	0.205	0.191	0.083*	-0.269	0.247
Women's health policy	-0.028	0.040	0.120	0.064 [^]	0.014	0.026	0.054	0.076
Unit age	-0.002	0.007	-0.010	0.011	0.001	0.005	-0.018	0.013
Medicaid risk	-0.192	0.089*	0.061	0.154	-0.082	0.058	-0.038	0.206
Constant	-0.394	0.582	1.395	1.048	-0.926	0.386	3.942	1.488**
Athrho	NA		0.057	0.147	NA		-0.248	0.288
Rho			0.057	0.147			-0.243	0.271
Lambda			0.065	0.169			-0.305	0.357

[^]OLS coefficients from 2nd stage of Heckman models.

[†]Public is referent.

[§]Freestanding is referent.

^{*}Uncensored marginal effects from Tobit Regression.

[^] $p < .10$,

^{*} $p < .05$,

^{**} $p < .01$,

^{***} $p < .001$.

PFT, Private for-profit; PNFP, Private not-for-profit; JCAHO, Joint Commission on Accreditation of Healthcare Organizations; AA, Alcoholics Anonymous; FTE, Full time equivalent; HMO, health maintenance organization; coef., coefficient; NA, not applicable.

was significant and positively related to the implementation of prenatal care for Wave 4 (coef. = 0.263, $p < .01$) and Wave 5 (coef. = 0.645, $p < .05$) and for the implementation of regular gynecological exams in Wave 4 (coef. = 0.370, $p < .01$).

We proposed that dependence on government funding would be positively related to adoption and implementation. There was modest support for adoption, with this measure exhibiting a significant, positive relationship with the adoption of gynecological exams (OR: 1.06, $p < .05$), prenatal care (OR: 1.06, $p < .05$), and contraceptive counseling (OR: 1.05, $p < .10$). However, there was only weak support for service implementation, with a marginally significant, positive relationship with the implementation of HIV testing (coef. = 0.112, $p < .10$) in Wave 4.

Dependence on female clients was expected to be positively related to adoption and implementation of services. There was no support for adoption but modest support for implementation, with two significant, positive associations: prenatal care in Wave 4 (coef. = 0.006, $p < .01$) and mental health services in Wave 5 (coef. = 0.007, $p < .001$).

There was no support for the cost-based competition or managed care hypotheses.

There was strong support for the hypothesis that methadone modality would be positively associated with the adoption and implementation of women's services. Methadone units showed significant, positive associations with the adoption of reproductive services, as well as physical exams and HIV testing. Methadone units demonstrated higher implementation of regular gynecological exams for both waves and prenatal care in at least one study year. These units also had higher implementation of physical exams and HIV testing in both years.

The percentage of staff trained to work with women was hypothesized to be positively associated with the adoption and implementation of health services for women, and this was strongly supported. This measure showed significant, positive relationships with the adoption of all services. In Wave 4, units with a higher percentage of staff trained to work with women had higher implementation of all services. In Wave 5, this measure was positively associated with the implementation of physical exams (coef. = 0.109, $p < .05$).

Private not-for-profit OSAT units showed a greater likelihood of adopting all reproductive services, showing strong support for our hypotheses. However, private not-for-profit ownership showed a significant, negative association with the implementation of prenatal care only in Wave 5, contrary to our prediction (coef. = -0.814, $p < .05$).

We proposed that private for-profit ownership would be negatively associated with the adoption and implementation of health services for women, and this was weakly supported. Private for-profit ownership had no relationship to reproductive services, but was significantly, negatively associated with the adoption of physical exams (OR: 0.43, $p < .05$) and HIV testing (OR: 0.29, $p < .01$). In Wave 5, private for-profit ownership demonstrated a significant, negative association with the implementation of prenatal care (coef. = -1.565 , $p < .001$).

There was modest support for our hypothesis that hospital affiliation would be positively associated with the adoption and implementation of reproductive services, HIV testing, and physical exams. Hospital-affiliated units had positive associations with the adoption of gynecological exams (OR: 1.73, $p < .10$) and contraceptive counseling services (OR: 1.77, $p < .10$). Hospital-affiliated units also had positive associations with the implementation of physical exams in Wave 5 (coef. = 15.04 , $p < .05$), regular gynecological exams in Wave 4 (coef. = 0.639 , $p < .01$), and prenatal care (coef. = 0.308 , $p < .05$).

Mental health center affiliation was expected to be positively associated with the adoption and implementation of mental health care and this was weakly supported. These units were significantly and positively associated with the adoption of mental health care (OR: 2.30, $p < .05$), and had a marginally significant, negative relationship with the adoption of physical exams (OR: 0.64, $p < .10$). Mental health-affiliated units had a significant, negative relationship to the implementation of physical exams (coef. = -10.38 , $p < .05$) but no association with the implementation of mental health care.

