

**Women in Substance Abuse Treatment:
Results from the Alcohol and Drug Services Study
(ADSS)**

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Editors

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Highlights

Gender is an important variable to consider in substance abuse treatment research. The proportion of females among substance abuse treatment clients has increased over the past decade, and female clients currently constitute about one third of the treatment population. Reports have shown that female substance abusers experience a number of barriers to receiving treatment, including child care responsibilities, stigmatization, and inability to pay for treatment. Female substance abusers are more vulnerable than male substance abusers to some of the physiological effects of substance use, and substance abuse among females is rooted more often in psychosocial problems and traumatic life events. These important gender differences suggest the need for specialized treatment programming for women.

Women in Substance Abuse Treatment: Results from the Alcohol and Drug Services Study (ADSS) presents an in-depth analysis of substance abuse treatment clients and facilities, with a special focus on women. First, an introduction provides a brief history of how gender has been addressed in previous substance abuse treatment studies, along with an overview of current data about gender differences. Next, a literature review summarizes current information about substance abuse treatment programming for women. Then, results from analyses of data from a nationally representative sample of substance abuse treatment facilities and treatment clients from ADSS provide new insights into gender differences among substance abuse treatment clients, the availability of substance abuse treatment programming for women, and the extent to which women-focused services are associated with treatment retention. Finally, a discussion of the findings suggests implications and future research.

The in-depth review of current data and research findings on substance abuse treatment programming for women (Chapter 2) places special emphasis on evaluations of effectiveness of such programming. Substance abuse treatment programming for women includes diverse services provided by treatment facilities that aim to reduce the barriers women face to entering and staying in treatment and to address the specific substance abuse-related problems of women. Such treatment may include the following:

- ancillary services, such as child care or transportation services, intended to increase female clients' access to substance abuse treatment;
- services intended to address the specific needs of women, such as prenatal care and well-baby care; and
- admissions for women only, creating a unique treatment environment that is more focused on women's issues than is mixed-gender treatment.

Substance abuse treatment programming for women, which is not available at all substance abuse treatment facilities, may substantially improve how long female clients remain in treatment. Key highlights from Chapter 2 include the following:

- The substance abuse treatment system has increasingly recognized the need for programming for women during the last 35 years.
- Services offered may be available only to a limited number of clients.
- Substance abuse treatment programming specifically designed for women, such as provision of child care services, prenatal care services, women-only treatment, mental health services, and supplemental services and workshops addressing women-focused topics, can be beneficial in improving treatment outcomes. Improved outcomes include changes in substance use, mental health symptoms, perinatal/birth outcomes, employment, self-reported health status, and HIV risk reduction.

Subsequent chapters in this volume provide insight into the gender differences in demographic characteristics of substance abuse treatment clients, the organizational characteristics of facilities that offer women’s substance abuse treatment programming, and the treatment facility and client correlates of treatment retention as measured by completion of planned treatment and length of stay (LOS) in treatment. Data for these analyses are from 2,395 substance abuse treatment facilities and 5,005 treatment clients in ADSS, which was conducted for the Substance Abuse and Mental Health Services Administration (SAMHSA), part of the U.S. Department of Health and Human Services (DHHS). Key highlights of the analyses results are provided below:

Characteristics of Substance Abuse Treatment Clients

- Females and males in substance abuse treatment were similar on a number of demographic characteristics. However, at admission to treatment, female clients were more likely than male clients to have children (Chapter 4).
- Among clients in outpatient nonmethadone treatment,
 - female clients were less likely than male clients to be employed full-time and more likely to be unemployed;
 - Medicaid was more likely to be the primary source of payment for treatment among female clients than among male clients; and
 - female clients were more likely than male clients to be admitted for drug abuse instead of alcohol abuse (Chapter 4).
- Nationally, about 32 percent of clients in substance abuse treatment were female, although this percentage varied by type of care: 30 percent of clients in outpatient nonmethadone facilities (the most common type of care), 39 percent of clients in outpatient methadone, 36 percent in nonhospital residential facilities, and 28 percent in hospital inpatient facilities were female (Chapter 5).

Facilities That Offer Substance Abuse Treatment Programming for Women

- An estimated 13 percent of substance abuse treatment facilities offered child care services, and 12 percent offered prenatal services. Of all substance abuse treatment facilities, 6 percent served women only, 37 percent offered special programs for women, and 19 percent offered special programs for pregnant women (Chapter 5).
- The availability of substance abuse treatment programming for women varied by type of care. A larger proportion of nonhospital residential facilities served women only than did other types of facilities, and outpatient methadone facilities were less likely than other types of facilities to offer child care services. Special programs for women overall were more likely to be offered in nonhospital residential or outpatient methadone facilities than in other types of care. Special programs for pregnant women were more likely to be offered in outpatient methadone facilities than in other types of facilities (Chapter 5).
- Compared with mixed-gender facilities, women-only facilities served higher proportions of blacks and clients whose primary source of payment was public payment other than Medicaid and Medicare. Women-only facilities also were more likely to offer child care services, prenatal care services, transportation services, and special programs for women than were mixed-gender facilities (Chapter 5).
- Compared with facilities that did not offer child care services, a larger proportion of female clients were served by facilities that offered child care services. Facilities offering child care services also were more likely to offer prenatal care services, transportation services, and special programs for women than were facilities without child care (Chapter 5).

Treatment Retention

- The rate of treatment completion was lower for women than for men in nonhospital residential or outpatient nonmethadone facilities. However, after controlling for client and facility characteristics, gender was not associated with completion of planned treatment (Chapter 6).
- Women averaged shorter stays in nonhospital residential treatment than men, but the LOS was similar among women and men in other types of care. After controlling for client and facility characteristics, gender was not associated with LOS (Chapter 6).
- Among women, receiving treatment at women-only facilities or at facilities offering child care services was not associated with completion of planned treatment, after controlling for client and facility characteristics. However, women who received treatment at women-only facilities or facilities offering child care

services stayed in treatment longer than women who received treatment in mixed-gender facilities or facilities not offering child care services, after controlling for client and facility characteristics (Chapter 6).

Chapter 1. Introduction

Gender is an important variable to consider when designing and analyzing studies in all areas and at all levels of biomedical and health-related research (Wizemann & Pardue, 2001). Consideration of gender and dissemination of data regarding gender differences, or lack thereof, has been recommended by the Institute of Medicine (IOM). Gender is especially important in substance abuse treatment services research because the background characteristics, substance abuse patterns, and personal histories of female substance users may differ from those of males. As such, treatment programming designed specifically for women is needed to address not only women's substance abuse-related problems but also their special needs and barriers to treatment. Although many service providers acknowledge and address gender differences among substance abuse treatment clients, these differences and the programming that addresses them have not been adequately studied. At the national, State, and local levels, policymakers and service providers need new knowledge to understand how male and female substance abuse treatment clients differ in terms of sociodemographic and substance use characteristics and retention in treatment. Information about the availability and effectiveness of substance abuse treatment programming for women can help guide public policy about how the treatment system should be structured.

This report discusses the need for substance abuse treatment programming for women and summarizes evidence about the effectiveness of such programming. The report compares characteristics of male and female clients discharged from substance abuse treatment and estimates the availability of substance abuse treatment programming targeting women's needs. Finally, the report provides new information about the relationship between gender, substance abuse treatment programming for women, and retention in treatment.

This chapter includes a brief history of how gender has been addressed or ignored in sentinel substance abuse treatment research studies. The chapter examines current data about gender differences in substance abuse treatment utilization, substance use epidemiology, social context and etiology of substance use, barriers to receiving treatment, physiological consequences of substance use, and retention in substance abuse treatment. In addition, a brief introduction to the Alcohol and Drug Services Study (ADSS) is presented, followed by an overview of the remaining chapters in this report.

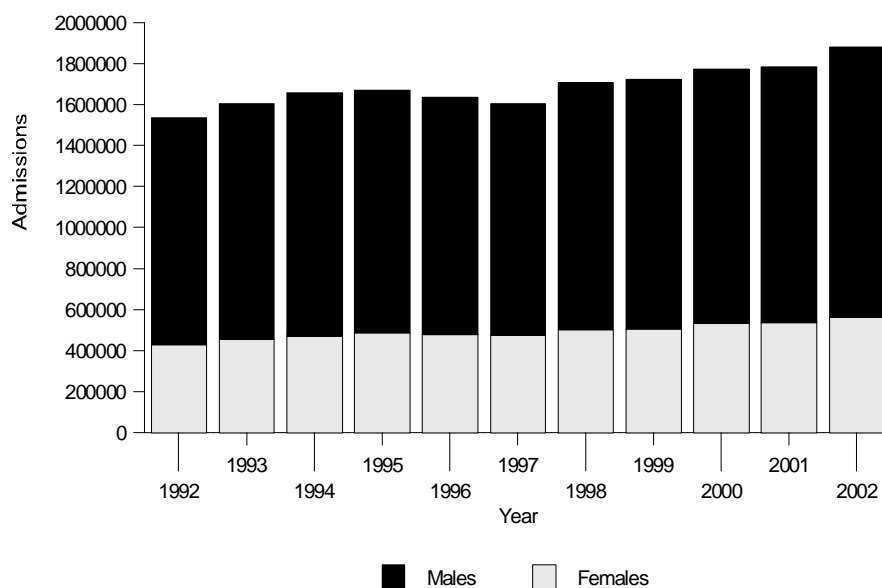
Gender Differences Among Substance Abuse Treatment Clients

Early substance abuse treatment studies—including the Drug Abuse Reporting Program (DARP) and the Treatment Outcome Prospective Study (TOPS)—did not fully analyze male-female differences in substance abuse treatment data (Kandall, 1996; Sells, Demaree, Simpson, & Joe, 1978; Simpson & Sells, 1982). Analyses of important outcome measures were not reported by gender, and in some instances, female research subjects were excluded from analyses. The National Treatment Improvement Evaluation Study (NTIES), conducted from 1993 to 1995, and the California Drug and Alcohol Treatment Assessment (CALDATA), conducted from 1992 to 1994, analyzed treatment outcomes by gender and reported many similarities

among females and males (Gerstein & Johnson, 2000; Gerstein et al., 1994). Gender differences among treatment clients also have been analyzed using data from the Drug Abuse Treatment Outcome Study (DATOS) (Grella & Joshi, 1999; Wechsberg, Craddock, & Hubbard, 1998).

The proportion of substance abuse treatment clients who are female has increased moderately over the past decade (Figure 1.1). In 2002, according to the Treatment Episode Data Set (TEDS), about 30 percent (565,000) of admissions to substance abuse treatment facilities were females, up from 28 percent in 1992 (Substance Abuse and Mental Health Services Administration [SAMHSA], 2004).

Figure 1.1 Numbers of Substance Abuse Treatment Admissions, by Gender and Year: TEDS, 1992–2002.



Source: SAMHSA, Office of Applied Studies, Treatment Episode Data Set (TEDS, 1992–2002)

It is important to consider the proportion of female substance abuse treatment clients in the context of gender differences in the epidemiology of substance use and dependence (e.g., Walter et al., 2003; Weiss, Kung, & Pearson, 2003). According to the National Survey on Drug Use and Health (NSDUH, formerly the National Household Survey on Drug Abuse [NHSDA]), the proportion of females to males engaging in binge alcohol use (having five or more drinks on the same occasion on 5 or more days during the past 30 days) in 2003 was similar to the above proportion of females to males in substance abuse treatment (Table 1.1; Office of Applied Studies [OAS], 2004a). However, the proportion of females (7 percent) to males (10 percent) engaging in past month illicit drug use was higher than the proportion of females to males in substance abuse treatment. The rate of substance dependence on an illicit drug was even more similar between females (1.5 percent) and males (2.2 percent) (Table 1.2; OAS, 2004a). Furthermore, research has shown that women who used psychotropic drugs, such as sedatives or tranquilizers, were significantly more likely than men to develop dependence on those drugs (Kandel, Warner, & Kessler, 1998).

Table 1.1 Alcohol Use in Past Month among Persons Aged 12 or Older, by Gender: Percentages, NSDUH, 2003

Gender	Binge Alcohol Use ¹	Heavy Alcohol Use ²	Any Illicit Drug Use ³
Male	30.9	10.4	10.0
Female	14.8	3.4	6.5

¹ Binge Alcohol Use is defined as drinking five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.

² Heavy Alcohol Use is defined as drinking five or more drinks on the same occasion on each of 5 or more days in the past 30 days; all Heavy Alcohol Users are also Binge Alcohol Users.

³ Any Illicit Drug includes marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or any prescription-type psychotherapeutic used nonmedically.

Source: SAMHSA Office of Applied Studies, National Survey on Drug Use and Health, 2003.

Table 1.2 Substance Dependence among Persons Aged 12 or Older, by Gender: Percentages, NSDUH, 2003

Gender	Alcohol	Any Illicit Drug ¹
Male	4.3	2.2
Female	2.2	1.5

Note: Dependence is based on the definition found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV).

¹ Any Illicit Drug includes marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or any prescription-type psychotherapeutic used nonmedically.

Source: SAMHSA Office of Applied Studies, National Survey on Drug Use and Health, 2003.

Rates of substance use among adolescents show fewer gender differences. For example, in the 2003 NSDUH, among adolescents aged 12 to 17, an estimated 11.4 percent of boys and 11.1 percent of girls had used an illicit drug during the past month (OAS, 2004a). According to the 2003 Monitoring the Future national survey, the rate of past year use of any illicit drug other than marijuana was slightly higher for girls than for boys (Johnston, O'Malley, Bachman, & Schulenberg, 2003). There was little male-female difference in 8th and 10th grades in rates of past year use of LSD, cocaine, crack, heroin, Ritalin, Rohypnol, and GHB. Furthermore, rates of past year inhalant, amphetamine, and tranquilizer use were slightly higher among females than among males in 8th and 10th grades. While these rates of substance use among adolescent females raise concerns about risks for substance abuse and addiction in adulthood, additional complexities have been identified for women in relation to substance use, including substance use during pregnancy, economic considerations, physiological differences from men, co-occurring psychological problems, traumatic experiences, family and partner influences, social stigma and discrimination, and barriers to retention in substance abuse treatment.

Substance Use and Pregnancy

Among females, rates of substance use and treatment among pregnant women are of special concern (Ebrahim & Gfroerer, 2003). The 2002 TEDS estimated that 4 percent of females admitted to treatment were known to be pregnant when admitted (SAMHSA, 2004). Compared with nonpregnant female admissions aged 15 to 44, pregnant admissions of similar age entering treatment were more likely to report cocaine/crack (22 percent vs. 17 percent), amphetamine/methamphetamine (21 percent vs. 13 percent), or marijuana (17 percent vs. 13 percent) as their primary substance of abuse (OAS, 2004b). Among pregnant women responding to the 2002 and 2003 NSDUHs, 10 percent reported alcohol use, 4 percent reported binge alcohol use, and almost 1 percent reported heavy alcohol use in the month prior to the survey (OAS, 2004b). The 2000–2001 Pregnancy Risk Assessment Monitoring System (PRAMS) estimated that the prevalence of alcohol use during pregnancy ranged from 3 percent to 10 percent (Phares et al., 2004). Women aged 35 or older, non-Hispanic women, women with more than a high school education, and women with higher incomes reported the highest prevalence of alcohol use during pregnancy. The 1992 National Pregnancy and Health Survey found that 19 percent of females used alcohol during pregnancy, and 5 percent of females used an illicit drug at least once during pregnancy, including marijuana (3 percent), psychotherapeutic medication without a prescription (2 percent), and cocaine (1 percent) (National Institute on Drug Abuse [NIDA], 1996). More recent data from the Maternal Life Study, which oversampled very low birthweight infants, found that 35 percent of pregnant females at four study sites reported alcohol use and 8 percent reported marijuana use during pregnancy (Lester et al., 2001). Meconium toxicology screens were positive for cocaine or opioids in 11 percent of infants screened.

In studies of substance abuse treatment among women, pregnancy and childbearing are important events because they may represent barriers to seeking, receiving, or completing treatment. Women with substance use disorders may avoid seeking treatment for fear of losing custody of their children (Ayyagari, Boles, Johnson, & Kleber, 1999; DeAngelis, 1993; Finkelstein, 1994; Grella, 1997), due to well-publicized cases of drug use during pregnancy resulting in prosecutions for child abuse, delivery of drugs to a minor, and other charges (Associated Press, 2003; Chavkin, Breitbart, Elman, & Wise, 1998; Paltrow, 1992, 1998). For example, 14 states consider substance use during pregnancy to be child abuse under civil child-welfare statutes, and 9 states require health care professionals to report suspected prenatal substance abuse (Figdor & Kaeser, 2005).

Women in treatment are more likely to be responsible for the care of children, to have more children living in their homes, and to be more concerned about issues related to children than men (Brady, Grice, Dustan, & Randall, 1993; Wechsberg et al., 1998; Wong, Badger, Sigmon, & Higgins, 2002). Responsibility for children, coupled with little access to child care services, is one of the most significant and most frequently cited barriers among females who seek treatment (Allen, 1995; Copeland, 1997; Grella, 1997; Kaltenbach & Finnegan, 1998; van Olphen & Freudenberg, 2004), and women with substance use disorders often perceive that many substance abuse treatment programs fail to provide such services (Nelson-Zlupko, Dore, Kauffman, & Kaltenbach., 1996). Referrals for substance abuse treatment programs in the past often have neglected to accommodate the needs of low-income women with children, such as by providing child care and transportation (Johnson & Meckstroth, 1998).

Economic Considerations

In addition to legal consequences and logistical difficulties, pregnant and parenting women may experience economic consequences from treatment seeking. Recent studies have estimated that between 5 and 35 percent of women receiving Temporary Aid to Needy Families (TANF) have a substance abuse problem that can impede their ability to work (Klein & Zahnd, 1997). The 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) required TANF recipients to work 20 hours per week or to be engaged in job training or job readiness activities. If appropriate substance abuse treatment is not received, substance abusing women are unlikely to find or maintain employment, and their ability to provide care for their children is diminished. Substance abuse treatment participation could be considered an activity counted toward work requirements, although not all States allow this. In February 2003, the House of Representatives and a Senate committee passed bills to reauthorize TANF through 2008. The House legislation increased the work requirements to 40 hours per week (24 hours of direct work activities and 16 hours of approved indirect work activities to be determined by the individual States). In this legislation, substance abuse treatment is considered to be an allowable direct work activity for up to 3 months in any 24-month period. The Senate committee expanded on the House legislation and proposed allowing substance abuse treatment to count toward work requirements for 6 months within a 2-year period, provided that during the second 3 months treatment is combined with work or job-readiness activities. The full Senate has not yet ruled on this legislation.

However, women identified as substance abusers may also have difficulty maintaining eligibility for entitlement programs. Many States either currently screen or plan to implement alcohol and other drug screening of TANF recipients, and some require urine drug testing (Montoya & Atkinson, 2002). The use of urine drug testing within TANF programs is still controversial and has been implemented as a means of sanctioning TANF recipients (Hammett, Gaiter, & Crawford, 1998). In addition, follow-up on referral to treatment often is limited, with many women identified as needing treatment never presenting to receive it (Klein & Zahnd, 1997). Thus, access to treatment may be limited for substance-using females receiving TANF.