JCAHO accreditation was proposed to be positively associated with the adoption and implementation of women's services, but had only a significant, positive association with the adoption of physical exams (OR: 2.02, $p < .05$), and their implementation (coef. = 11.44 , $p < .05$).

The clinical supervisor's belief in the efficacy of the 12-step method showed no relationship to the adoption of services. But, in Wave 4, Alcoholic Anonymous (AA) effectiveness had significant, negative relationships with the implementation of all reproductive services.

There was weak support for the hypothesis that adoption of services would increase between 1995 and 2000. Contraceptive counseling showed a significant, positive association with the year 2000 (OR: 1.70, $p < .01$) and HIV testing had a marginally significant, positive association as well (OR: 1.32, $p < .10$).

There were no significant findings for female treatment staff or female director.

SUMMARY

Although results from the hypothesis testing were mixed, some general patterns did emerge. Units that depended on funding for women's programs were more likely to adopt services, although they did not always implement them. Likewise, units that had an increasing dependence on government funding were more likely to adopt, but not implement, services.

Units did not adopt services in response to the demands of female clients, but they were more likely to implement them. Contrary to predictions, competition and dependence on managed care did not discourage the provision of services, and even showed some significant positive associations with adoption and implementation.

Results showed that methadone units and units that have a higher percentage of staff trained to work with women were more likely to adopt and implement women's services. The results for ownership were generally consistent with study hypotheses. Overall, compared with public units, private not-for-profit units were more likely to adopt some services while private for-profit units less so. In general, neither for-profits nor not-for-profit units significantly implemented services.

Study results suggested that affiliated units were more likely to adopt and implement only those services that were aligned with the practice ideology of their parent organizations. JCAHO accreditation was only related to the provision of physical exams. Finally, the odds of adopting services were greater in 2000 than in 1995 for two services, but otherwise remained flat.

DISCUSSION

A drop in federal funding for services for women in substance abuse treatment during the 1990s raised the concern that the availability of these services would then decline (Chavkin et al. 1998; Drug Strategies 1998). However, multivariate results show that the adoption of women's services remained fairly stable from 1995 to 2000. This overall stability is consistent with findings for general ancillary services during the same time period (Friedmann et al. 2003). There were a few positive trends with regard to HIV testing and contraceptive counseling in 2000. While decreased federal funding has apparently not immediately translated into decreased adoption of services, it is possible that a reduction in service provision may lag behind cuts in government funding and that the effects have not yet become apparent. Our study would

not detect these changes if they appeared after 2000. Units may have been able to stretch their resources out through the study period to provide some of the services they began during a period when funding was more generous.

This study has shown that not all units have adopted or implemented important services for women. In fact, there is significant variation in the adoption of services, the type of services adopted, and in the implementation of services. The implications of this variation suggest that, in some settings, women may have restricted access to services.

Certainly not all OSAT organizations could or should provide these services themselves. However, efforts to encourage OSAT units to link with other organizations that provide ancillary services have been emphasized for some time (D'Aunno 1997). Results from this study suggest that referral networks for women's services may not be adequate, particularly for reproductive services. Government initiatives to develop and strengthen linkages for women's services should be undertaken, similar to the government efforts that focused on linking substance abuse treatment with primary care and HIV services (D'Aunno 1997). Efforts on the part of the OSAT units could include formalizing referral agreements, which research has found to increase linkages and coordination (Calloway et al. 2001). Other useful strategies in linking and coordinating services include case management and transportation assistance (Friedmann et al. 2000). Cross training with staff in other organizations may also help to strengthen linkages.

Other service providers may be reluctant to link with OSAT organizations because of the stigma associated with substance abuse. Educating other providers about the substance abuse population and the effectiveness of treatment may help overcome this. Emphasizing other compatible goals between organizations may also facilitate alliances. Although establishing referral mechanisms may be difficult for OSAT units, it is a critical strategy to improve access for these small organizations with limited resources.

OSAT organizations did adopt women's services in response to dependence on resources, but this varied by service and by type of resource. Financial inducements were key to making some level of women's services accessible. Government funding sources promoted the adoption of women's services, and OSAT units responded most to demands connected to funding specifically for women's programs.

The most obvious explanation for these findings is that the governmental funding policies of the late 1980s and 1990s made a significant impact on the delivery of women's services. This supports previous research showing government policy to be a source of change or innovation in human services

delivery (Hasenfeld 1983). Funding specific to women's programming shows the strongest and most consistent relationship with the adoption of all treatment services. Caution is advised in interpreting funding for women's programs, given that it is dichotomous, and therefore not indicative of changing levels of dependency. Even so, the measure was consistently predictive of adoption across reproductive and other health services.

If funds were not linked to the provision of specific women's services, OSAT units seemed less likely to adopt and implement them. For example, units with greater dependence on government funds were more likely to adopt prenatal care, a service that is specifically mentioned in block grant funding. This suggests that units may be most responsive when necessary resources are tied to specific demands. While providers have not necessarily favored this approach, this dynamic has been found in other drug abuse treatment research and has been called "money with strings attached" (IOM 1998).

The evidence for the lack of service implementation suggests a potential lack of access to some services, which is less visible to external observers because it is more subtle. This is not to suggest that OSAT units do not want to provide access to services for women, but they face conflicting expectations and limited resources. The decrease in federal funds may be related to lack of implementation. Adoption levels may have remained relatively stable, but units could be altering their levels of service implementation based on funding. Units not fully implementing services could well be the result of reduced funding, and should be monitored in the future.

Continued government funding appears critical to the provision of women's services, in particular monies designated specifically for women's programs. An important policy goal would be to increase that support. While this may be difficult given current federal and state budget situations, funding should at least not be reduced. Funding can also be structured such that it offers incentives for OSAT units to link with other organizations to provide services.

Women appear to have the greatest access to services in methadone units and in units that train staff to work with clients. Training staff to work with women may be one option to encourage implementation of services, and OSAT units should continue to use this strategy. Some caution is advised for this policy recommendation because of the potential of reverse causality. If units train staff as the result of adopting services, this suggests that an unmeasured construct is promoting units' initial adoption of these services. However, given the intuitive nature of this finding it is reasonable to suggest more widespread use of training. Future analyses will look at data from additional points in time to determine any reverse causality.

Although results suggest that regulation can be a very effective tool in encouraging adoption and implementation of service technology, it is unlikely to be popular. Providers do not like the constraints of regulation, and regulation may introduce other inefficiencies (IOM 1998). The fact that methadone units are moving to a JCAHO accreditation system demonstrates the field's dissatisfaction with the regulatory system. The new JCAHO accreditation system for methadone units should continue to monitor the provision of services relevant to women that were included in the federal standards for methadone units.

JCAHO accreditation did not indicate greater availability of most of the women's services. However, current JCAHO standards do not make specific recommendations for these services. Accreditation was effective for the provision of physical exams, which suggests that JCAHO accreditation may be useful if its criteria were broadened to include more women's services. Accreditation could also attract other organizations to referral networks, and could identify to clients and payers those units that provide women's services. The inclusion of women's services in JCAHO accreditation standards could be an effective mechanism for improving access and could be piloted in a draft form of standards.

Private not-for-profit units were more likely to adopt reproductive services than public units. However, this was not true for nonreproductive services. Because reproductive services are specialized, ancillary services relevant to only part of the clinic population, units may consider them more peripheral relative to core substance abuse rehabilitation services provided to the majority of clients (e.g., group therapy). Because of market pressures, private not-for-profit units may be more innovative than public units in offering specialized services to meet needs in the population. They may also have more of a market (i.e., paying clients) to justify offering such services. Conversely, public units may be more subject to governmental oversight and funding constraints, which may restrict their ability to provide a full range of ancillary services.

STUDY LIMITATIONS

The nature of the data from the NDATSS suggests caution in generalizing study results. Because the unit of analysis in the NDATSS is the OSAT unit, service use is an aggregate measure reported by the clinical supervisor and is not reported from client-level data. This may not be ideal to assess service utilization, but we feel it is reasonable to use the supervisor's report as a measure of organizational response in the adoption and implementation of services.

There is still the possibility of bias if respondents are overestimating service provision because of social desirability or in order to gain resources.

The validity of these unit-level data has been assessed with previous waves of the data. The 1990 NDATSS data were compared with the Drug Services Research Study (DSRS), an independent national study of treatment units and clients conducted in 1990 (Batten et al. 1993). The DSRS abstracted the charts of 2,200 drug treatment clients. There was a close correspondence between the NDATSS and DSRS for several measures, including average treatment duration (6.1 versus 6.0 months), mean number of current clients (100 versus 101) and the number of treatment staff (8.2 versus 8.2). These comparisons support the validity of the NDATSS administrators' unit-level reports, although reports of service delivery were not specifically examined.

Nonetheless, we acknowledge that these unit-level data may overestimate absolute levels of service delivery. However, the modest reports of service of adoption and implementation suggest that respondents are willing to provide unflattering information about their units.