Further contributing to economic difficulties is the fact that female substance abuse treatment clients have lower educational attainment and rates of employment than their male counterparts (Wong et al., 2002). In a study of DATOS data, a national study of more than 10,000 substance abuse treatment clients, women were found to be younger, less educated, and less likely to be employed than men (Wechsberg et al., 1998). In a study of Los Angeles substance abuse treatment clients, the average age for females was lower than that for males, and 39 percent of females had less than a high school education compared with 19 percent of males (Hser, Huang, Teruya, & Anglin, 2003). In an Oregon and State of Washington study of health maintenance organization (HMO) clients, women were younger than men entering treatment, had lower incomes, were less well educated, and were less likely to be employed (Green, Polen, Dickinson, Lynch, & Bennett, 2002). Furthermore, although a greater proportion of males than females entering treatment have no health insurance, when insured, females are more likely to have public insurance than private insurance (Wechsberg et al., 1998).

Gender Differences in Physiology

Compared with male substance abusers, female substance abusers may have more physical problems, and females appear to be more vulnerable than males to the physiological effects of substance use. For example, in a study of alcohol problems among trauma center patients, women were significantly more likely than men to have liver disease (Gentilello et al., 2000). Differences in the way women absorb, distribute, eliminate, and metabolize alcohol may increase their vulnerability to alcohol-related problems (Mumenthaler, Taylor, O'Hara, & Yesavage, 1999; Wasilow-Mueller & Erickson, 2001). The female liver appears to be more sensitive to the toxic effect of chronic alcohol intake than the male liver (Colantoni et al., 2003; Mandayam, Jamal & Morgan, 2004; Mann, Smart, & Govoni, 2003). Females develop alcoholic liver disease (i.e., cirrhosis and hepatitis) after comparatively shorter periods and less intense drinking than do males. Although males have higher rates of cirrhosis mortality than women, proportionately, more alcohol-dependent females die from cirrhosis than do alcohol-dependent males (Fuchs et al., 1995; Lieber, 1993; Mann et al., 2003; NIAAA, 1999). One of the reasons for gender differences in alcoholic liver disease is that females achieve higher concentrations of alcohol in the blood than males after drinking equivalent amounts of alcohol (Bradley, Badrinath, Bush, Boyd-Wickizer, & Anawalt, 1998; Frezza et al., 1990; Redgrave, Swartz, & Romanoski, 2003). In a cohort study of over 13,000 men and women in Europe, for example, the relative risk of developing alcohol-related liver disease was significantly higher among women than men for any given level of alcohol intake (Becker et al., 1996). An additional reason for gender differences in alcoholic liver disease is that the level of alcohol dehydrogenase, an enzyme associated with alcohol metabolism, may be lower in females than in males (Baraona et al., 2001; Thomasson, 1995). Estrogen has also been associated with alcohol-related liver disease (Moshage, 2001; Yin et al., 2000).

Although one review reports that evidence of gender differences in alcohol-induced brain damage remains inconclusive (Hommer, 2003), most studies suggest that females are more susceptible than males to the adverse neurologic consequences of alcohol (NIAAA, 1999; Prendergast, 2004; Wuethrich, 2001). In a study of alcoholic and nonalcoholic men and women's brain volumes, for example, the significance of differences in gray and white matter volumes between alcoholic and nonalcoholic men was of a smaller magnitude than the significance of the differences between alcoholic and nonalcoholic women (Hommer, Momenan, Kaiser, & Rawlings, 2001). Females may also be more susceptible than males to alcohol-related cardiac problems (Blum, Nielsen, & Riggs, 1998; Piano, 2002), and women have shown different mechanisms leading to a higher sensitivity to alcohol-induced heart damage (Fernandez-Sola & Nicolas-Arfelis, 2002; Urbano-Marquez et al., 1995). In a study of alcoholic cardiomyopathy, the prevalence of heart disease was similar in alcohol-dependent males and females, yet alcoholic women reported a significantly lower daily dose of alcohol, a shorter duration of alcoholism, and a lower total lifetime dose of alcohol consumption than did alcoholic men (Fernandez-Sola et al., 1997).

These biological differences may be associated with the physical functioning and overall health status of women. In a study that reviewed medical records and interviewed research subjects over a 2-year period, females who abused or were dependent on alcohol reported poorer physical functioning, poorer physical and mental health, and disproportionately more impairment

compared with their male counterparts (Grazier, 2001). One report has shown death rates among female alcoholics to be much higher than those of male alcoholics (Walter et al., 2003).

Psychological Problems

In addition to various medical problems, women substance abusers are at increased risk for psychological problems (Alvarez, Olson, Jason, Davis, & Ferrari, 2004; Brady & Randall, 1999; Chander & McCaul, 2003; Chatham, Hiller, Rowan-Szal, Joe, & Simpson, 1999; Gentilello et al., 2000; Mann, Hintz, & Jung, 2004; OAS, 2004c; Phillips, Carpenter, & Nunes, 2004; Wechsberg et al., 1998; Zimmermann et al., 2004). Psychosocial antecedents more likely to be associated with substance use by females than with that of males include comorbid psychiatric disorders, such as depression, anxiety, bipolar affective disorder, phobias, psychosexual disorders, eating disorders, or posttraumatic stress disorder (PTSD) (Boyd, 1993; Brady, Dansky, Sonne, & Saladin, 1998; Denier, Thevos, Latham, & Randall, 1991; Fornari, Kent, Kabo, & Goodman, 1994; Institute of Medicine [IOM], 1990; Mendelson et al., 1991; Merikangas & Stevens, 1998; Najavits, Weiss, & Shaw, 1997; Nelson-Zlupko, Kauffman, & Dore, 1995; Saxe & Wolfe, 1999). For example, an analysis of the relationship of age at first substance use relative to the onset of affective and anxiety disorders found that the onset of psychiatric disorders preceded the onset of substance use disorders more often in females than in males (Kessler et al., 1997). In addition, substance-dependent females have been found to be more likely to need help for emotional problems at a younger age and to have attempted suicide than substance-dependent males (Haseltine, 2000). Unfortunately, females with co-occurring substance abuse and psychiatric disorders face unique barriers to substance abuse treatment, such as difficulty in obtaining a dual disorder assessment and diagnosis, social stigma attached to both conditions, and insufficient knowledge and training among providers of health, mental health, or substance abuse treatment services to manage coexisting disorders (Grella, 1996, 1997).

Trauma

Substance use by females is linked to traumatic events or stressors, including sexual and physical assault or abuse, sudden physical illness, an accident, or disruption in family life (Grella, 1997; IOM, 1990; Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997; Kilpatrick, Resnick, Saunders, & Best, 1998; Martin, Beaumont & Kupper, 2003; Najavits et al., 1997). Females often use alcohol or other drugs to self-medicate in an effort to cope with these traumatic events (Miranda, Meyerson, Long, Marx, & Simpson, 2002; Teusch, 2001; Young, Boyd, & Hubbell, 2002). Women with substance use problems have been found to be significantly more likely than men to exhibit recent physical, emotional, or sexual abuse (Gentilello et al., 2000), and female substance abuse treatment clients report more problems related to physical and sexual abuse and domestic violence victimization than males (Green et al., 2002; Wechsberg et al., 1998). However, some therapeutic approaches, such as confrontational models often used in traditional therapeutic communities, present a special barrier for female substance abusers (Copeland, 1997) because they often “reenact” traumatic experiences and may engender feelings of distress and powerlessness associated with such experiences.

Family and Partner Influences

Female substance abusers are more likely than their male counterparts to report greater dysfunction in the family of origin (Chatham et al., 1999) and lack adequate role models for parenting (Davis, 1990; Sheridan, 1995). Females often are referred to substance abuse treatment through child protective services as a requirement for retaining or regaining custody of children (Clark, 2001). Poor interactions with children can also be a significant source of stress that interferes with female's treatment efforts (Davis, 1990; Greif & Drechsler, 1993). In addition, female substance abusers are more likely than male substance abusers to enter into dependent relationships dominated by their partner (Woodhouse, 1992), hindering their ability to perform basic life skills, such as managing money and planning for the future. Substance-dependent females are more likely than substance-dependent males to have substance-dependent spouses or partners (Amaro & Hardy-Fanta, 1995; Blum et al., 1998; Henderson, Boyd, & Mieczkowski, 1994; Riehm, Iguchi, Zeller, & Morral, 2003; Tuten & Jones, 2003), who may not be supportive of their seeking treatment. Thus, seeking treatment may create a serious problem for the relationship (McCullum & Trepper, 1995). The partner often not only discourages the woman from entering treatment but also may threaten violence or leave the relationship if the woman seeks treatment (Amaro & Hardy-Fanta, 1995), and partner substance use and treatment behavior have been found to be more strongly associated with treatment motivation for females than for males (Riehm, Hser, & Zeller, 2000). In contrast, common reasons for males' entering treatment are family pressure and spousal opposition to substance abuse (Grella & Joshi, 1999).

Social Stigma and Discrimination

Substance use among females is more highly stigmatized than among males (Grella & Joshi, 1999), and social stigma, labeling, and guilt are significant barriers for females to receiving treatment (Ayyagari et al., 1999; Copeland, 1997; Dvorchak, Grams, Tate, & Jason, 1995; Finkelstein, 1994; IOM, 1990; Nelson-Zlupko et al., 1995). Stigma and guilt may foster denial of problems by females, creating a further barrier to treatment (Blume, 1997). In addition, females in a variety of treatment settings have been found to be more likely than males to belong to minority racial/ethnic groups (e.g., Hser et al., 2003). As such, women in substance abuse treatment may have experienced racism and may harbor mistrust of the medical and substance abuse treatment systems, which may compromise provider-patient relationships and hinder treatment and recovery.

Implications for Retention in Substance Abuse Treatment

A number of studies have shown that males remain in substance abuse treatment longer than females (Hser, Evans, Huang & Anglin, 2004; Mammo & Weinbaum, 1993; Petry & Bickel, 2000; Sayre et al., 2002; Simpson et al., 1997a; Simpson, Joe, & Brown, 1997b; Simpson, Joe, & Rowan-Szal, 1997c), even after controlling for other factors (Arfken, Klein, di Menza, & Schuster, 2001; McCaul, Svikis, & Moore, 2001) and regardless of type of care (Arfken et al., 2001). However, relatively few data are available about retention among female substance abuse treatment clients, and findings are not consistent. The Treatment Outcome Prospective Study (TOPS) of clients in treatment during the early 1980s showed that gender differences in length of stay varied by type of care; longer stays in treatment were found for females compared with

males in outpatient methadone treatment and outpatient drug-free treatment, but no differences were found among females and males in residential treatment (Hubbard et al., 1989). Some recent studies have reported no gender differences in retention after controlling for other factors (Wickizer et al., 1994), including analyses of DATOS data among residential and outpatient methadone types of care (Broome, Flynn, & Simpson, 1999; Joe, Simpson, & Broome, 1999), and higher rates of retention have been found among females than males in nonmethadone treatment, after controlling for other factors (Broome et al., 1999; Joe et al., 1999).

Other factors associated with retention include age, race/ethnicity, education, marital status, partner's drug use, presenting substance abuse problem at admission, severity of substance abuse, age at first use, psychiatric symptom severity, referral source, type of care, and intensity or level of service (Ashley, Sverdlov, & Brady, 2004; Broome et al., 1999; Green et al., 2002; Grella, Anglin, Wugalter, Rawson, & Hasson, 1994; Grella, Joshi, & Hser, 2000; Haller, Miles, & Dawson, 2002; Hser, Joshi, Maglione, Chou, & Anglin, 2001; Joe et al., 1999; Kelly, Blacksin, & Mason, 2001; Knight, Logan, & Simpson, 2001; Lang & Belenko, 2000); Maglione, Chao, & Anglin, 2000; McCaul et al., 2001; Mertens & Weisner, 2000; Nishimoto & Roberts, 2001; Rowan-Szal, Joe, & Simpson, 2000; Smith, North, & Fox, 1995; Strantz & Welch, 1995; Tuten & Jones, 2003; Veach, Remley, Kippers, & Sorg, 2000; Wickizer et al., 1994; Williams & Roberts, 1991). However, large, nationally representative studies are lacking and knowledge gaps still exist about factors influencing retention in substance abuse treatment, particularly among females.

This report includes analyses of retention among a nationally representative sample of substance abuse treatment facilities serving male and female clients. Treatment retention is measured in two ways in this study: (1) as the percentage of clients who successfully completed treatment and (2) as mean length of stay (LOS) in treatment. Both measures are important because they are associated with improved treatment outcomes, such as reduced drug use, criminality, or unemployment (French, Zarkin, Hubbard, & Rachal, 1993; Green, Polen, Lynch, Dickinson, & Bennett, 2004; Hser et al., 2004; Hubbard, Craddock, Anderson, 2003; Hubbard, Craddock, Flynn, Anderson, & Etheridge, 1997; Metsch, McCoy, Miller, McAnany, & Pereyra, 1999; Satre, Mertens, & Weisner, 2004; TOPPS-II Interstate Cooperative Study Group, 2004; Wallace & Weeks, 2004; Zarkin, Dunlap, Bray, & Wechsberg, 2002). Longer stays in treatment among pregnant substance abusers have been associated with improved pregnancy and neonatal outcomes (Kissin, Svikis, Moylan, Haug, & Stitzer, 2004). In a drug treatment program for pregnant and postpartum women in New York City, for example, LOS was associated with less maternal drug use and greater mean birth weight and less intrauterine growth retardation among infants (McMurtrie, Rosenberg, Kerker, Kan, & Graham, 1999).

Summary

Women and men with substance use disorders are different. Among clients who present for substance abuse treatment services, women have more children living in their homes, are often younger, have lower incomes, and are less likely to be employed than men. Factors such as the heightened scrutiny of substance use during pregnancy, the lack of affordable child care, and social stigma impact women more than men. There also appear to be different reasons for initiating careers in substance use among men and women. Important differences also appear to

exist among adults in the adverse consequences of substance use, although most of the findings of gender differences deal with alcohol use and alcoholism.

Gender differences in social and psychological characteristics have important implications for substance abuse treatment retention for females, although some important studies show conflicting findings about the association between gender and retention. Females have unique treatment needs in contrast to males, and gender-specific approaches to substance abuse treatment have been developed to address these needs.

Alcohol and Drug Services Study (ADSS)

This report utilizes data from the Alcohol and Drug Services Study (ADSS). ADSS was conducted between 1996 and 1999 for the OAS and was designed to collect detailed information on the characteristics of substance abuse treatment facilities and their clients and to study the relationships among facility characteristics, treatment services, and clients in treatment (OAS, 2003). The ADSS sample was selected using a multistaged, stratified design, with selection of 2,395 facilities in Phase I, selection of a subset of Phase I responding facilities, selection of client discharge records in Phase II, and client follow-up in Phase III. Facilities in the sampling frame were stratified by treatment type of care: hospital inpatient, nonhospital residential, outpatient primarily alcohol, outpatient primarily methadone, other outpatient, and combined treatment types (OAS, 2003).

Overview of Chapters

The chapters in this report review existing research and analyze ADSS data to provide important new knowledge:

- Chapter 2, “Substance Abuse Treatment Programming for Women: A Literature Review,” examines previous research on the availability and effectiveness of substance abuse treatment programming for women.
- Chapter 3, “Data and Methods Used in This Report,” describes the ADSS data source, measures of key study variables, and statistical methods.
- Chapter 4, “Characteristics of Substance Abuse Treatment Clients,” summarizes the sociodemographic characteristics of female and male substance abuse treatment clients.
- Chapter 5, “Characteristics of Substance Abuse Treatment Facilities Providing Treatment Programming for Women,” estimates the prevalence of substance abuse treatment programming for women.
- Chapter 6, “Retention in Substance Abuse Treatment: Gender and Substance Abuse Treatment Programming for Women,” addresses the relationship between gender and retention in treatment and between types of substance abuse treatment programming for women and treatment retention among women.

- Chapter 7, “Conclusions and Implications,” summarizes the chief findings of this report and discusses the implications of these findings with suggestions for future research.
- The appendix, “Statistical Methods and Limitations of the Data,” discusses generalizability of the study findings, suppression criteria for reporting results, response rates, missing data, validity of data, and analytic methodology.

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Chapter 2. Substance Abuse Treatment Programming for Women: A Literature Review

This chapter summarizes the current literature about substance abuse treatment programming for women. A definition of substance abuse treatment programming for women is presented, and the history and origins of this type of programming are briefly described. Current data are presented about the availability of this type of programming, and selected empirical research is reviewed on the relationship between gender-specific substance abuse treatment programming and treatment outcomes among women.

Comprehensive Definition

There is no universally accepted definition of substance abuse treatment programming for women. In general, this term refers to the delivery of services and treatment that reduce females' barriers to entering substance abuse treatment and/or address their specific substance abuse treatment needs. Such programming includes the following core components, which may be combined:

1. ancillary services intended to increase female clients' access to substance abuse treatment, such as child care or transportation services;
2. services intended to address the specific needs of females, such as prenatal and well-baby care, psychosocial education focusing on issues relevant to women or parenting, human immunodeficiency virus (HIV) prevention and risk reduction that targets women, and mental health services that address a woman's history of abuse and trauma; and
3. programs and services provided for women only, creating a unique treatment environment that is more focused on women's issues than are mixed-gender services.

Although treatment programs addressing females' barriers to treatment or their specific needs differ, they often incorporate one or more of the above components. Substance abuse treatment programming for women may also emphasize a comprehensive service approach to address psychosocial problems, pregnancy education, parenting, employment, housing, and trauma services. Such programming may reflect unique treatment philosophies that serve to empower women and to provide a supportive, nonconfrontational approach to treatment.

Historical Context

Although the substance abuse treatment system has increasingly recognized the need for programming that addresses women's specific substance abuse-related problems and barriers to treatment, women's treatment needs were obscured for many years. Little research can be identified before the 1980s describing substance abuse treatment programming for women, but two seminal studies in this area are highlighted here.

First, an early study of a comprehensive program for substance-dependent women described the Family Center program initiated in Philadelphia in 1969 (Connaughton, Finnegan, Schut, & Emich, 1975). Family Center provided outpatient medical (primarily methadone) treatment and psychosocial services addressing education and treatment to substance-dependent women. Obstetricians and pediatricians provided perinatal medical services, and personnel trained in mother-child interaction and early childhood development subsequently joined the staff. Other services included a clothing bank and a small food bank for registrants, and staff organized women-only and parent education groups.

Second, in 1975, using pregnancy as the focus, the National Institute on Drug Abuse (NIDA) initiated funding for a series of comprehensive drug treatment demonstration grants for women in Detroit; Houston; New York; Philadelphia; Washington, DC; and San Rafael, California (Beschner & Brotman, 1977). The New York City program—the Pregnant Addicts and Addicted Mothers Program (PAAM)—was inaugurated in 1975, emphasizing comprehensive care and providing onsite addiction treatment, medical services, individual and group counseling, child development services, parent education classes, child care, and developmental assessments of infants (Suffet & Brotman, 1984). All services were housed on the same floor of one building, which facilitated communication between providers and patient access to services. PAAM concentrated on helping women addicted to opiates or methadone have a normal pregnancy and deliver a healthy newborn, as well as helping the newborn develop normal cognitive and motor abilities. The comprehensive approach to treatment embedded in the PAAM treatment model demonstrated positive outcomes, such as treatment compliance and favorable newborn outcomes (Suffet & Brotman, 1984). PAAM was initiated at the Center for Comprehensive Health Practice of New York Medical College in 1969 as a pilot project offering obstetrical, pediatric, and psychological services to East Harlem mothers and their children. The program eventually received two successive 3-year NIDA grants (1975–1981) and began operating under contract to the New York State Division of Substance Abuse Services.

The crack cocaine epidemic of the 1980s focused attention on female crack abusers and, in particular, on pregnant women and their children. The media focused on drug-exposed infants, resulting in heightened concern for the devastating and costly effects of prenatal cocaine exposure on newborns (Hartman & Golub, 1999; Lyons & Rittner, 1998). This attention resulted in increased funding for treatment programs serving females. Block grant legislation was amended by the Federal Government in 1984 to require that each State set aside 5 percent of its block grant allocation to provide new or expanded substance abuse treatment services for women. By 1988, this set-aside for women’s services had increased to 10 percent, and in 1990 the General Accounting Office (GAO) called for an urgent national response to the growing issue of drug-exposed infants in the United States (Grella & Greenwell, 2004). Within the U.S. Public Health Service (PHS), branches of the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA), the National Institute on Child Health and Human Development (NICHD), and the Health Resources and Services Administration (HRSA) all implemented special programs for females with substance use disorders.

During the 1980s and 1990s, an increasing number of Federal programs were geared specifically to substance-abusing mothers. The NIDA “Perinatal-20” funded 20 demonstration grant projects in 1989 and 1990 that focused on the treatment of drug-abusing pregnant women

and their offspring. The intent of the Perinatal-20 was to conduct treatment research and create new treatment slots for women and their children (Kandall, 1996). Each of the 20 projects was designed to evaluate either a comprehensive treatment program composed of an integrated system of services or a specific targeted therapeutic intervention embedded in a comprehensive continuum of care. Each study targeted in its evaluation drug-abusing women in treatment either with or without their children (Rahdert, 1996). Through these funding and policy initiatives, availability of treatment services for women increased, and this increase enabled researchers and evaluators to study gender-specific treatment processes and outcomes.

The Substance Abuse and Mental Health Services Administration (SAMHSA) and its predecessor, the Alcohol, Drug Abuse, and Mental Health Administration, initiated important programs for women with substance use disorders. One program managed under both agencies, the Pregnant and Postpartum Women and their Infants (PPWI) Demonstration Grant Program, awarded 147 grants in 37 States between 1989 and 1993. These projects provided comprehensive prevention, intervention, and treatment services to substance-abusing pregnant and postpartum women (Carter & Larson, 1997). These programs also provided health care services to the infants of women in treatment. An evaluation of 90 of the 147 demonstration grant projects found them to be highly successful in improving the coordination, availability, and accessibility of health care and alcohol and drug treatment for pregnant and postpartum women, with at least one third of the women treated by these programs reporting a reduction in drug use (Carter & Larson, 1997).

In addition to the PPWI Demonstration Grant Program, SAMHSA's Residential Women and Children (RWC) and the Pregnant and Postpartum Women (PPW) Demonstration Program awarded 5-year grants to 70 projects between 1993 and 1995 (Clark, 2001). Both of these initiatives were designed to support comprehensive residential treatment services, including primary health care, mental health assessments and counseling, and other social services for substance-abusing women and their children. The Center for Substance Abuse Treatment (CSAT) conducted a cross-site evaluation of 50 of these programs. One of the key findings from that evaluation was that between 1993 and 1996, the number of women who reported the use of illicit drugs decreased by between 73 and 80 percent from intake to postdischarge (Carter & Larson, 1997). Other benefits of these programs included reduction of adverse pregnancy outcomes, reduction of criminal involvement, and improvement in retaining custody of children (Substance Abuse and Mental Health Services Administration [SAMHSA], 2001). In addition, 47 of the 50 RWC/PPW projects obtained funding for the continuation of services beyond the original CSAT funding.

Today, SAMHSA, through CSAT and the Center for Mental Health Services (CMHS), continues to fund programs providing comprehensive residential substance abuse treatment services for pregnant, postpartum, and/or parenting women and their minor children. A variety of funding vehicles supports these programs, including Targeted Capacity Expansion, Addiction Treatment for the Homeless, HIV Outreach, and Drug Court grants. An example of one of these programs is the Women, Co-Occurring Disorders and Violence Study, a 5-year initiative jointly supported by the three centers of SAMHSA to study women with substance abuse and mental health disorders who have histories of violence. Knowledge gained from this study is expected to be useful in advancing national, State, and local policy that affects how the various service

systems respond to women with co-occurring disorders and histories of violence. As of June 2004, CSAT had funded over 100 grantees targeting women. In addition to SAMHSA’s efforts, some states have created or funded treatment programs or provided priority access to treatment for pregnant substance abusers (Dailard & Nash, 2000).

Availability of Substance Abuse Treatment Programming for Women

Limited information is available about the prevalence of components of substance abuse treatment programming for women. Services are not clearly defined, and the services offered may be available to only a limited number of clients because of restricted resources. Nevertheless, the data provide important insight about the types and scope of treatment options for females.

Table 2.1 presents data about the prevalence of child care or prenatal care services offered by substance abuse treatment facilities. Nationally across studies, as shown in the table, 8 percent of substance abuse treatment facilities offer child care services, and 7 percent offer prenatal care services, although the rate in urban settings may be higher.

Table 2.1 Percentages of Substance Abuse Treatment Facilities Offering Child Care or Prenatal Care Services

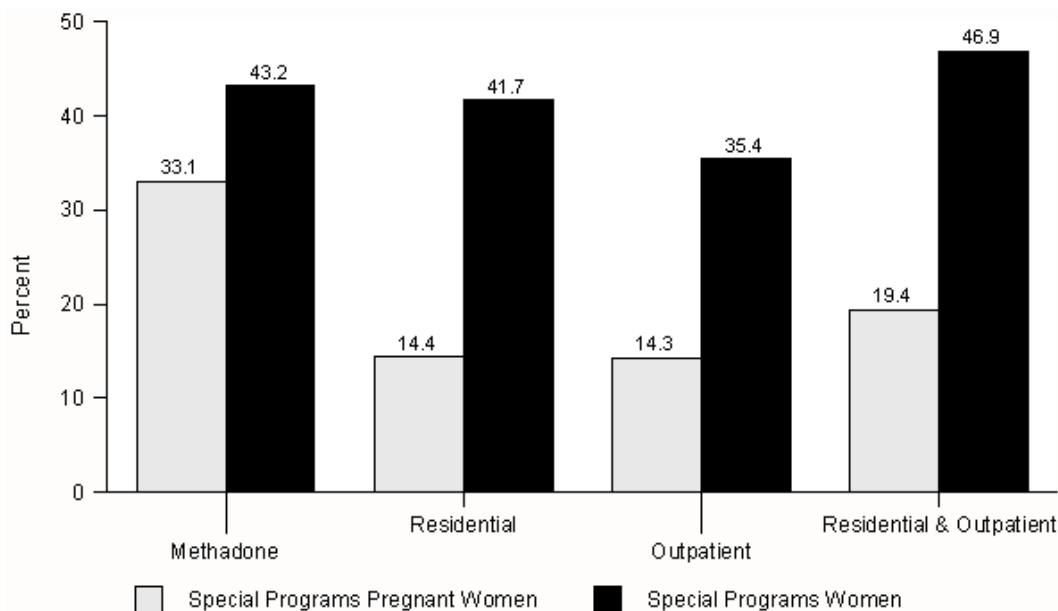
Data Source	Facilities Offering Child Care Services	Facilities Offering Prenatal Care Services
2003 N-SSATS (SAMHSA, 2004)	7.9	Not available
1998 UFDS (OAS, 2000)	8.6	6.5
Opioid Treatment Program Study (CSAT, 2003)	7.5	Not available
1994 Los Angeles Study (Grella, Polinsky, Hser, & Perry, 1999)	Not available	30.4

The 2003 National Survey of Substance Abuse Treatment Services (N-SSATS) found that 14 percent of substance abuse treatment facilities offered special programs for pregnant or postpartum women. Although this figure cannot be compared to percentages from previous years due to a change in the N-SSATS survey instrument, the percentage of facilities offering special programs for pregnant or postpartum women remained relatively stable between 1997 and 2002. The 2003 N-SSATS also found that 35 percent of substance abuse treatment facilities offered special programs for women, a figure that has remained relatively stable ever since an increase from 1998 to 1999 (SAMHSA, 2004). Among the major types of care, special programs for women most often were offered at combined residential and outpatient facilities (Figure 2.1). More than one third of all facilities offered transportation assistance to treatment.

In a survey of 172 opioid treatment programs in 15 states, CSAT (2003) found that 49 percent offered special services for women, and 59 percent offered special services for pregnant women. Among a subset of 108 of these programs in 14 states, Wechsberg and colleagues (2001)

found that 83 percent provided priority admission for pregnant women, 58 percent offered counseling to families, and 9 percent reported matching female clients with female counselors.

Figure 2.1 Percentages of Facilities Offering Special Programs for Women or Pregnant Women, by Type of Care: N-SSATS, 2003



Source: SAMHSA, Office of Applied Studies, National Survey of Substance Abuse Treatment Services (N-SSATS, 2003)

Using Los Angeles County data, a 1994 study of 161 drug treatment programs for adults found that 42 percent provided activities for children, 39 percent targeted pregnant women, and 19 percent served women only (Grella et al., 1999). Compared with mixed-gender programs, women-only programs were more likely to provide priority admission for pregnant women, charge no fees, and plan for longer treatment duration. Women-only programs also were more likely than mixed-gender programs to offer pediatric/well-baby care, children’s activities, and housing assistance. In addition, women-only programs were more likely to serve Latinos and Native Americans and to accept Medicaid payment than were mixed-gender programs. The authors stated that the high percentage of women-only programs receiving public funding generally reflected the lower economic status of females.

Effectiveness of Substance Abuse Treatment Programming for Women

Although studies evaluating substance abuse treatment programming for women in the past often lacked control groups or analyzed small samples that limited their conclusions about effectiveness (McCrary & Raytek, 1993), recent research has shown promising results. Studies have demonstrated higher rates of retention when women in residential treatment are allowed to live with their children (Szuster, Rich, Chung, & Bisconer, 1996). Additionally, several studies have demonstrated better outcomes for women in outpatient treatment with comprehensive

support services, including pregnancy-related services, parenting/training classes, child care, and family services (Grella & Greenwell, 2004).

This section provides a review of the literature evaluating the effectiveness of substance abuse treatment programming for women. Studies published between 1980 and 2000 of substance abuse treatment programming for women were identified through a systematic literature search. To be included in this review, studies must have explicitly defined the population at risk, described the intervention, and presented outcome measures to evaluate the impact of substance abuse treatment programming. The outcome measures included retention in treatment and changes in substance use, mental health symptoms, perinatal/birth outcomes, employment, self-reported health status, and HIV risk. A total of 37 studies were identified; 7 were randomized controlled trials, and 30 were nonrandomized studies. Detailed methods for this review have been published elsewhere (Ashley, Marsden, & Brady, 2003).

Optimally, health interventions are evaluated through a rigorous randomized controlled trial (or series of trials), the standard for establishing efficacy (Sackett, Haynes, Guyatt, & Tugwell, 1991).¹ The 7 randomized trials differed in interventions and methodologies, while the 30 nonrandomized studies employed a variety of descriptive, cohort, preexperimental, and quasi-experimental study designs. Of the seven randomized, controlled trials reviewed here, Dahlgren and Willander's (1989) study came closest to the optimal study design: females were randomly assigned to treatment in either a regular ward/alcoholism treatment center or a women-only outpatient or residential setting, and results were compared after 2 years.

Across the 37 populations analyzed, 36 studies reported improved treatment outcomes for female clients. All 7 randomized controlled trials showed positive results (Table 2.2), and 29 of the 30 nonrandomized studies showed positive results. The one study that did not report improved treatment outcomes was conducted in Australia. This study found no differences in treatment outcomes among females in a women-only program and in two mixed-gender treatment programs (Copeland, Hall, Didcott, & Biggs, 1993). However, more lesbian women, women with dependent children, and women with a history of childhood sexual abuse or maternal substance abuse participated in the women-only program than in the mixed-gender programs.

This review focuses primarily on three components of gender-specific treatment: child care services, prenatal care services, and women-only treatment. In addition, the effects of two additional components of substance abuse treatment programming for women were examined: mental health programming and supplemental education sessions that address women-focused topics. Transportation was provided infrequently within the studies reviewed and was not evaluated by any study as a primary intervention; therefore, it is not discussed independently from other components.

¹However, studies that start out as randomized controlled trials may not be able to sustain the original study design because subjects may drop out to enter a treatment program of choice that offers special child care services, has a more convenient location, or offers outpatient (vs. inpatient) treatment, for example.

Table 2.2 Randomized Studies of the Effectiveness of Substance Abuse Treatment Programming for Women

Study Citation	N	Population	Interventions	Control Condition	Outcomes
Carroll, Chang, Behr, Clinton, & Kosten (1995)	14	Pregnant, outpatient methadone clinic patients	Prenatal care, therapeutic child care during treatment visits, monetary rewards for abstinence, relapse prevention	Standard methadone treatment	At delivery: Increased gestational length, birthweight, and number of prenatal care visits; no change in maternal drug use
Dahlgren & Willander (1989)	200	Women entering alcohol treatment	Women-only outpatient and residential treatment	Treatment in regular wards and alcoholism treatment center	At 2-year follow-up: Decreased alcohol use, decreased job loss
Elk, Mangus, Rhodes, Andres, & Grabowski (1998)	12	Pregnant cocaine-dependent women who had used the drug during this pregnancy but had ceased use	Contingent reinforcement for cocaine abstinence and attending prenatal visits, transportation, child care, behaviorally based drug counseling, weekly prenatal visits	Behaviorally based drug counseling, weekly prenatal visits	At delivery: Improved perinatal outcomes and increased prenatal care but no significant difference in abstinence from cocaine
Hiller, Rowan-Szal, Bartholomew, & Simpson (1996)	17	Women in residential treatment	Weekly sessions on women's health, HIV/AIDS prevention, and assertiveness/communication skills	No specialized treatment intervention	On intervention completion: Increased self-esteem, more positive attitudes toward practicing safer sex
Hughes et al. (1995)	53	Female cocaine abusers with children	Children allowed to live with mothers in a therapeutic community	Standard (no child) community treatment	By discharge: Improved retention

(continued)

Table 2.2 Randomized Studies of the Effectiveness of Substance Abuse Treatment Programming for Women (continued)

Study Citation	N	Population	Interventions	Control Condition	Outcomes
O'Neill et al. (1996)	73	Pregnant women enrolled in methadone maintenance programs for pregnant women	Six-session cognitive-behavioral intervention focused on the acquisition of skills aimed at helping prevent relapse to needle sharing and to unsafe sex, methadone maintenance treatment, counseling and advice about HIV risk-taking behaviors	Methadone maintenance treatment, counseling, and advice about HIV risk-taking behaviors	At 9-month follow-up: Reduction of injecting risk behaviors associated with "typical" drug use and binge use, no change in sexual risk behaviors, no change in drug use per se
Volpicelli, Markman, Monterosso, Filing, & O'Brien (2000)	84	Cocaine-dependent mothers	Parenting skills class, access to a psychiatrist, individual therapy sessions, GED classes	Case management-oriented outpatient treatment program	At 12-month follow-up: Decreased drug use, increased program retention, no change in psychosocial functioning (including employment status)

Although in clinical trials, all subjects assigned to a particular condition (e.g., child care services) will normally receive the service, in studies of substance abuse treatment programs, clients in programs *offering* services may not actually *receive* them. Thus, there is the potential in such studies for Type II error—that is, differences in outcomes between programs with women’s services and those without such services may be identified as small or nonexistent because not all of the female clients at programs offering services received them. Findings are discussed below.

Child Care Services

It is difficult to analyze the unique impact of child care services on treatment outcomes for females because in some studies, the service was bundled with other intervention services. In other studies, child care was provided to study participants, but its impact was not evaluated (Carroll, et al., 1995; Elk et al., 1997). Most studies that evaluated the effectiveness of providing

child care services to female clients in substance abuse treatment examined services for children living with their mothers in a residential treatment program. In one clinical trial, females who lived with their children in therapeutic community treatment programs remained in treatment significantly longer (mean length of stay [LOS] = 300 days) than females whose children were placed with caretakers (mean LOS = 102 days) (Hughes et al., 1995). Less rigorous studies also found that program changes enabling women to bring their children into residential treatment were associated with increased LOS (e.g., Stevens, Arbiter, & Glider, 1989; Wobie, Eyler, Conlon, Clarke, & Behnke, 1997). One study found that measures of depression were lower and measures of self-esteem were higher for females whose infants accompanied them to the treatment facility compared with females who did not have their infants in the treatment facility (Wobie et al., 1997). This study suggested that the earlier a mother's infant resides with her in the treatment setting, the longer the mother will stay in treatment.

Prenatal Care Services

One small-scale randomized trial compared standard methadone maintenance to an enhanced treatment program that offered prenatal care services, relapse-prevention groups, positive contingency awards for abstinence, and therapeutic child care services (Carroll et al., 1995). A second nonrandomized study evaluated a similar intervention (Chang, Carroll, Behr, & Kosten, 1992). Both studies found that females in the enhanced methadone program made 3 times as many prenatal visits and experienced better birth outcomes than females in the standard program; however, both studies analyzed small sample sizes. Another randomized study combined contingency reinforcement for abstinence with weekly prenatal visits, transportation, child care, and behaviorally based drug counseling and found improved perinatal outcomes and increased prenatal care but no change in substance use at delivery (Elk et al., 1998).

Other studies examined the effectiveness of mental health interventions coupled with prenatal care, child care, human immunodeficiency virus (HIV) counseling, parenting and nutrition classes, and transportation (Elk et al., 1997; Kukko & Halmesmaki, 1999). These studies reported high rates of abstinence from drug use or reduced drug use, retention in treatment, compliance with prenatal care, and good perinatal outcomes.

Women-Only Treatment

Although the literature contains many reports of women-only treatment programs, only one randomized study in Sweden compared females in a women-only treatment unit consisting of an outpatient clinic and a residential ward with females placed in the care of traditional mixed-gender alcoholism treatment centers (Dahlgren & Willander, 1989). A 2-year follow-up showed a more successful rehabilitation in terms of alcohol consumption and social adjustment (including employment status) for the females treated in the specialized women-only unit.

Using a nonrandomized design, Grella and colleagues (1999) found that females treated in publicly funded women-only residential treatment programs in Los Angeles reported they had more problems, such as mental health issues and substance severity, than females at mixed-gender programs. However, the clients in women-only programs actually spent more time in treatment and were more than twice as likely to complete treatment than females in mixed-gender

programs. In contrast, programs that treat male and female clients together are less able to attract and retain especially vulnerable females, such as lesbian women, women with a history of physical or sexual violence, women who have worked as prostitutes, and single parents (Copeland & Hall, 1992; Fullilove, Lown, & Fullilove, 1992; Grella, 1997; Pottier, Inciardi, & Tressell, 1996).

Copeland and colleagues (1993) compared the results achieved by subjects in a women-only treatment program with those for subjects in two traditional mixed-gender treatment programs in Australia. Their study found no statistically significant differences at 6 months following treatment on any treatment outcome measure between the females in the two types of programs, including self-reports of alcohol or drug use, a detoxification episode, a drug-related conviction, and Alcoholics Anonymous/Narcotics Anonymous (AA/NA) attendance. However, at entry into treatment, the women-only program served more lesbian women, women with dependent children, women sexually abused in childhood, and women with a maternal history of substance dependence than did the mixed-gender programs.