The issue of reverse causality cannot be fully explored with these data. It is possible that units that offer certain services attract certain resources. However, the subanalyses of reverse causality for the percentage of female clients, percentage of female staff, and the percentage of staff trained to work with women did not indicate this was an issue. It is also possible that units may report greater service in response to incentives from funding agencies. In order to explore the issue further, we conducted subanalyses to examine how units with a majority of government funding (> 50%) adopted and implemented services over the study period. These units did not report any greater service provision in 2000. These analyses cannot answer the question regarding bias, so caution is still advised, but they do not suggest that units with a majority of government funding increased their reporting of service provision in order to gain funding. We have examined the associations between the predictors and services, but do not mean to imply cause and effect relationships. The literature suggests that government funding can stimulate innovation and promote change in human service provision (Hasenfeld 1983; McFarlane and Meier 1998), but we do not assume this to be the case.

Another caution is that the sample is not nationally representative and results are not generalizable to the nation's OSAT units. However, this is still a very large sample of OSAT units consisting of a variety of units with different organizational characteristics. Finally, it is difficult to say without client-level data what is an appropriate level of service delivery. Proxy measures that have been found to be reliable were included in the multivariate models, but these may not have adequately controlled for client mix.

FUTURE RESEARCH

Future research could explore the status of women's services in substance abuse treatment in several ways. Longitudinal studies are needed to track the trends in the adoption and implementation of this technology to see if access to services is changing. This is particularly critical in the current environment when states are facing budget deficits and cutting services.

While this study began to look at the adoption and implementation, more research needs to be done on the effectiveness of these services. A growing body of evidence that supports the need for these services may lead to increased diffusion.

These services can be interpreted as rather crude indicators of the actual female-sensitive environment at a unit. Studies have shown that the treatment environment may still not be female-sensitive, even though certain formal structures exist (Uziel-Miller and Lyons 2000). The majority of female drug users are treated in mixed-gender programs and it is vital to investigate how the atmosphere can be made responsive to women.

While this paper examined direct relationship of predictors to service adoption and implementation, future study is warranted to examine what factors may moderate or mediate these relationships. OSAT units operate in a complex environment where demands and pressures may conflict, and how these forces interact remains an interesting question.

A final research direction is to examine the networks that units have developed to link women to services. How these networks are developed, and how effective they are, remain important questions.

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NOTES

1. Some units of the 2000 NDATSS were not asked about women's services because they had been fielded a subset of study questions for another study. These units were more likely to be managed care units. To control for potential bias from the loss of these units, we included measures that were predictive of managed care participation.

2. We include several dependent variables in our analyses because we feel it is clinically meaningful to look at each service. Gender-sensitive treatment for women emphasizes the comprehensiveness of services to meet a variety of needs. Our model also includes several predictors. This raises the issue of relationships occurring by chance. The need for correcting for multiple tests has been debated (Rothman 1990; Perneger 1998). We feel a Bonferroni correction would be too conservative (Perneger 1998), particularly given the large number of tests from our model. If we used a more conservative significance level of .01, the results would change modestly. Fewer associations for government funding would meet significance criteria, although the overall pattern of relationships across the dependent variables would remain the same, as would our conclusions.
3. The research design of this study has a longitudinal component where many units have observations from two data waves (1995 and 2000). GEEs account for correlation among repeated measures on the same unit over time. An important feature of GEE is that parameter estimates have the same interpretation as parameters estimated using generalized linear models (GLMs) for cross-sectional data.
4. Heckman modeling was problematic for two of the dependent variables in Wave 4 (pregnancy tests and contraceptive counseling). Heckman models are vulnerable to departures from normality, and need fairly large sample sizes for the maximum likelihood estimation to converge (Breen 1996). These dependent variables did not have many cases with positive values and, thus, the Heckman models would not converge. Therefore, Tobit regression, was used. The Tobit model is an analytic technique that is most analogous to the Heckman approach (Pollack, pers. comm. 2002). Tobit is short for "Tobit's probit."
5. There is no software yet available that can simultaneously correct for sample selection and for correlation within longitudinal data. Thus, analyses for the percentage service variables were cross-sectional, looking separately at utilization in the 1995 ($n = 618$) and 2000 ($n = 571$) data waves.
6. Listwise deletion of cases could considerably reduce the number of cases for each regression analysis, thus multiple imputation was conducted. Three datasets were imputed in *SAS* (Schafer and Olsen 1998). *PROC MIANALYZE* was used to combine the parameters and variance-covariance matrices in *SAS*. For the *STATA* analyses, estimates and standard errors were combined using *NORM* software (Schafer 1999).

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