Mental Health Services

A number of studies evaluated the effectiveness of mental health programming for females in substance abuse treatment. Volpicelli and colleagues (2000) randomly assigned cocaine-dependent mothers to either a case management outpatient treatment program or to a psychosocially enhanced treatment (PET) program that offered access to a psychiatrist, individual therapy sessions, parenting classes, and high school equivalency education. Overall, PET patients averaged 15.4 weeks in treatment compared with 13.9 weeks for the case management group. Although cocaine use decreased from baseline levels in both groups, the PET group had used cocaine on significantly fewer days at 12-month follow-up than the case management group. The investigators suggested that individual therapy may have been the primary cause of the PET group's marginally better outcomes because individual therapy was the most extensively utilized service in the PET group.

Another study randomly assigned pregnant injecting drug users either to (1) a six-session cognitive-behavioral intervention addressing relapse prevention, needle sharing, and unsafe sex in addition to their usual methadone maintenance treatment or (2) their usual methadone maintenance treatment only. Results indicated that the intervention group had significantly reduced some HIV risk-taking behaviors at a 9-month follow-up (O'Neill et al., 1996).

Nonrandomized studies have evaluated the effectiveness of outpatient individual counseling and/or group therapy in combination with vocational and recreational activities, medical care, parenting classes, relaxation therapy, child care, and prenatal care services (Bander, Stilwell, Fein, & Bishop, 1983; Field et al., 1998; Kukko & Halmesmaki, 1999). Results included abstinence or lower incidence of substance use, an increase in education and employment, improved mother-child interactions, lowered incidence of preterm birth, increased gestational age and birthweight, improved child physical and psychosocial functioning, and lowered repeat pregnancy. In another study, researchers examined the effectiveness of a therapy group addressing grief and loss among females enrolled in a gender-specific residential substance abuse treatment program (McComish et al., 1999). Females who participated in the grief group

remained in treatment longer and had higher self-esteem at follow-up than those enrolled in the same residential substance abuse treatment program but who did not participate in the grief group.

Use of Supplemental Education Sessions

Research has shown the effectiveness of supplemental education sessions for females in substance abuse treatment. One randomized study evaluated a treatment program that supplemented standard substance abuse treatment with weekly psychosocial workshops on topics covering breast health and breast self-examination; sexual and reproductive anatomy; sexually transmitted diseases (STDs), including HIV and acquired immune deficiency syndrome (AIDS) prevention; plus assertiveness and communication skills (Hiller et al., 1996). This approach improved attitudes toward practicing safer sex and increased self-esteem. Several nonrandomized studies also assessed supplemental psychoeducational sessions and workshops. These studies evaluated standard substance abuse treatment supplemented with workshops as the primary focus of an intervention (Bartholomew, Rowan-Szal, Chatham, & Simpson, 1994) and in combination with other intervention components, including child care and prenatal or health care (Field et al., 1998; Knight, Hood, Logan, & Chatham, 1999; Saunders, 1993; Wobie et al., 1997), the provision of educational materials and behavioral strategies (Walitzer & Connors, 1997), and comprehensive program restructuring to address the special needs of women (Stevens & Arbiter, 1995; Stevens et al., 1989; Zankowski, 1987).

Summary

This review of the current knowledge about substance abuse treatment programming for women suggests that for substance-abusing females, treatment programming that includes auxiliary and/or wraparound services, such as child care services, prenatal care services, women-only treatment, mental health services, and supplemental services and workshops addressing women-focused topics, can be beneficial. Positive treatment outcomes included decreased substance use, increased treatment retention, improved perinatal/birth outcomes and prenatal care, improvements in self-esteem and depression, and HIV risk reduction. Programs that narrowly define the problems that females face solely as alcohol or other drug abuse may not improve outcomes substantially.

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Chapter 3. Data and Methods Used in This Report

Analyses in this report are based on data from a nationally representative sample of substance abuse treatment facilities and clients in the Alcohol and Drug Services Study (ADSS). This chapter provides information about ADSS and an overview of the analytic methods used in this report.

Data Source

ADSS provides detailed information on the characteristics of substance abuse treatment facilities and their clients. Conducted in three phases between 1996 and 1999, ADSS collected data by administering questionnaires to substance abuse treatment facility directors through telephone interviews, abstracting client record data, and conducting postdischarge personal interviews with clients. ADSS was sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), part of the U.S. Department of Health and Human Services (DHHS). Data collection was carried out by Brandeis University and Westat, Inc., under a contract with SAMHSA's Office of Applied Studies (OAS). In-depth information about ADSS methods is described in another SAMHSA report (OAS, 2003a) and on the OAS website at <http://www.oas.samhsa.gov/adss.htm>. Data collection instruments for ADSS's three phases can be found at <http://www.oas.samhsa.gov/adss.htm#Qn>. Data used in this report were drawn from the first two phases of the study.

ADSS Phase I

The Phase I target population comprised active public and private substance abuse treatment facilities. Facilities excluded from the survey included halfway houses without paid counselors, solo practitioners, correctional facilities, military/Department of Defense (DoD) facilities, Indian Health Service (IHS) facilities, and facilities that perform intake and referral only. Phase I of the survey was conducted from December 1996 to June 1997 among a nationally representative sample of substance abuse treatment facilities.

The ADSS Phase I questionnaire was administered in about 50 minutes and used telephone-administered structured interview methods with substance abuse treatment facility directors. The questionnaire was mailed 2 weeks in advance and required approximately 3 hours for respondents to obtain answers to questions prior to the telephone data collection. Respondents were assured that information collected during both Phases I and II would be handled in the strictest confidence. Furthermore, information collected was protected from civil and criminal subpoena by a Certificate of Confidentiality issued by the DHHS.

ADSS employed a national sampling design including all 50 states and the District of Columbia. Substance abuse treatment facilities were assigned to one of seven strata based on the type of care delivered to clients: (1) hospital inpatient, (2) other residential, (3) outpatient—predominantly methadone, (4) outpatient—almost exclusively alcohol, (5) outpatient—all other, (6) combined, or (7) unknown. The design oversampled hospital inpatient, residential, outpatient

methadone, and combined facilities. The Phase I questionnaire collected information on each facility's organizational characteristics; facility counts of active clients in treatment² and special programs offered to specific types of clients, using a reference date of October 1, 1996; and 12-month facility data on specific services offered (OAS, 2002).

ADSS Phase II

The ADSS Phase II target population comprised clients discharged from nonhospital residential or outpatient substance abuse treatment facilities. Discharged clients were those who ended treatment in some way during the 6-month period preceding the data collection visit, regardless of when they were admitted.³ Clients excluded from this phase were those discharged from hospital inpatient facilities, facilities in which all clients were treated for alcohol abuse only, and facilities outside a nationally representative subset of 62 primary sampling units (PSUs). Phase II was conducted from August 1997 to April 1999. A client record abstraction form was used to collect information from the client treatment records during site visits to the facilities.

The Phase II client sample was drawn from client discharges from the 280 Phase II respondent facilities. Substance abuse treatment discharges during the most recent 6 months were listed for those Phase II facilities that participated in all steps of the Phase II study protocol, and a sample of client discharge records was randomly selected from the client lists. To be included on the list, clients must have been an active treatment client, had at least 1 day in treatment or at least one outpatient visit, and ended treatment during the 6-month period. The Phase II record abstraction form collected demographic and background, medical, substance abuse history, mental disorder, and discharge information.

ADSS Phase III

ADSS Phase III included personal follow-up interviews with selected subgroups of Phase II discharged clients and the collection of postdischarge urine samples. Phase III data were not included in this analysis.

Analysis Samples

Facility directors from a total of 2,395 substance abuse treatment facilities completed the Phase I survey (Table 3.1), and 280 of those facilities participated in the Phase II data collection.

²Active clients were defined as individuals who (1) had been admitted to the treatment facility and for whom a substance abuse treatment plan had been developed, (2) had been seen on a scheduled appointment basis for substance abuse treatment at least once during the preceding month or were inpatients/residential patients on October 1, 1996, and (3) had *not* been discharged from treatment as of October 1, 1996.

³These clients included those who were formally discharged on completion of treatment; dropped out of treatment or otherwise failed to return; were terminated by the facility (for noncompliance with rules, lack of payment, termination of type of care, etc.); were incarcerated and ended treatment; died; were transferred to another facility, thereby ending their treatment at the sampled facility; or in any other way ended treatment at the sampled facility during the 6-month reference period.

Table 3.1 ADSS Phase I Facility Sample Sizes, by Facility Characteristics and Availability of Substance Abuse Treatment Programming for Women: 1996–1997

Facility Characteristic	Number of Facilities Overall (n = 2,395 Facilities)			Number of Facilities with Child Care Services Data (n = 2,390 Facilities)	
	Total	Women- Only	Mixed- Gender	Offered Child Care Services	Did Not Offer Child Care Services
<i>Facility Type of Care</i>					
Outpatient nonmethadone only	1,083	20	1,063	161	918
Nonhospital residential only	428	64	364	51	377
Outpatient methadone only	324	2	322	30	294
Hospital inpatient only	203	—	203	2	201
Combination	357	10	347	76	280
<i>Number of Clients</i>					
175 or more	619	1	618	117	501
75 to 174	542	7	535	81	460
25 to 74	597	18	579	55	540
24 or fewer	637	70	567	67	569
<i>Ownership</i>					
Private, nonprofit	1,478	81	1,397	233	1,241
Private, for-profit	498	3	495	22	475
City or county government	249	7	242	47	202
State government	95	3	92	12	83
Federal government	64	1	63	2	62
Tribal government	11	1	10	4	7
<i>Services Offered</i> ^{1,2}					
Child care	320	54	266	320	2,070
Prenatal care	385	34	351	98	287
Transportation	1,183	87	1,096	236	945
Family counseling	1,958	77	1,881	279	1,675
Combined substance abuse treatment and mental health services	1,252	38	1,214	177	1,071
<i>Special Programs Offered</i> ^{1,2}					
Women	973	88	885	250	720
Pregnant women	562	50	512	190	371
Dual-diagnosis clients	973	34	939	168	802
AIDS/HIV-positive clients	691	33	658	137	554

¹ Sampled facilities for which no answer was recorded for the item about provision of a service or program are counted as not offering the service or program.

² Categories are not mutually exclusive.

AIDS = acquired immunodeficiency syndrome; HIV = human immunodeficiency virus.

Source: Alcohol and Drug Services Study (ADSS), Phase I data, 1996–1997. Substance Abuse and Mental Health Services Administration, Office of Applied Studies.

The Phase II data contain abstracted information for 5,005 discharged substance abuse treatment clients aged 13 or older (Table 3.2). The sample of client records was used to examine characteristics of substance abuse treatment clients (Chapter 4). The sample of Phase I facilities was used to examine characteristics of facilities offering substance abuse treatment programming for women (Chapter 5). The sample for the analysis of the relationship between the gender of clients and retention (Chapter 6) was restricted to records for clients aged 18 or older ($n = 4,689$ clients). This sample excludes youths younger than 18 because differences between adult and juvenile treatment systems are significant, and the findings were intended to be generalized only to the adult treatment system. Furthermore, differences, such as child care needs, between adults and youths regarding treatment programming were expected. The analysis of the relationship between substance abuse treatment programming for women and retention among women (Chapter 6) was based on records for female clients aged 18 or older for whom retention information was available ($n = 1,239$ clients).

Measures and Definitions of Terms Used in This Report

This section describes ADSS measures and provides definitions of key study variables.

Client Characteristics

A range of client demographic and background variables was included in ADSS Phase I and Phase II data. Age of the client was defined as “age at admission.” Phase I client race/ethnicity was reported by facilities, and Phase II client race information was abstracted from client records. Missing data for client ethnicity precluded including this information in Phase II analyses. Phase II data included client education at admission, primary source of referral to treatment, primary source of payment for treatment, marital status at admission, clients’ having a child or children at admission, employment at admission, and living arrangement at admission. Phase II gleaned data about clients’ presenting substance abuse problem at admission and the substance of choice specified at admission. Treatment service type (Chapter 4) was measured using ADSS Phase II client abstract data and refers to the specific service received by each client, regardless of whether the facility providing treatment offered more than one type of care. The three service types are (1) outpatient nonmethadone, (2) nonhospital residential, and (3) outpatient methadone treatment. Categories for some client demographic, background, and substance use characteristics were collapsed for some analyses.

Components of Substance Abuse Treatment Programming for Women

Prevalence and retention estimates associated with substance abuse treatment programming for women were based on the following facility characteristics: women-only facilities, facilities offering child care services, facilities offering prenatal care services, facilities offering special programs for women, and facilities offering special programs for pregnant women. *Women-only* facilities referred to those with active clients on October 1, 1996, and that served only female clients on that date. Facilities offering *child care* services referred to facilities offering child care services during the most recent 12-month period for which data were available, defined as “services that provide care for minor children of active clients, including supervised activities.” Similarly, facilities offering *prenatal care* services referred to facilities offering prenatal care

Table 3.2 ADSS Phase II Client Sample Sizes for All Substance Abuse Treatment Clients Aged 13 or Older, by Gender and Service Type of Care: 1997–1999

Characteristic	Service Type of Care								
	Outpatient Nonmethadone			Nonhospital Residential			Outpatient Methadone		
	Total	Female	Male	Total	Female	Male	Total	Female	Male
Total	3,642	939	2,703	878	198	680	463	197	266
<i>Age at Admission (Years)</i>									
13 to 17	239	67	172	54	9	45	1	--	1
18 to 24	562	115	447	99	19	80	24	12	12
25 to 34	1,215	347	868	290	80	210	165	79	86
35 to 44	1,069	294	775	299	63	236	183	80	103
45 to 54	372	80	292	99	15	84	73	21	52
55 or older	135	24	111	23	6	17	12	4	8
Unknown/not mentioned	50	12	38	14	6	8	5	1	4
<i>Race</i>									
White	2,263	574	1,689	411	100	311	186	82	104
Black	763	260	503	364	75	289	126	63	63
Other	214	34	180	30	10	20	65	24	41
Unknown/not mentioned	402	71	331	73	13	60	86	28	58
<i>Marital Status at Admission</i> ¹									
Not married	2,663	724	1,939	690	149	541			
Married/common law	859	183	676	152	38	114			
Unknown/not mentioned	120	32	88	36	11	25			
<i>Have Child/Children at Admission</i> ¹									
Yes	1,961	648	1,313	509	149	360			
No	1,117	204	913	269	38	231			
Unknown/not mentioned	564	87	477	100	11	89			
<i>Living Arrangement at Admission</i> ¹									
With spouse/partner	999	251	748	124	35	89			
With parent(s)	817	173	644	143	28	115			
Alone	432	101	331	73	21	52			
With other family	348	116	232	58	12	46			
With no other adult(s)/children only	113	85	28	10	8	2			
No stable arrangement at admission (includes homeless, shelters)	163	46	117	185	38	147			
With friends	212	46	166	35	7	28			
Correctional facility	20	4	16	102	6	96			
Other institution/closed facility	76	21	55	56	9	47			
Unknown/not mentioned	462	96	366	92	34	58			

(continued)

Table 3.2 ADSS Phase II Client Sample Sizes for All Substance Abuse Treatment Clients Aged 13 or Older, by Gender and Service Type of Care: 1997–1999 (continued)

Characteristic	Service Type of Care								
	Outpatient Nonmethadone			Nonhospital Residential			Outpatient Methadone		
	Total	Female	Male	Total	Female	Male	Total	Female	Male
<i>Education at Admission</i> ¹									
Less than high school graduate	1,277	361	916	316	73	243			
High school graduate/GED	1,301	301	1,000	299	65	234			
Some college, college graduate, or postgraduate	806	223	583	212	48	164			
Unknown/not mentioned	258	54	204	51	12	39			
<i>Employment at Admission</i>									
Unemployed	1,357	471	886	596	150	446	270	113	157
Employed full time (35 hours/week or more)	1,151	166	985	104	11	93	67	19	48
Employed part time (fewer than 35 hours/week)	279	90	189	30	6	24	30	17	13
Keeping house, not otherwise employed	63	59	4	6	6	—	11	10	1
Employed, not otherwise specified	326	39	287	15	2	13	24	12	12
Disabled	156	35	121	34	7	27	28	11	17
Other	116	28	88	54	6	48	3	—	3
Unknown/not mentioned	194	51	143	39	10	29	30	15	15
<i>Primary Source of Referral for Treatment</i>									
Criminal justice system	1,925	322	1,603	298	42	256	18	4	14
Self-referred/voluntary	553	195	358	247	70	177	264	117	147
Other treatment facility	268	81	187	114	24	90	59	30	29
Welfare office or other social service agencies	271	124	147	57	15	42	9	4	5
Health care, mental health, or insurance providers	230	107	123	73	25	48	25	8	17
Family/friend	163	52	111	52	13	39	37	15	22
Other	123	18	105	4	—	4	2	2	—
Unknown/not mentioned	109	40	69	33	9	24	49	17	32
<i>Primary Expected Source of Payment for Treatment</i>									
Client self-payment	1,367	225	1,142	214	41	173	113	43	70
Medicaid	444	216	228	58	30	28	214	88	126
Medicare or other public funding	455	117	338	236	55	181	53	21	32

(continued)

Table 3.2 ADSS Phase II Client Sample Sizes for All Substance Abuse Treatment Clients Aged 13 or Older, by Gender and Service Type of Care: 1997–1999 (continued)

Characteristic	Service Type of Care								
	Outpatient Nonmethadone			Nonhospital Residential			Outpatient Methadone		
	Total	Female	Male	Total	Female	Male	Total	Female	Male
Private health insurance, fee-for-service	234	54	180	30	8	22	4	3	1
Private health insurance, HMO/PPO/managed care	275	85	190	29	5	24	12	7	5
Criminal justice system	253	49	204	123	7	116	—	—	—
No payment	171	59	112	68	25	43	11	5	6
Other	57	22	35	21	5	16	12	6	6
Unknown/not mentioned	386	112	274	371	93	278	44	24	20
<i>Presenting Substance Abuse Problem at Admission</i> ¹									
Alcohol and drug abuse	1,904	532	1,372	575	132	443			
Alcohol abuse only	1,206	211	995	125	25	100			
Drug abuse only (excluding alcohol)	459	181	278	169	41	128			
Unknown/not mentioned	73	15	58	9	—	9			
<i>Substance of Choice at Admission</i> ¹									
Alcohol	1,799	367	1,432	295	67	228			
Cocaine	513	223	290	262	70	192			
Marijuana, hashish, THC	434	88	346	71	7	64			
Amphetamines	68	25	43	32	15	17			
Heroin	134	35	99	84	16	68			
Nontreatment methadone or other opiates	26	17	9	11	5	6			
Barbiturates, benzodiazepines, or other sedatives or hypnotics	13	9	4	5	2	3			
Any other drug, multiple, or no substance of choice	119	39	80	36	5	31			
Unknown/not mentioned	536	136	400	82	11	71			

¹ Not collected for outpatient methadone clients.

GED = general equivalency diploma; HMO = health maintenance organization; PPO = preferred provider organization; THC = tetrahydrocannabinol.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase II client record abstract data, 1997–1999.

services during the most recent 12-month period for which data were available. Facilities offering *special programs for women* or *special programs for pregnant women* referred to those that offered such programs on October 1, 1996.

Other Facility Characteristics

Analyses discussed in Chapters 5 and 6 grouped substance abuse treatment facilities into categories representing five facility types of care from Phase I data: (1) outpatient nonmethadone only, (2) nonhospital residential only, (3) outpatient methadone only, (4) hospital inpatient only, or (5) combination facilities (i.e., those that offered more than one type of care, such as a single treatment facility that offered residential and outpatient care).⁴ Analyses in Chapter 5 also grouped facilities into categories based on the total number of active clients.

Retention

Two important constructs are used in the substance abuse treatment literature: treatment completion and length of stay (LOS). A program or facility that has good retention is one that generally is able to keep clients in treatment for longer periods of time. Treatment completion means that an individual has successfully completed a treatment plan that is either generic to the program or facility or is tailored to the client's needs. LOS represents how long a person stays in treatment. In Chapter 6, completion of planned treatment was 1 of 11 response options for reason for discharge among clients in nonmethadone facilities; LOS was indicated by the number of days between the client's date of admission and the date of discharge in both methadone and nonmethadone facilities.

Statistical Methods

WesVar[®] software (Westat, Inc., 2000) was used for descriptive analyses, incorporating sample weights and jackknife variance estimation (Rust & Rao, 1996). In this report, a *p* value less than 0.05 is considered statistically significant, except in Chapter 5 analyses of client

⁴In 2002, according to the National Survey of Substance Abuse Treatment Services (N-SSATS), 81 percent of all facilities offered outpatient care (including 7 percent that offered methadone treatment), 28 percent offered residential care, and 8 percent offered hospital inpatient care. In addition, an estimated 90 percent of clients received outpatient treatment (including 19 percent receiving outpatient care), 8 percent received residential care, and less than 1 percent received hospital inpatient care (OAS, 2003b). In 1996, an estimated 76 percent of clients received outpatient nonmethadone treatment, 14 percent received outpatient methadone care, 9 percent were in nonhospital residential care, and 1 percent were in hospital inpatient care (OAS, 2003c). Outpatient nonmethadone facilities do not provide methadone for treatment of dependence on heroin or other opioids and provide care in outpatient settings; nonhospital residential facilities provide detoxification or rehabilitation in 24-hour nonhospital settings; outpatient methadone facilities dispense methadone to treat dependence on heroin or other opioids on an outpatient basis; and hospital inpatient facilities provide detoxification or rehabilitation services in hospital inpatient settings. These facilities vary in the clients they serve and the approaches they use, as well as in the average LOS. In ADSS, the average LOS for all clients discharged from treatment in the facilities studied was 133 days, or about 4.4 months (Lee, Reif, Ritter, Levine, & Horgan, 2004). On average, outpatient methadone clients stayed in treatment longest (mean = 520 days), followed by outpatient nonmethadone clients (mean = 144 days) and nonhospital residential clients (mean = 45 days). Methadone treatment is typically provided over a long-term period of maintenance. However, substantial variation exists across facilities and across studies (McLellan & McKay, 1998).

characteristics, special programs, and services reported by facilities. These analyses used a Bonferroni adjustment for multiple comparisons, such that a p value less than 0.05 *divided by the number of comparisons* is considered statistically significant.⁵ The following sections describe the statistical methods used in this report.

Analysis of Client Characteristics

Chi-square tests were used to compare the distribution of client characteristics among females and males (Chapter 4). Statistically significant differences were then examined using two-sided Student's t tests. Because the client populations of service types differed substantially, analyses were stratified by service type of care.

Analysis of Facility Characteristics

In Chapter 5, the prevalence of substance abuse treatment programming for women was calculated for facilities overall and for each facility type of care. For analyses in Chapter 5 of selected client characteristics reported by facilities, an individual facility rate was calculated by dividing the number of active clients with each characteristic (i.e., gender, race/ethnicity, age, and payment source) by the total number of active clients for each facility based on aggregate counts reported by facility directors in ADSS Phase I. Next, a *national facility rate* for each characteristic was calculated by summing individual facility percentages and dividing by the number of facilities with active clients reporting the characteristic. Two-sided Student's t tests with Bonferroni adjustment for multiple comparisons were used to examine differences in rates for facility client variables between women-only and mixed-gender facilities and between facilities offering child care services and those not offering such services.

Percentages of facilities with selected facility characteristics were calculated among the numbers of women-only or mixed-gender facilities and among the numbers of facilities offering child care services and not offering such services. Chi-square tests were used to examine differences in facility size and ownership. Two-sided Student's t tests were conducted to identify the contribution of different proportions to significant chi-squares. Two-sided Student's t tests with Bonferroni adjustment for multiple comparisons were used to examine differences in percentages of facilities offering services or special programs among women-only and mixed-gender facilities and among facilities offering child care services and those not offering such services.

Descriptive Analysis of Treatment Retention

Descriptive analyses of treatment retention in Chapter 6 used F tests to compare rates of treatment completion or LOS among adult female and male clients and among adult female clients at facilities with and without substance abuse treatment programming for women.

⁵The Bonferroni procedure (Dunn, 1961) is designed to avoid Type I error (identifying differences that do not really exist) by applying a more stringent criterion to determine differences between clients and facilities.

Different types of facilities have different treatment completion rates and different planned LOS.⁶ Thus, all analyses of treatment completion and LOS were stratified by facility type of care. Two-sided Student's *t* tests were conducted to identify the different proportions' contribution to significant *F* statistics.

Logistic Regression Analysis

In Chapter 6, WesVar[®] software (Westat, Inc., 2000) was used for the logistic regression analysis, incorporating sample weights and jackknife variance estimation. Logistic regression procedures were used to model completion of planned treatment as a function of clients' gender and, among women, treatment at women-only facilities or facilities offering child care services. Odds ratio (OR) estimates derived from logistic regression procedures denote the estimated magnitude of an association between a binary outcome (e.g., treatment completion) and a covariate (e.g., client gender). An OR estimate greater than 1.00 indicates a positive association between the outcome of interest and the covariate; an OR estimate less than 1.00 indicates an inverse association. A 95 percent confidence interval (CI) of the OR also is presented.

Survival Analysis

SUDAAN[®] software (Shah, Barnwell, & Bieler, 1995) with Taylor series variance estimation was used for the survival analyses in Chapter 6 to take into account the complex survey design of ADSS. Survival analysis, specifically Cox's proportional hazard regression (Hosmer & Lemeshow, 1999; Parmar & Machin, 1995), was used to model LOS as a function of adult clients' gender and, among women, treatment at women-only facilities or facilities offering child care services. Hazard ratio (HR) estimates derived from survival analysis procedures denote the estimated magnitude of an association between a covariate (e.g., client gender) and an outcome (e.g., discharge from treatment) over time for a defined population. An HR estimate greater than 1.00 indicates a greater likelihood of leaving treatment earlier; a value of less than 1.00 reflects a lower likelihood of leaving treatment earlier. The HR also is presented with a CI.

Limitations of the Data

This section discusses limitations of the data source that should be considered when interpreting analysis results.

⁶Hospital inpatient facilities typically have the shortest planned LOS. Outpatient nonmethadone and residential facilities have longer stays, and methadone treatment is typically meant to be long term. Among clients in treatment during the early 1980s, the Treatment Outcome Prospective Study (TOPS) found the average LOS in treatment to vary by type of care (Hubbard et al., 1989). The average number of weeks in outpatient methadone treatment was 38.4 compared with 21.3 weeks in residential treatment and 14.6 weeks in outpatient drug-free treatment. These averages were noted as similar to those found in the Drug Abuse Reporting Program (DARP) study a decade earlier. Thus, when examining LOS, it is important to control for facility type; that is, LOS must be examined only within individual facility types and not compared across facility types.

ADSS Phase I Data Limitations

ADSS Phase I data are based on retrospective reports by facility directors made up to 6 months after the survey point-prevalence date. Thus, these data may be subject to recall and reporting biases. Some sources of potential bias are related to the Phase I questionnaire and retrospective self-reports.

First, some degree of overreporting or underreporting by facility directors on the types and numbers of clients and services may have occurred because of a lack of updated knowledge of activities at the client or service level (TecMRKT Works, 2004), selective perception, nonstandardized definitions of services, or a desire to represent the facility as providing more services than it actually does. Self-report data also may be influenced by memory and recall errors if not verified through client or service records, including recall delay (tendency to forget events occurring long ago) or forward telescoping (tendency to report that activities occurred more recently than they actually did). These memory errors would tend to result in estimates for less recent data (i.e., at the beginning of the 12-month reference period) that are downwardly biased (because of recall delay) and estimates for more recent data that are upwardly biased (because of telescoping). However, efforts were made to minimize these sorts of biases by requesting that facility directors check external sources of data for their responses, and attempts were made to standardize data collection efforts across facilities through extensive training sessions and materials for interviewers. Efforts were made to validate data through site visits and listing/sampling of client records.

Second, in some instances, the Phase I questionnaire lacked clear definitions to describe programs and services. For example, the Phase I questionnaire did not define “special programs” for specific populations. It did not specify whether offering such services as child care, transportation, or prenatal care included arrangements with other agencies to provide these services. Thus, the validity and reliability of the responses may be limited in providing a true estimate of service availability.

Third, there is a potential bias associated with Phase I client characteristics data referencing a single day (October 1, 1996) if that point estimate was unrepresentative in some way (e.g., due to seasonal variation). However, analyses of ADSS Phase I data have shown that there is little seasonal variation.

ADSS Phase II Data Limitations

The ADSS Phase II data are based on abstraction of clinical documents by ADSS staff, and they may be subject to additional biases. Some sources of bias are related to the abstraction process and missing data.

First, some degree of error may have occurred because of the abstraction process. Prior studies have shown that numerous factors may compromise data quality in record abstraction, such as vague specification of variables or inappropriate interpretation by abstractors (Allison et al., 2000; Peabody, Luck, Glassman, Dresselhaus, & Lee, 2000), which may be especially challenging for mental health and substance abuse research because of the subjective nature of

the abstraction process (Katz, Chang, Sangha, Fossel, & Bates, 1996). Abstraction errors would result in misclassification bias by categorizing records incorrectly and could yield an underestimation of differences in the characteristics of clients from different groups or of associations between substance abuse treatment programming and retention in treatment among clients. Attempts were made to minimize this type of bias through a detailed trainer's guide and abstraction manual for ADSS Phase II interviewers.

Second, the Phase II client record data include fields with missing data, which may result from poor or missing recording of information in the original chart (Allison et al., 2000; Luck, Peabody, Dresselhaus, Lee, & Glassman, 2000). Thus, the ability to analyze some data fields is limited.⁷ For example, ethnicity, pregnancy status, and information about history of psychological disorders were more likely than other data not to be recorded in the original client chart. Missing data are not uncommon to the medical record and record abstraction process because clinic staff often rush through or abbreviate their paperwork duties to meet the direct needs of their clients. In addition, the Phase II study design called for the collection of only limited information about clients discharged from methadone treatment.⁸ The Appendix presents more detailed information about missing data.

Limitations of the Analyses

The analyses presented here have important limitations, including their ability to detect true differences between analytic groups and the lack of control for level of service utilization. The lack of control for service intensity across facilities is probably the most important limitation. The literature suggests that clients treated in programs that provide more services tend to have better outcomes than clients in programs with fewer services (Broome, Simpson, & Joe, 1999; Gerstein et al., 1997; McLellan et al., 1998; Pringle et al., 2002; Smith & Marsh, 2002). As described in Chapter 5, facilities that offered woman-focused programming were more likely to offer more services overall than facilities not offering such programming. Therefore, when comparisons are made between females at facilities with and without woman-focused programming, any differences found may be the result of comparing females who received a high level of services bundled with women-focused programming with other female treatment clients who may have received fewer services overall. Thus, receiving treatment at facilities offering woman-focused programming may be associated with longer stays in treatment and improved treatment outcomes because of the high level of service intensity in such facilities.

⁷Student's *t* tests were used to examine study variables for significantly different amounts of missing data, and records with missing data for a variable were excluded from analysis of that variable if there was no statistically significant difference in the amount of missing data between groups. Where the amounts of missing data differed significantly between the analytic groups, the missing data were included as a category and were presented in the analysis. For example, in multivariate analyses in Chapter 6, records with missing data for a specific variable were categorized as "not ascertained" and included in the analyses.

⁸For example, information about having a child/children at admission, living arrangement at admission, education at admission, presenting substance abuse problem at admission, and reason for discharge was not abstracted from client records in outpatient methadone facilities.

In addition, true differences may not be found or the magnitude of the differences may be underestimated because of the low threshold of exposure to treatment required for inclusion in ADSS. Phase II data were included in these analyses for all clients who had received at least one treatment session, and analysis was not limited to those with a particular LOS. Thus, some individuals coded as having received treatment may actually have received very little exposure to programming offered by the treatment facility, and thus no effect of this programming would be expected for these individuals. Therefore, the findings for comparisons between clients at facilities offering substance abuse treatment programming for women and those at facilities not offering such programming may be misleading. The findings may show no differences or underestimate the magnitude of the difference between clients because too many individuals at facilities offering specialized programming received an insufficient level of exposure to the programming.

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Chapter 4. Characteristics of Substance Abuse Treatment Clients

Using ADSS Phase II data, this chapter compares sociodemographic characteristics of female and male clients discharged from substance abuse treatment facilities (i.e., completed treatment, dropped out, or were asked to leave) during a 6-month period in 1996. These characteristics include age, race, marital status, having a child/children, living arrangement, education, and employment at admission, as well as primary source of referral for this treatment, primary expected source of payment for this treatment, presenting substance abuse problem at admission, and substance of choice at admission. Because client populations receiving individual service types differ substantially in their characteristics (e.g., age and severity of problems), analyses were stratified by service type of care (outpatient nonmethadone, nonhospital residential, and outpatient methadone). All results are weighted estimates based on data from clients discharged from treatment. Although estimates are based on a 6-month data collection period, estimated annual numbers of discharges are presented for comparisons.

Among clients discharged from outpatient nonmethadone, nonhospital residential, and outpatient methadone treatment, females and males were similar on age at admission and race (Table 4.1). However, female clients were generally more likely than male clients to have a child/children at admission (Figure 4.1).

Clients discharged from outpatient nonmethadone treatment exhibited additional gender differences:

- Females were more likely than males to live with no other adult(s)/children only and were less likely to live with friends.
- At admission, females were more likely than males to be unemployed and were less likely to be employed full-time (Figure 4.2).
- The primary source of referral for treatment was less likely to be the criminal justice system, and more likely to be a welfare office or other social services agencies, among females than males.
- The primary expected source of payment for treatment was more likely to be Medicaid among females than males (Figure 4.3).
- The presenting substance abuse problem was less likely to be alcohol abuse only, and more likely to have been drug abuse only, among females than males.
- Alcohol was less likely to be the substance of choice at admission among females than males.

Table 4.1 Percentages of Clients with Different Characteristics Discharged from Substance Abuse Treatment, by Treatment Service Type and Gender: 1997–1999

Characteristic	Service Type of Care					
	Outpatient Nonmethadone		Nonhospital Residential		Outpatient Methadone	
	Female	Male	Female	Male	Female	Male
	Percent		Percent		Percent	
Estimated Annual Number of Discharges	352,922	1,049,099	160,253	537,572	51,420	66,672
<i>Age at Admission (Years)</i>						
13 to 17 ¹	7.8	6.2	7.3	6.3	—	*
18 to 24	13.6	16.4	10.2	11.2	6.6	3.6
25 to 34	36.5	31.4	34.0	33.2	42.9	31.1
35 to 44	26.8	29.7	33.1	33.6	40.3	40.6
45 to 54	12.0	11.0	11.7	12.1	10.0	21.4
55 or older	3.4	5.3	3.7	3.5	*	2.7
<i>Race</i>						
White	74.1	78.1	62.8	60.4	51.8	54.8
Black	22.6	16.0	32.0	35.8	36.7	30.3
American Indian, Alaska Native, Asian or Pacific Islander	3.3	5.9	5.3	3.8	11.5	14.9
<i>Marital Status at Admission</i> ²						
Never married, widowed, separated/divorced, single, unknown/not mentioned, or other	73.9	70.3	73.5	80.1		
Married/common law	26.1	29.7	26.5	19.9		
<i>Have Child/Children at Admission</i> ^{2,3,4}						
Yes	67.6	51.1	72.6	55.2		
No	22.9	31.5	24.7	32.6		
Unknown/not mentioned	9.5	17.4	2.7	12.2		
<i>Living Arrangement at Admission</i> ^{2,3}						
With spouse/partner	35.3	34.6	29.4	20.8		
With parent(s)	20.9	22.8	23.0	22.0		
Alone	11.9	15.4	14.6	14.1		
With other family	12.2	8.9	8.2	8.8		
With no other adult(s)/children only	10.4	1.3	5.8	*		
No stable arrangement (includes homeless and shelters)	3.2	6.4	11.2	16.6		
With friends	3.5	7.9	4.3	3.7		
Correctional facility	*	0.9	2.8	9.0		
Other institution/closed facility	2.4	1.8	0.8	4.5		

(continued)

Table 4.1 Percentages of Clients with Different Characteristics Discharged from Substance Abuse Treatment, by Treatment Service Type and Gender: 1997–1999 (continued)

Characteristic	Service Type of Care					
	Outpatient Nonmethadone			Nonhospital Residential		
	Female	Male	Percent	Female	Male	Percent
	352,922	1,049,099	160,253	537,572	51,420	66,672
<i>Education at Admission</i> ²						
Less than high school graduate (not otherwise specified), 8–11 years, or fewer than 8 years	39.2	33.8	40.0	35.8		
High school graduate/GED	34.3	40.8	33.1	41.7		
Some college, college graduate, or postgraduate	26.5	25.4	26.9	22.5		
<i>Employment at Admission</i> ⁵						
Unemployed	47.6	32.7	69.6	55.4	58.2	60.2
Employed full time (35 hours/week or more)	25.9	40.3	10.1	22.1	9.4	18.9
Employed part time (fewer than 35 hours/week)	8.2	6.7	5.0	4.2	9.3	5.1
Keeping house, not otherwise employed	7.5	*	3.7	—	3.7	*
Employed, not otherwise specified	4.9	12.0	*	2.3	12.3	5.3
Disabled	2.0	4.2	5.7	7.6	7.1	7.2
Retired, inmate, or unknown/not mentioned	3.9	4.0	4.7	8.4	—	*
<i>Primary Source of Referral for Treatment</i> ³						
Criminal justice system	39.4	57.0	24.1	35.2	*	9.1
Self-referred/voluntary	22.1	15.4	36.5	32.9	71.1	62.0
Other treatment facility	10.7	7.3	11.5	11.1	12.1	12.4
Welfare office or other social service agencies	11.3	4.2	6.4	4.6	*	1.4
Health care, mental health, or insurance providers	8.5	4.9	10.7	9.6	1.9	4.4
Family/friend	6.2	5.4	10.9	5.6	8.7	10.7
Employer or unknown/not mentioned	1.7	5.9	—	*	*	—
<i>Primary Expected Source of Payment for Treatment</i> ³						
Client self-payment	34.7	44.1	30.6	40.1	28.9	35.7
Medicaid	20.1	5.8	23.9	8.6	39.2	37.2
Medicare or other public funding	8.6	10.0	45.4	44.4	16.9	16.9
Private health insurance, fee-for-service	9.4	10.4	15.5	12.5	*	*
Private health insurance, HMO/PPO/managed care	8.5	7.6	14.9	10.5	2.9	2.0
Criminal justice system	9.8	12.7	11.8	23.4	—	—
No payment	6.7	7.5	5.7	4.3	1.6	3.0
Not permitted to abstract or unknown	2.2	1.9	6.7	4.8	8.0	5.0

(continued)

Table 4.1 Percentages of Clients with Different Characteristics Discharged from Substance Abuse Treatment, by Treatment Service Type and Gender: 1997–1999 (continued)

Characteristic	Service Type of Care					
	Outpatient Nonmethadone		Nonhospital Residential		Outpatient Methadone	
	Female	Male	Female	Male	Female	Male
	Percent		Percent		Percent	
Estimated Annual Number of Discharges	352,922	1,049,099	160,253	537,572	51,420	66,672
<i>Presenting Substance Abuse Problem at Admission</i> ^{2,3}						
Alcohol and drug abuse	53.7	53.3	60.1	63.3		
Alcohol abuse only	27.2	38.5	19.4	21.3		
Drug abuse only (excluding alcohol)	19.1	8.2	20.5	15.4		
<i>Substance of Choice at Admission</i> ^{2,3}						
Alcohol	49.4	63.4	40.5	45.8		
Cocaine	19.2	11.3	32.3	23.6		
Marijuana, hashish, THC	14.2	16.2	4.7	10.9		
Amphetamines	4.5	2.5	4.8	4.6		
Heroin	2.3	2.9	7.9	9.5		
Nontreatment methadone or other opiates	4.9	0.2	5.3	0.6		
Barbiturates, benzodiazepines, or other sedatives or hypnotics	0.9	*	*	*		
Any other drug, multiple, or no substance of choice	4.7	3.4	3.5	4.9		

* Low precision; no estimate reported.

– Not available.

¹ Persons under age 18 are generally not eligible for methadone treatment.

² Not collected for outpatient methadone clients.

³ Difference between female and male estimates is statistically significant at the 0.05 level among clients discharged from outpatient nonmethadone treatment.

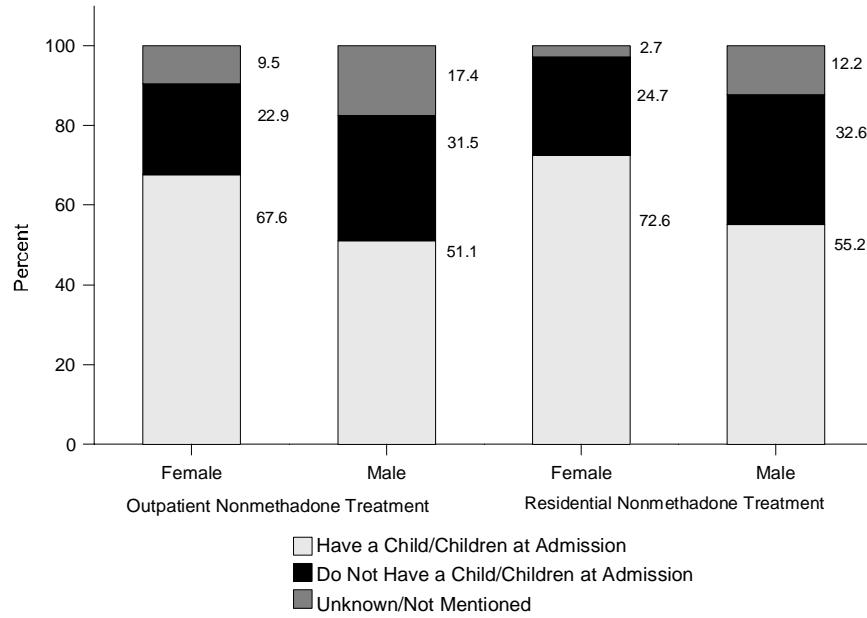
⁴ Difference between female and male estimates is statistically significant at the 0.05 level among clients discharged from residential nonmethadone treatment.

⁵ Difference between female and male estimates is statistically significant at the 0.001 level among clients discharged from outpatient nonmethadone treatment.

GED = general equivalency diploma; HMO = health maintenance organization; PPO = preferred provider organization; THC = tetrahydrocannabinol.

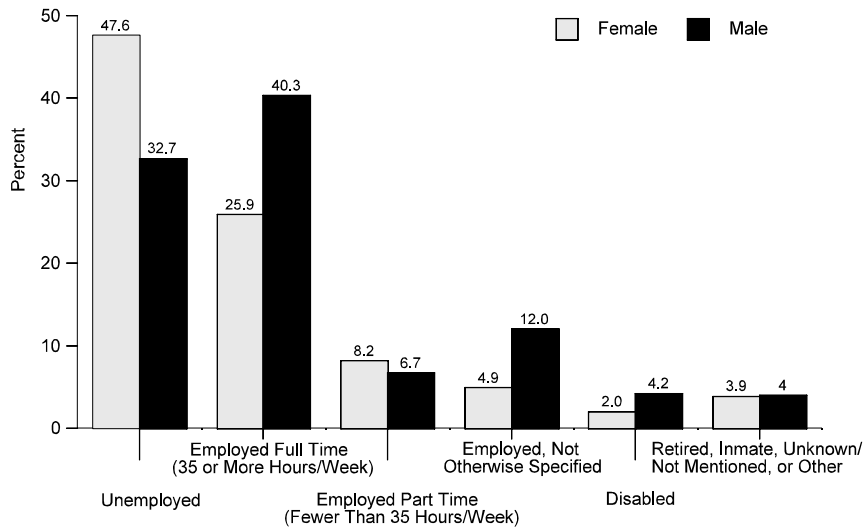
Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase II client data, 1997–1999.

Figure 4.1 Percentages of Substance Abuse Treatment Clients Having a Child/Children at Admission, by Gender and Service Type: 1997–1999



Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase II client data, 1997–1999.

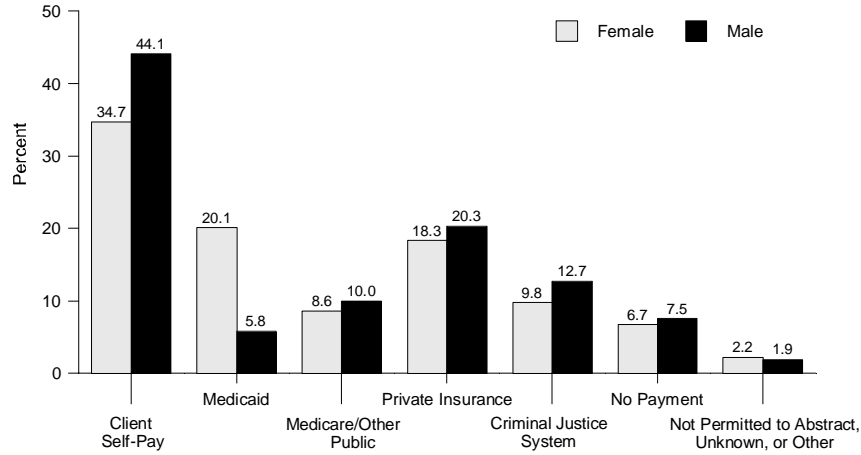
Figure 4.2 Percentages of Employment at Admission among Substance Abuse Treatment Clients Discharged from Outpatient Nonmethadone Treatment, by Gender: 1997–1999



Note: Small sample sizes prevented analyses of outpatient nonmethadone clients keeping house, not otherwise employed.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase II client data, 1997–1999.

Figure 4.3 Percentages of Primary Source of Payment for Treatment among Substance Abuse Treatment Clients Discharged from Outpatient Nonmethadone Treatment, by Gender: 1997–1999



Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase II client data, 1997–1999.

Summary

Although female and male clients generally were similar on race and age at admission to treatment, females were more likely to have a child/children at admission than males. There were important gender differences in economic status among clients discharged from outpatient nonmethadone treatment, including lower levels of employment and higher rates of Medicaid payment for treatment among females than males. Compared with males, females discharged from outpatient methadone treatment were also more likely to be admitted for drug abuse instead of alcohol abuse.

Chapter 5. Characteristics of Substance Abuse Treatment Facilities Providing Treatment Programming for Women

This chapter presents estimates of the percentages of female clients in substance abuse treatment facilities, the availability of substance abuse treatment programming for women, and comparisons between facilities treating women only and those that treat both women and men. These estimates are based on Alcohol and Drug Services Study (ADSS) Phase I data, which are from facility directors' or administrators' reports on facility characteristics. Phase I data also include facility directors' or administrators' reports of the number and type of active clients on a reference date of October 1, 1996. After calculating each facility's percentage of female clients, national female-client rates were determined by summing facility percentages and dividing by the number of facilities with active clients, across all facilities and by type of care.

The prevalence of substance abuse treatment programming designed specifically for women also was examined, focusing on the following components: women-only treatment, child care services, prenatal care services, and special programs offered to women or pregnant women. Respondents were asked whether facilities offered services to any substance abuse clients during the most recent 12-month period for which client data were available and whether any special programs were offered to specific types of clients. Differences in the characteristics of facilities treating women only and facilities treating both women and men also were examined, based on ADSS Phase I questions on the number of active female clients. Facilities were classified as women-only if 100 percent of their active clients were female on the reference date. Finally, characteristics of facilities offering child care services were compared with those of facilities not offering child care services.

Female Clients in Substance Abuse Treatment Facilities

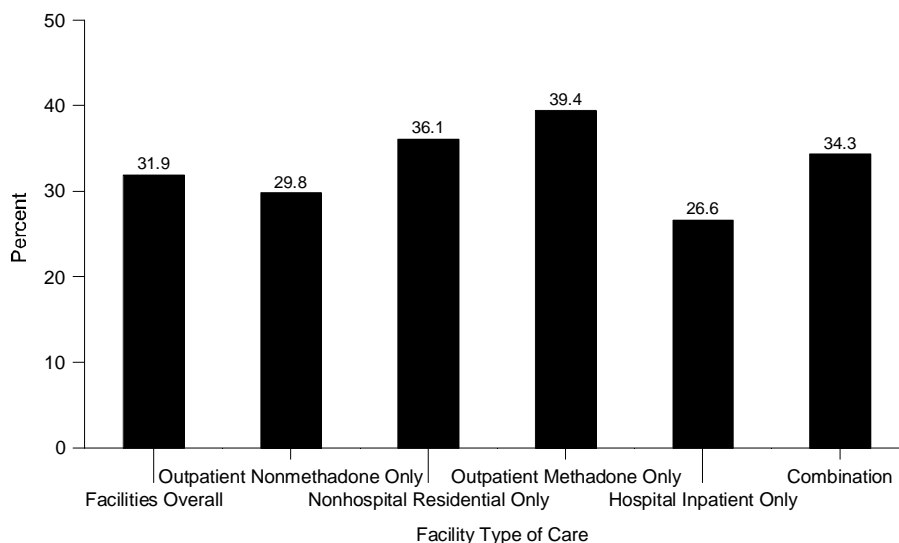
According to facility administrators' reports, 32 percent of clients were female in substance abuse treatment facilities across the nation (Figure 5.1). The percentage of female clients varied across types of care. Almost 30 percent of clients were female in outpatient nonmethadone facilities, the most common type of care; in comparison, 39 percent of outpatient methadone clients were female.

Availability of Substance Abuse Treatment Programming for Women

Table 5.1 presents estimates of availability of substance abuse treatment programming for women. Almost 6 percent of all facilities served only female clients:

- Women-only treatment availability ranged from about 2 percent of outpatient nonmethadone facilities to 21 percent of nonhospital residential facilities.
- No hospital inpatient facilities in the ADSS Phase I sample served only females.

Figure 5.1 Percentages of Female Clients in Substance Abuse Treatment Facilities, by Facility Type of Care: 1996–1997



Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data, 1996–1997.

Services

Overall, 13 percent of facilities offered child care services, including 15 percent of nonhospital residential facilities, 13 percent of outpatient nonmethadone facilities, and 8 percent of outpatient methadone facilities. Almost 12 percent of facilities overall offered prenatal care services: 6 percent of outpatient nonmethadone facilities, 19 percent of nonhospital residential or outpatient methadone facilities, and 33 percent of hospital inpatient facilities.

Special Programs

Overall, a little more than one third of facilities nationwide offered special programs for women, and 19 percent offered special programs for pregnant women:

- Nonhospital residential facilities and outpatient methadone facilities were most likely to provide special programs for women (43 percent each).
- Hospital inpatient facilities were least likely to offer special programs for women (19 percent).
- Outpatient methadone facilities were most likely to offer special programs for pregnant women (39 percent).
- Hospital inpatient facilities were least likely to offer special programs for pregnant women (13 percent).

Table 5.1 Percentages of Substance Abuse Treatment Facilities Offering Substance Abuse Treatment Programming for Women, Overall and by Facility Type of Care: 1996–1997

Facility Characteristic	Facilities Overall <i>N</i> = 12,387 <i>n</i> = 2,395	Facility Type of Care				
		Outpatient Non-methadone <i>N</i> = 7,524 <i>n</i> = 1,083	Nonhospital Residential <i>N</i> = 2,135 <i>n</i> = 428	Outpatient Methadone <i>N</i> = 464 <i>n</i> = 324	Hospital Inpatient <i>N</i> = 378 <i>n</i> = 203	Combination Types of Care <i>N</i> = 1,886 <i>n</i> = 357
Women-Only Facilities ¹	5.9	2.2	21.0	*	*	6.2
Child Care Services ²	13.3	12.7	15.4	7.8	*	17.0
Prenatal Care Services ²	11.9	5.7	19.1	19.0	32.6	22.8
Special Programs for Women ²	37.4	36.3	42.8	42.7	19.0	38.0
Special Programs for Pregnant Women ²	19.3	17.0	21.4	39.4	12.6	22.7

* Low precision; no estimate reported.

N = Estimated number of facilities with active clients in the United States; *N* excludes facilities with no clients in treatment for substance abuse on October 1, 1996.

n = Number of facilities sampled with active clients; *n* excludes facilities with no clients in treatment for substance abuse on October 1, 1996.

¹ Facilities with no active clients on October 1, 1996, were not counted as women-only facilities.

² Sampled facilities that did not report whether they offered a service or special program were not counted as offering the service or special program.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data, 1996–1997.

Comparisons between Women-Only and Mixed-Gender Facilities

Women-only and mixed-gender facilities exhibited many differences (Table 5.2):

- Compared with mixed-gender facilities, women-only facilities served higher proportions of black clients.
- The proportion of clients aged 35 or older was lower at women-only facilities compared with mixed-gender facilities.
- Rates for client self-payment, private health insurance, or Medicare were lower among women-only facilities compared with mixed-gender facilities.
- The rate for public payment other than Medicaid or Medicare was higher among women-only than mixed-gender facilities.

- Women-only facilities were more likely to serve a smaller number of active clients compared with mixed-gender facilities.

In addition, women-only facilities were more likely than mixed-gender facilities to offer women's programming, such as child care services, prenatal care services, transportation services, special programs for women, and special programs for pregnant women.

Comparisons between Facilities with and without Child Care Services

Table 5.3 presents estimates of facilities offering child care services and those not offering child care services. Compared with facilities that did not offer child care services, those that offered these services treated higher proportions of female clients and clients for whom Medicaid was the primary source of payment. The distribution of client race/ethnicity was similar among facilities with and without child care services.⁹ The rate for HMO/PPO/managed care private health insurance was lower among facilities with child care services than among facilities without these services.

Facilities offering child care services were more likely to be larger facilities, and were more likely to offer other women's programming (such as prenatal care services, transportation services, special programs for women, and special programs for pregnant women) than facilities that did not offer child care services. In addition, facilities with child care services were more likely to offer special programs for dual-diagnosis clients or AIDS/HIV-positive clients than facilities without child care services.

Facilities offering child care services were more likely to be larger facilities, and were more likely to offer other women's programming (such as prenatal care services, transportation services, special programs for women, and special programs for pregnant women), than facilities that did not offer child care services. In addition, facilities with child care services were more likely to offer special programs for dual-diagnosis clients or AIDS/HIV-positive clients than facilities without child care services.

⁹Note that $p < 0.01$ (0.05 divided by 5 comparisons for Bonferroni adjustment) is statistically significant.

Table 5.2 National Facility Rates (NFRs) and Percentages for Selected Substance Abuse Treatment Facility Characteristics, by Facility Clientele Composition: 1996–1997

Characteristic	Facility Clientele Composition	
	Women-Only Facilities <i>N</i> = 733 <i>n</i> = 96	Mixed-Gender Facilities <i>N</i> = 11,562 <i>n</i> = 2,281
	NFR	NFR
<i>Race/Ethnicity</i>		
White, not Hispanic ¹	43.1	62.1
Black, not Hispanic ¹	36.4	22.2
Hispanic	13.8	9.5
Asian or Pacific Islander	1.3	0.8
American Indian or Alaska Native	4.3	2.4
Unknown	1.1	2.9
<i>Age at Admission (Years)</i>		
Younger than 18	9.4	11.5
18 to 24 ²	25.7	13.4
25 to 34 ¹	41.9	31.5
35 to 44 ²	19.2	26.9
45 or older ¹	2.8	12.2
Unknown ²	1.1	4.5
<i>Primary Expected Source of Payment</i>		
No payment	7.1	7.5
Client self-payment ²	13.3	23.7
Private health insurance, fee-for-service ¹	0.4	9.9
Private health insurance, HMO/PPO/managed care ¹	1.4	10.7
Medicaid	20.2	14.6
Medicare ¹	0.1	3.8
Other public payment ¹	55.0	26.9
Unknown	2.3	3.0
	Percent	Percent
<i>Number of Clients</i> ¹		
175 or more	*	14.2
75 to 174	6.3	20.6
25 to 74	11.5	32.5
24 or fewer	81.4	32.7

(continued)

Table 5.2 National Facility Rates (NFRs) and Percentages for Selected Substance Abuse Treatment Facility Characteristics, by Facility Clientele Composition: 1996–1997 (continued)

Characteristic	Facility Clientele Composition	
	Women-Only Facilities <i>N</i> = 733 <i>n</i> = 96	Mixed-Gender Facilities <i>N</i> = 11,562 <i>n</i> = 2,281
	Percent	Percent
<i>Services Offered</i> ⁴		
Child care ¹	55.5	10.6
Prenatal care ¹	39.9	10.1
Transportation ¹	92.8	46.6
Family counseling	76.8	86.1
Combined substance abuse treatment and mental health services ³	41.1	55.2
<i>Special Programs Offered</i> ⁴		
Women ¹	91.0	34.0
Pregnant women ¹	54.6	17.1
Dual-diagnosis clients	37.0	40.5
AIDS/HIV-positive clients	30.1	21.2

Note: NFRs were calculated by summing individual facility percentages and dividing by the number of facilities with active clients reporting each client characteristic.

* Low precision; no estimated reported.

Degrees of freedom = 200.

N = Estimated number of facilities with active clients in the United States; *N* excludes facilities with no clients in treatment for substance abuse on October 1, 1996.

n = Number of facilities sampled with active clients; *n* excludes facilities with no clients in treatment for substance abuse on October 1, 1996.

¹ Difference between women-only and mixed-gender facility estimates is statistically significant at the 0.001 level.

² Difference between women-only and mixed-gender facility estimates is statistically significant at the 0.01 level.

³ Difference between women-only and mixed-gender facility estimates is statistically significant at the 0.05 level.

⁴ Sampled facilities for which no answer was recorded for the item about provision of a service or program are counted as *not* offering the service or program. Estimates are affected accordingly. Categories are not mutually exclusive.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data, 1996–1997.

Table 5.3 National Facility Rates (NFRs) and Percentages for Selected Substance Abuse Treatment Facility Characteristics, by Availability of Child Care Services: 1996–1997

	Facilities Offering Child Care Services N = 1,621 n = 318	Facilities Not Offering Child Care Services N = 10,605 n = 2,054
Characteristic	NFR	NFR
<i>Gender</i>		
Female ¹	51.3	29.0
Male ¹	47.6	69.9
Unknown	1.1	1.1
<i>Race/Ethnicity</i>		
White, not Hispanic	56.9	61.6
Black, not Hispanic ²	28.3	22.3
Hispanic	9.1	9.9
Asian or Pacific Islander	0.5	0.9
American Indian or Alaska Native	3.3	2.4
Unknown	1.8	3.0
<i>Age at Admission (Years)</i>		
Younger than 18	8.2	11.9
18 to 24 ³	18.4	13.5
25 to 34 ¹	37.7	31.4
35 to 44	23.7	26.7
45 or older ¹	8.9	12.1
Unknown	3.0	4.4
<i>Primary Expected Source of Payment</i>		
No payment	8.3	7.3
Client self-payment	21.0	23.5
Private health insurance, fee-for-service ²	6.4	9.8
Private health insurance, HMO/PPO/managed care ¹	5.1	10.5
Medicaid ³	22.8	13.8
Medicare	2.2	3.8
Other public payment	31.7	28.3
Unknown	2.5	3.0
	Percent	Percent
<i>Number of Clients ¹</i>		
175 or more	23.2	11.9
75 to 174	24.8	19.1
25 to 74	22.5	32.8
24 or fewer	29.6	36.2

(continued)

Table 5.3 National Facility Rates (NFRs) and Percentages for Selected Substance Abuse Treatment Facility Characteristics, by Availability of Child Care Services: 1996–1997 (continued)

Characteristic	Facilities Offering Child Care Services <i>N</i> = 1,643 <i>n</i> = 320	Facilities Offering Child Care Services <i>N</i> = 10,676 <i>n</i> = 2,070
	Percent	Percent
<i>Services Offered</i> ⁴		
Prenatal care ¹	30.8	9.1
Transportation ¹	78.1	45.2
Family counseling	83.1	85.9
Combined substance abuse treatment and mental health services	55.5	53.9
<i>Special Programs Offered</i> ⁴		
Women ¹	78.6	31.1
Pregnant women ³	57.2	13.5
Dual-diagnosis clients ³	50.9	38.8
AIDS/HIV-positive clients ³	35.3	19.8

Note: National facility rates (NFRs) were calculated by summing individual facility percentages and dividing by the number of facilities with active clients reporting each client characteristic.

* Low precision; no estimate reported.

Degrees of freedom = 200.

N = Estimated number of facilities with active clients in the United States; *N* excludes facilities with no clients in treatment for substance abuse on October 1, 1996.

n = Number of facilities sampled with active clients; *n* excludes facilities with no clients in treatment for substance abuse on October 1, 1996.

¹ Difference between estimates for facilities offering child care services and those not offering such services is statistically significant at the 0.001 level.

² Difference between estimates for facilities offering child care services and those not offering such services is statistically significant at the 0.05 level.

³ Difference between estimates for facilities offering child care services and those not offering such services is statistically significant at the 0.01 level.

⁴ Sampled facilities for which no answer was recorded for the item about provision of a service or program are counted as *not* offering the service or program. Estimates are affected accordingly. Categories are not mutually exclusive.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data, 1996–1997.

Summary

The availability of substance abuse treatment programming for women varied by type of facility:

- *Outpatient nonmethadone* facilities were less likely than facilities overall to treat women only or offer prenatal services and were equally as likely as other facility types to offer child care services, special programs for women, or special programs for pregnant women.
- *Nonhospital residential* facilities were most likely to serve women only and were more likely than other types of care to offer child care services, prenatal care services, or special programs for women or for pregnant women.
- *Outpatient methadone* facilities were most likely to offer special programs for women or pregnant women, but few offered child care services.
- *Hospital inpatient* facilities did not serve women only, were the most likely of all types of care to offer prenatal care services, and were least likely to offer special programs for women or pregnant women.

Comparisons of types of facilities revealed the following findings:

- Compared with mixed-gender facilities, women-only facilities were smaller; were less likely to serve clients with private health insurance or whose primary source of payment was self-pay; and were more likely to offer child care, prenatal care, or transportation services.
- Compared with facilities not offering child care services, facilities offering these services were larger; were more likely to serve female clients; and were more likely to offer other women-oriented programming, such as prenatal care services, transportation services, special programs for women, or special programs for pregnant women.

Chapter 6. Retention in Substance Abuse Treatment: Gender and Substance Abuse Treatment Programming for Women

This chapter presents findings on (1) gender differences in LOS and completion of planned substance abuse treatment and (2) differences in LOS and treatment completion among females at facilities with and without substance abuse treatment programming specifically for women. Data in this chapter about client and organizational factors associated with retention can potentially inform approaches to treatment efforts and also may improve understanding of the underlying factors affecting treatment retention. First, percentages of clients' reasons for discharge from substance abuse treatment (including treatment completion) were calculated. Mean LOS by facility type of care was also estimated. Next, gender differences in completion of planned treatment and LOS were examined using Alcohol and Drug Services Study (ADSS) Phase I and II data. Analyses of LOS included Phase II data for female and male clients aged 18 or older discharged from outpatient nonmethadone, nonhospital residential, or combination facilities. Phase I data were used to identify facility type of care. Because data about reason for discharge were not abstracted from Phase II client records at outpatient methadone facilities, analyses of treatment completion did not include clients discharged from outpatient methadone facilities. Analyses also focus on two components of substance abuse treatment programming for women: women-only treatment and child care services. Differences in treatment retention were examined among (1) clients at women-only facilities and women at mixed-gender facilities and (2) women at facilities offering child care services and at facilities not offering child care services. Phase I data were used to identify facility characteristics.

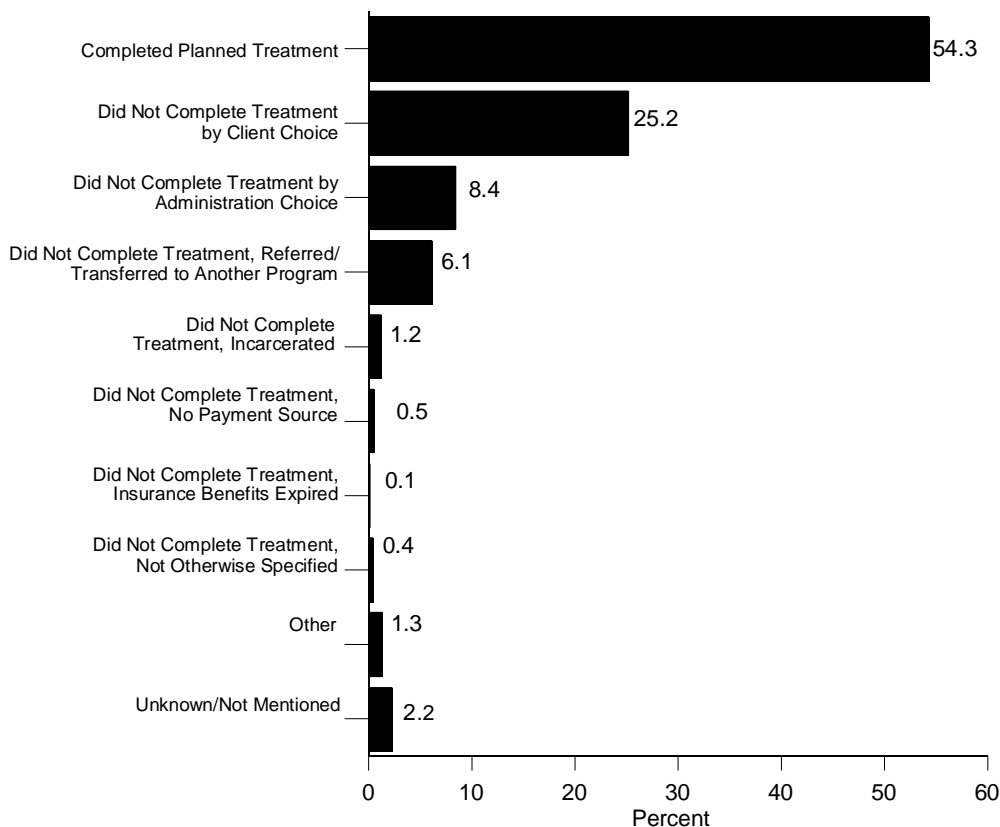
Descriptive analyses are presented first, followed by multivariate analyses. Logistic regression procedures were used to determine the relationship between gender or substance abuse treatment programming for women and completion of planned treatment. Survival analysis procedures were used to determine the relationship between gender or substance abuse treatment programming for women and LOS. Multivariate analyses controlled for additional client and organizational characteristics associated with retention.

Descriptive Analyses

Among adult clients discharged from outpatient nonmethadone, nonhospital residential, or combination facilities, 54 percent completed planned treatment (Figure 6.1). Mean LOS varied by facility type of care (Figure 6.2).

At outpatient nonmethadone or nonhospital residential facilities, women were less likely to complete planned treatment than were men (Table 6.1). Among adult clients at facilities providing a combination of types of care, women were more likely to complete planned treatment than were males. At facilities providing nonhospital residential treatment, women averaged shorter stays in treatment than did men (Table 6.2). Women averaged longer stays in treatment than did men at facilities providing other types of care, although these differences were not statistically significant.

Figure 6.1 Percentages of Reasons for Discharge among Substance Abuse Treatment Clients Aged 18 or Older: 1997–1999



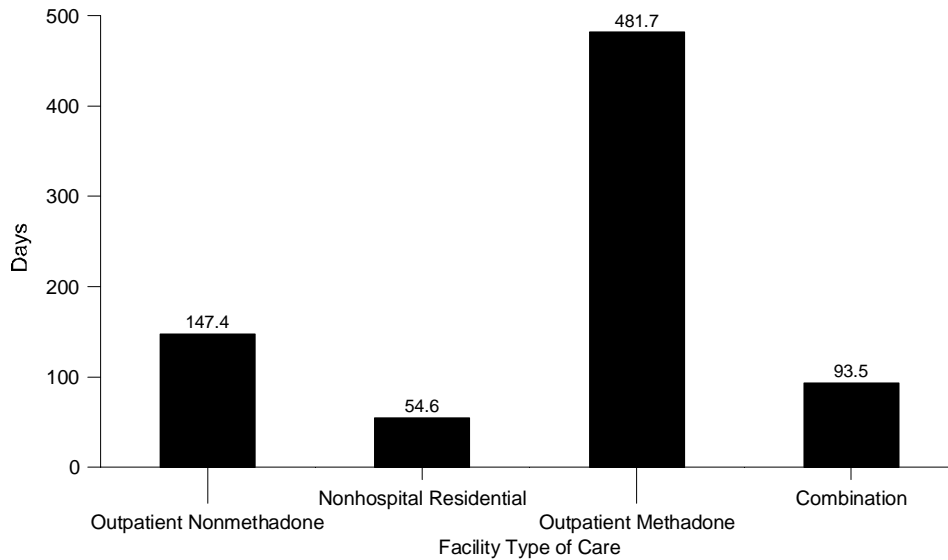
Note: Analysis of client deceased as reason for discharge could not be conducted because of small sample size.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase II client data, 1997–1999.

Rates of treatment completion were similar among clients at women-only facilities and among women at mixed-gender nonhospital residential facilities (Table 6.3).¹⁰ At facilities providing nonhospital residential treatment, clients at women-only facilities stayed in treatment longer than women at mixed-gender facilities (Table 6.4). However, at facilities providing a combination of types of care, clients at women-only facilities remained in treatment for shorter stays than women at mixed-gender facilities. Rates of treatment completion were lower among women at facilities offering child care services than among women at facilities not offering these services, although these differences were not statistically significant (Table 6.5). At nonhospital residential facilities, women stayed in treatment longer at facilities offering child care services than did women at facilities without child care services (Table 6.6).

¹⁰Differences in treatment completion among women-only and mixed-gender outpatient nonmethadone or combination facilities could not be analyzed because of small sample sizes or because one of the strata contained only one primary sampling unit.

Figure 6.2 Average Length of Stay (LOS), in Days, of Substance Abuse Treatment Clients Aged 18 or Older, by Facility Type of Care: 1997–1999



Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase II client data, 1997–1999.

Table 6.1 Completion of Planned Treatment among Substance Abuse Treatment Clients Aged 18 or Older at Admission, by Gender and Facility Type of Care

Facility Type of Care	Gender			
	Women		Men	
	Number Completing Planned Treatment	Percent	Number Completing Planned Treatment	Percent
Outpatient nonmethadone	110,678	46.0 ¹	393,364	53.1
Nonhospital residential	42,803	60.4 ²	176,250	68.2
Combination	80,201	62.3 ²	236,851	54.6

¹ Difference between estimate for women and estimate for men is statistically significant at the 0.05 level.

² Difference between estimate for women and estimate for men is statistically significant at the 0.01 level.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data (1996–1997) and Phase II data (1997–1999).

Table 6.2 Length of Stay (LOS), in Days, among Substance Abuse Treatment Clients Aged 18 or Older at Admission, by Gender and Facility Type of Care

Facility Type of Care	Gender			
	Women		Men	
	Number of Clients	Average LOS (in Days)	Number of Clients	Average LOS (in Days)
Outpatient nonmethadone	247,607	153.8	754,556	145.4
Nonhospital residential	72,325	34.0 ¹	264,029	60.5
Outpatient methadone	36,269	531.4	53,173	447.8
Combination	147,976	146.7	454,697	76.2

¹ Difference between LOS of women and LOS of men is statistically significant at the 0.001 level.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data (1996–1997) and Phase II data (1997–1999).

Table 6.3 Completion of Planned Treatment among Female Substance Abuse Treatment Clients Aged 18 or Older at Admission, by Facility Clientele Composition and Facility Type of Care

Facility Type of Care	Facility Clientele Composition			
	Women-Only Facilities		Mixed-Gender Facilities	
	Number of Clients Completing Planned Treatment	Percent	Number of Women Completing Planned Treatment	Percent
Outpatient nonmethadone	*	*	110,266	46.3
Nonhospital residential	8,898	65.2	33,905	59.3
Combination	165	13.9	80,036	62.7

*Low precision; no estimate reported.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data (1996–1997) and Phase II data (1997–1999).

Logistic Regression Models

Gender was not associated with completion of planned treatment, after controlling for other client and facility characteristics (Table 6.7). Control variables associated with treatment completion were education at admission, primary source of referral for treatment, primary expected source of payment for treatment, and facility type of care. The odds of treatment completion were lower among adult clients with 8 to 11 years of education but with no high school degree, those whose primary expected source of referral was not the criminal justice system, and those whose primary source of payment was the criminal justice system compared with high school graduates, clients whose primary source of referral was the criminal justice system, and those whose primary expected source of payment was private health insurance. The odds of completing treatment were 3 times higher among adult clients discharged from

Table 6.4 Length of Stay (LOS), in Days, among Female Substance Abuse Treatment Clients Aged 18 or Older at Admission, by Facility Clientele Composition and Facility Type of Care

Facility Type of Care	Facility Clientele Composition			
	Women-Only Facilities		Mixed-Gender Facilities	
	Number of Clients	Average LOS (in Days)	Number of Women	Average LOS (in Days)
Outpatient nonmethadone	2,484	295.5	245,123	152.4
Nonhospital residential	13,956	83.1 ¹	58,369	22.3
Combination	1,454	51.9 ²	146,522	147.7

¹ Difference between estimate for clients at women-only facilities and estimate for women at mixed-gender facilities is statistically significant at the 0.01 level.

² Difference between estimate for clients at women-only facilities and estimate for women at mixed-gender facilities is statistically significant at the 0.05 level.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data (1996–1997) and Phase II data (1997–1999).

Table 6.5 Completion of Planned Treatment among Female Substance Abuse Treatment Clients Aged 18 or Older at Admission, by Availability of Child Care Services and Facility Type of Care

Facility Type of Care	Child Care Services Offered		Child Care Services Not Offered	
	Number of Women Completing Planned Treatment	Percent	Number of Women Completing Planned Treatment	Percent
Outpatient nonmethadone	33,461	45.4	77,216	46.3
Nonhospital residential	454	26.4	42,349	61.3
Combination	11,819	43.1	68,382	67.5

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phases I and II data, 1996–1999.

nonhospital residential facilities than among adult clients discharged from outpatient nonmethadone facilities.

Receiving treatment at women-only facilities or at those offering child care services was not associated with treatment completion among women, after controlling for other client and facility characteristics (Table 6.8). Some control variables were associated with treatment completion among women. Women from minority racial groups, women whose primary source of referral to treatment was not the criminal justice system, and women whose presenting substance abuse problem was drug abuse only were less likely to complete treatment than were white women, women whose primary source of referral was the criminal justice system, and women whose presenting substance abuse problem was alcohol abuse only. Unexpectedly, women at facilities offering combined substance abuse treatment and mental health services were less likely to complete treatment than were women receiving treatment at facilities not offering

Table 6.6 Length of Stay (LOS), in Days, among Female Substance Abuse Treatment Clients Aged 18 or Older at Admission, by Availability of Child Care Services and Facility Type of Care

Facility Type of Care	Child Care Services Offered		No Child Care Services Offered	
	Number of Women	Average LOS (in Days)	Number of Women	Average LOS (in Days)
Outpatient nonmethadone	76,348	168.4	171,259	147.3
Nonhospital residential	1,719	96.7 ¹	70,606	32.5
Outpatient methadone	3,731	386.8	32,538	548.0
Combination	41,069	353.0	106,906	67.5

¹ Difference between estimate for women at facilities offering child care services and estimate for women at facilities not offering child care services is statistically significant at the 0.01 level.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data (1996–1997) and Phase II data (1997–1999).

combined substance abuse treatment and mental health services, although this result may reflect the larger proportion of clients with co-occurring substance abuse and mental health disorders at facilities offering combined substance abuse treatment and mental health services. Women receiving treatment at nonhospital residential or combination facilities were more likely to complete planned treatment than were women receiving treatment at outpatient nonmethadone facilities. Women receiving treatment at facilities offering prenatal care services were also more likely to complete treatment than were women receiving treatment at facilities not offering prenatal care services.

Survival Analysis Models

Gender was not associated with LOS, after controlling for other client and facility characteristics (Table 6.9). Some control variables were significantly associated with LOS among adult clients. Adult clients whose source of referral for treatment was not the criminal justice system were more likely to leave treatment earlier than were clients whose referral source was the criminal justice system. Adult clients discharged from nonhospital residential or combination facilities also were more likely to leave treatment earlier than were adult clients discharged from outpatient nonmethadone facilities. Adult clients whose primary expected sources of payment were no payment, client self-payment, or Medicare/Medicaid stayed in treatment longer than did adult clients whose primary expected source of payment was private health insurance.

Receiving treatment at women-only facilities or facilities offering child care services was positively associated with LOS among women, after controlling for other client or facility characteristics (Table 6.10). Some control variables were associated with LOS. Women who did not complete high school, women whose source of referral for treatment was not the criminal justice system, and women at nonhospital residential or combination facilities were more likely to leave treatment earlier than were high school graduates, women referred by the criminal justice system, or women at outpatient nonmethadone facilities. Contrary to expectations, receiving treatment at facilities offering prenatal care or transportation services was associated with leaving

Table 6.7 Adjusted Odds Ratios (ORs) of Completion of Planned Treatment among Substance Abuse Treatment Clients Aged 18 or Older at Admission Discharged from Nonhospital Residential Facilities, Outpatient Nonmethadone Facilities, or Combination Facilities

Independent Variable	OR (95 Percent CI)
<i>Female Gender</i>	1.05 (0.85, 1.31)
<i>Age at Admission</i>	1.01 (1.00, 1.03)
<i>Race (compared with white)</i>	
All other races	0.82 (0.50, 1.35)
Unknown/not mentioned	1.08 (0.60, 1.92)
<i>Education at Admission (compared with high school graduate/GED)</i>	
Fewer than 8 years	1.09 (0.51, 2.34)
8 to 11 years and less than high school graduate	0.59 (0.38, 0.93)
College/postgraduate	0.94 (0.71, 1.27)
Unknown/not mentioned	0.71 (0.31, 1.65)
<i>Non-Criminal Justice Source of Referral for Treatment</i>	0.34 (0.23, 0.52)
<i>Primary Expected Source of Payment for Treatment (compared with private health insurance, fee-for-service, or HMO/PPO/managed care)</i>	
No payment or client self-payment	0.69 (0.40, 1.19)
Medicare/Medicaid	0.59 (0.33, 1.08)
Criminal justice system	0.52 (0.27, 0.99)
Other funding	0.66 (0.32, 1.37)
<i>Facility Type of Care (compared with outpatient nonmethadone)</i>	
Nonhospital residential	3.19 (1.71, 5.94)
Combination	1.82 (0.80, 4.12)

CI = confidence interval; GED = general equivalency diploma; HMO = health maintenance organization; OR = odds ratio; PPO = preferred provider organization.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data (1996–1997) and Phase II data (1997–1999).

Table 6.8 Adjusted Odds Ratios (ORs) of Completion of Planned Treatment among Female Substance Abuse Treatment Clients Aged 18 or Older at Admission Discharged from Nonhospital Residential Facilities, Outpatient Nonmethadone Facilities, or Combination Facilities

Independent Variable	OR (95 Percent CI)
<i>Women-Only Facilities</i>	0.76 (0.25, 2.38)
<i>Child Care Services Offered</i>	0.74 (0.25, 2.19)
<i>Age at Admission</i>	1.04 (1.00, 1.08)
<i>Race (compared with white)</i>	
All other races	0.45 (0.22, 0.92)
Unknown/not mentioned	0.60 (0.27, 1.33)
<i>Education at Admission (compared with high school graduate/GED)</i>	
Fewer than 8 years	0.36 (0.02, 8.35)
8 to 11 years and less than high school graduate	0.57 (0.21, 1.54)
College/postgraduate	0.87 (0.46, 1.63)
Unknown/not mentioned	1.84 (0.29, 11.62)
<i>Non-Criminal Justice Source of Referral for Treatment</i>	0.29 (0.09, 0.95)
<i>Primary Expected Source of Payment for Treatment (compared with private health insurance, fee-for-service, or HMO/PPO/managed care)</i>	
No payment or client self-payment	0.87 (0.24, 3.14)
Medicare/Medicaid	0.84 (0.30, 2.31)
Criminal justice system	0.71 (0.09, 5.64)
Other public funding	1.35 (0.39, 4.66)
<i>Married/Common Law at Admission</i>	0.90 (0.44, 1.82)
<i>Have a Child/Children at Admission (compared with no child/children)</i>	
Have child/children	0.81 (0.33, 1.99)
Unknown/not mentioned	2.87 (0.89, 9.29)
<i>Facility Type of Care (compared with outpatient nonmethadone)</i>	
Nonhospital residential	3.31 (1.12, 9.78)
Combination	3.65 (1.14, 11.67)
<i>Presenting Substance Abuse Problem at Admission (compared with alcohol abuse only)</i>	
Drug abuse only	0.47 (0.23, 0.97)
Alcohol and drug abuse	0.72 (0.26, 2.01)
Substance not specified	2.07 (0.43, 10.00)
<i>Prenatal Care Services Offered</i>	3.65 (1.51, 8.84)
<i>Transportation Services Offered</i>	0.68 (0.30, 1.52)
<i>Combined Substance Abuse Treatment and Mental Health Services Offered</i>	0.37 (0.15, 0.90)

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data (1996–1997) and Phase II data (1997–1999).

Table 6.9 Adjusted Hazard Ratios (HRs) of Length of Stay (LOS) among Substance Abuse Treatment Clients Aged 18 or Older at Admission Discharged from Nonhospital Residential Facilities, Outpatient Nonmethadone Facilities, or Combination Facilities

Independent Variable	HR (95 Percent CI)
<i>Male Gender</i>	1.02 (0.88, 1.18)
<i>Age at Admission</i>	1.00 (0.99, 1.00)
<i>Race (compared with white)</i>	
All other races	0.93 (0.77, 1.12)
Unknown/not mentioned	0.91 (0.75, 1.09)
<i>Education at Admission (compared with high school graduate/GED or more)</i>	
Less than high school graduate	1.02 (0.90, 1.16)
Unknown/not mentioned	0.82 (0.58, 1.15)
<i>Non-Criminal Justice Source of Referral for Treatment</i>	1.29 (1.06, 1.58)
<i>Primary Expected Source of Payment for Treatment (compared with private health insurance, fee-for-service, or HMO/PPO/managed care)</i>	
No payment or client self-payment	0.64 (0.49, 0.83)
Medicare/Medicaid	0.64 (0.47, 0.87)
Criminal justice system	0.72 (0.51, 1.01)
Other funding	0.66 (0.47, 0.93)
<i>Facility Type of Care (compared with outpatient nonmethadone)</i>	
Nonhospital residential	2.38 (1.59, 3.57)
Combination	1.94 (1.33, 2.82)

CI = confidence interval; GED = general equivalency diploma; HMO = health maintenance organization; HR = hazard ratio; PPO = preferred provider organization

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data (1996–1997) and Phase II data (1997–1999).

Table 6.10 Adjusted Hazard Ratios (HRs) of Length of Stay (LOS) among Female Substance Abuse Treatment Clients Aged 18 or Older at Admission Discharged from Nonhospital Residential Facilities, Outpatient Nonmethadone Facilities, or Combination Facilities

Independent Variable	HR (95 Percent CI)
<i>Women-Only Facilities</i>	0.34 (0.13, 0.89)
<i>Child Care Services Offered</i>	0.51 (0.36, 0.73)
<i>Age at Admission</i>	1.00 (0.99, 1.01)
<i>Race (compared with white)</i>	
All other races	0.97 (0.71, 1.33)
Unknown/not mentioned	1.26 (0.89, 1.77)
<i>Education at Admission (compared with high school graduate/GED or more)</i>	
Less than high school graduate	1.32 (1.07, 1.63)
Unknown/not mentioned	0.95 (0.65, 1.39)
<i>Non-Criminal Justice Source of Referral for Treatment</i>	1.32 (1.02, 1.70)
<i>Primary Expected Source of Payment for Treatment (compared with private health insurance, fee-for-service, or HMO/PPO/managed care)</i>	
No payment or client self-payment	0.67 (0.46, 0.97)
Medicare/Medicaid	0.54 (0.38, 0.78)
Criminal justice system	0.51 (0.31, 0.83)
Other funding	0.74 (0.47, 1.17)
<i>Married/Common Law at Admission</i>	1.11 (0.87, 1.42)
<i>Have a Child/Children at Admission (compared with no child/children)</i>	
Unknown/not mentioned	1.15 (0.74, 1.78)
Have child/children	0.83 (0.63, 1.09)
<i>Presenting Substance Abuse Problem at Admission (compared with alcohol abuse only)</i>	
Drug abuse only	0.83 (0.65, 1.04)
Alcohol and drug abuse	0.77 (0.60, 1.00)
Substance not specified	0.51 (0.26, 0.98)
<i>Facility Type of Care (compared with outpatient nonmethadone)</i>	
Nonhospital residential	4.39 (2.62, 7.35)
Combination	2.65 (1.84, 3.82)
<i>Prenatal Care Services Offered</i>	1.48 (1.09, 2.02)
<i>Transportation Services Offered</i>	1.61 (1.11, 2.34)
<i>Combined Substance Abuse Treatment and Mental Health Services Offered</i>	0.61 (0.47, 0.80)

CI = confidence interval; GED = general equivalency diploma; HMO = health maintenance organization; HR = hazards ratio; PPO = preferred provider organization.

Source: SAMHSA, Office of Applied Studies, Alcohol and Drug Services Study (ADSS), Phase I data (1996–1997) and Phase II data (1997–1999).

treatment earlier among women. Women whose primary expected source of payment was no payment, client self-payment, Medicare/Medicaid, or the criminal justice system stayed in treatment longer than did women whose payment source was private health insurance. Women at facilities offering combined substance abuse treatment and mental health services also stayed in treatment longer than did women at facilities not offering combined substance abuse treatment and mental health services.

Summary

Descriptive analyses presented in this chapter suggested that

- women were less likely than men to complete treatment at outpatient nonmethadone or nonhospital residential facilities,
- women were more likely than men to complete treatment in facilities offering a combination of types of care, and
- women averaged shorter stays in treatment than men in nonhospital residential facilities.

However, gender was not associated with completion of planned treatment or LOS in treatment, after controlling for a number of client and organizational characteristics. In addition, receipt of treatment at women-only facilities and at facilities offering child care services was not associated with completion of planned treatment among women, after controlling for other client and organizational characteristics, but both components of substance abuse treatment programming for women were associated with longer stays in treatment. It is likely that for women, treatment programming that specifically targets their needs is an important contributor to the positive treatment outcomes associated with increased levels of services.

Chapter 7. Conclusions and Implications

Female substance abusers have a distinct set of issues that suggest the need for substance abuse treatment programming for women. Gender differences in substance abuse treatment barriers, utilization, and retention, as well as substance use epidemiology, social context, etiology, and physiological consequences, point to disadvantages for women. Substance abuse treatment programming for women may include such services as child care, transportation, prenatal care, woman-focused HIV risk reduction and mental health services, and women-only programs that create a treatment environment focused on women's issues.

This report extends our knowledge by providing information on factors that may impact substance abuse treatment retention among women. Valuable new information is provided on the effectiveness of substance abuse treatment programming for women, gender differences among substance abuse treatment clients, availability of substance abuse treatment programming for women, and the extent to which programming for women is associated with treatment retention. The findings are from analyses of nationally representative data on substance abuse treatment facilities and clients. These data from the Alcohol and Drug Services Study (ADSS) enable consideration of treatment services across the broad range of settings in which substance abuse treatment is delivered, as well as among diverse treatment clients in programs nationwide.

This chapter explores the implications of these findings in key areas for policymakers, the treatment community, and researchers.

Availability and Effectiveness of Substance Abuse Treatment Programming for Women

Chapter 2 explored the prior research on availability and effectiveness of substance abuse treatment programming for women. Few sources of data about availability were identified. Literature reviewed identified experimental research that showed that child care services increased length of stay (LOS) among women, particularly in residential treatment (Hughes et al., 1995). Women-only treatment decreased substance use and improved employment outcomes (Dahlgren & Willander, 1989). Mental health services also increased LOS and reduced substance use and HIV risk behaviors (O'Neill et al., 1996), prenatal care services improved birth outcomes among pregnant women (Carroll, Chang, Behr, Clinton, & Kosten, 1995; Elk, Mangus, Rhoades, Andres, & Grabowski, 1998), and supplemental education sessions improved attitudes about safer sex and increased self-esteem (Hiller, Rowan-Szal, Bartholomew, & Simpson, 1996; Volpicelli, Markman, Monterosso, Filing, & O'Brien, 2000).

Chapter 5 examined ADSS data about the availability of components of substance abuse treatment programming for women and reported that outpatient methadone facilities were least likely to offer child care services, even though this type of care serves the greatest proportion of female substance abuse treatment clients. Analyses also showed that components of substance abuse treatment programming for women are available in a minority of treatment facilities. Women-only facilities and child care services were associated with increased LOS (but not with treatment completion) among women (Chapter 6). Facilities treating women only served a higher proportion of black clients than mixed-gender facilities, and facilities offering child care services

served a higher proportion of female clients and clients whose treatment was paid for by Medicaid (an indicator of poverty) than did facilities not offering child care services.

Implications for Service Delivery

Findings suggest that incorporating components of substance abuse treatment programming for women into standard care is beneficial for women and their children. Women-only facilities may need to expand their orientation from gender-focused to culturally competent (Trepper, Nelson, McCollum, & McAvoy, 1997) to tap into strengths in the African-American community that may help their clients (Hill, 1993). Such strengths may include peer sources of community/social support (Eng & Young, 1992), religiosity and faith-based leadership (Holt, Lewellyn, & Rathweg, 2005), extended family networks (Dilworth-Anderson, 1992), and authoritarian parenting styles that benefit children (Taylor, Chatters, Tucker, & Lewis, 1990).

Staff at substance abuse treatment facilities may require knowledge of different cultural perspectives and skills to use in cross-cultural situations (Brach & Fraser, 2000). This knowledge may be gained in a variety of ways, such as training clinical staff on how to work with different racial and ethnic groups, recruiting clinical staff of the same race and ethnic identity as clients, and using community health workers for outreach and health promotion activities (Campbell & Alexander, 2002 ; Howard, 2003). Tailoring treatment programs to meet special needs of certain population subgroups not only makes treatment more attractive to those who need it, but also helps to address many of the logistical and pragmatic barriers to treatment faced by special populations (Weiss, Kung, & Pearson, 2003).

Variability in services offered in addition to child care across facilities may contribute to positive treatment outcomes for women. Facilities offering child care services were more likely to be larger facilities and to offer prenatal care services; transportation services; and special programs for women, pregnant women, dual-diagnosis clients, and AIDS/HIV-positive clients than were facilities that did not offer child care services. Although analyses of retention in Chapter 6 controlled for some of these organizational characteristics, effectiveness of child care services should be examined in controlled studies to isolate the specific effects of child care over and above benefits of other components of substance abuse treatment programming.

Implications for Treatment Access

Outpatient methadone facilities may need to explore creative arrangements to increase access to child care services for the women they serve (through vouchers, subsidies, on-site drop-in care, or other mechanisms). Even among types of care that more frequently offer child care services, the quantity and accessibility of these services was not measured. In-depth study is needed to explore whether female clients with children who need care actually receive the services offered by facilities, versus limited numbers of child care slots prohibiting these women from receiving timely and appropriate child care services to facilitate their entry into and retention in treatment. In addition, research is needed to determine whether child care services in settings such as outpatient methadone treatment are beneficial for women, since prior research has concentrated primarily on women in residential treatment being allowed to bring their children into treatment with them.

Poor, minority women may be the primary targets of substance abuse treatment programming for women. Thus, policymakers may want to create financing systems to encourage the development, expansion, or improvement of substance abuse treatment programming for women in order to reduce health disparities. Service delivery providers should also acknowledge and address barriers and stressors experienced by African Americans, including discrimination (Collins et al., 2000), single-parent households (Graefe & Lichter, 2002; Lane et al., 2004), socioeconomic stressors (Murry, Brown, Brody, Cutrona, & Simons, 2001), neighborhood environments (Williams & Jackson, 2005), and mistrust of medical or government systems (Gamble, 1997). Recognizing the diversity of clients at women-only substance abuse treatment facilities also is important because diversity in health beliefs and attitudes about substance abuse and treatment may affect the utilization of services (Levi & Easley, 1999). Programs that employ culturally appropriate frameworks can help substance-abusing minority women enter into treatment programs and remain in recovery (Lewis, 2004).

Although such approaches as women-only treatment, child care services, and other components of substance abuse treatment programming for women may help to increase access to treatment for women, in-depth study is needed to explore whether high-risk female clients with more severe substance use disorder-related problems are receiving the intensity of care they need. Better information about severity of substance abuse and actual services received is necessary to understand the impact of substance abuse treatment programming for women on treatment access, retention, and outcomes in field settings. It is also important to note that other treatment services and behavioral interventions not considered here may improve treatment retention and longer-range treatment outcomes (McLellan & McKay, 1998), including the provision of case management (Wechsberg, 1995), education and employment training (Etheridge, Hubbard, Anderson, Craddock, & Flynn, 1997), and comprehensive mental health services (Grella, 1997). In addition, research is needed to identify potential moderators of effectiveness, such as facility size, client characteristics, or quality of family and social support resources. Research also needs to evaluate costs in relation to benefits and effectiveness of women-only treatment or child care services.

Implications for Treatment Providers

Women-only facilities and child care services can be crucial investments for providers in achieving critical measures of success. However, at the provider level, if provider organizations grow larger and more centralized to capture economies of scale, it is possible that they may not be able to fill an adequate number of treatment slots if they serve women only. It is possible that larger facilities may need to offer women-only programming within their mixed-gender venue, for example, by offering women-only units, programs, workshops, or groups. The effectiveness and implementation of such arrangements would require further study. Conversely, costs of providing other components of substance abuse treatment programming for women, such as child care or other services, may be prohibitive for smaller facilities with lower levels of funding. Policymakers and providers might explore the feasibility and benefits of adding such services to existing treatment programming.

Gender Differences in Substance Abuse Treatment Client Characteristics

Chapter 4 explored in detail differences and similarities between female and male substance abuse treatment clients. Female clients were more likely to have children at admission than were male clients. In outpatient nonmethadone treatment, which represents the largest proportion of substance abuse treatment clients, females were less likely than males to be employed full-time. Within this service type, females were more likely than males to live with children but no other adult(s) at admission, to be referred to treatment by a welfare office or other social service agencies, to use Medicaid to pay for treatment, and to be admitted for drug abuse only.

Implications for Treatment of Specific Populations

Providers and policymakers may be in a position to support fragile families by considering women substance abusers' roles as primary caretakers of children. Child care services, parenting education and support, home visiting, and mentoring are important for addressing state policies regarding preservation and reunification of families while ensuring children's safety and well-being as women seek and receive substance abuse treatment and aftercare (Chaffin, Bonner, & Hill, 2001; Gruber, Fleetwood, & Herring, 2001; Miller, Fox, & Garcia-Beckwith, 1999). Furthermore, because socioeconomic status among women is a potential barrier to receiving and completing treatment and maintaining sobriety, housing, educational opportunities, job training, employment, insurance coverage, and financial planning and management are important services for female substance abuse treatment clients (McLellan et al., 2003). With the recent welfare reform legislation, it may be important to examine gender differences in benefits of treatment with respect to economic and employment outcomes (Grella, Scott, & Foss, 2005; Luchansky, Brown, Longhi, Stark, & Krupski, 2000; Oggins, Guydish, & Delucchi, 2001). Research also is needed to identify barriers for women entering treatment-based vocational training and job counseling to understand how women with substance use disorders fare in employment programs (Gutman, McKay, Ketterlinus, & McLellan, 2003).

Treatment Retention among Women

In Chapter 6, descriptive and multivariate analyses yielded different results regarding the roles of gender and substance abuse treatment programming for women in treatment retention. Descriptive analyses showed that women were less likely to complete planned treatment and averaged shorter stays in treatment than men in residential treatment facilities, despite the greater availability of women-only treatment and child care services in this type of care (Chapter 5). However, despite numerous treatment barriers among women, as cited in previous literature, multivariate analyses showed that gender was not associated with retention.

Implications for Treatment Outcomes

Because retention, and especially LOS, is related to long-term treatment outcomes (sobriety, employment, criminality, sex risk behaviors, family preservation, etc.), the lower completion rate and shorter average stay for women in residential treatment may be a cause for concern. Residential treatment settings typically admit patients with greater addiction severity

than outpatient facilities. Due to the lack of consistent findings in this study and existing substance abuse treatment literature, more research is needed on gender differences in all types, stages, and levels of care. In future studies of retention disparities, special attention should be given to how gender interacts with drug use severity.

Issues in Women's Substance Abuse Treatment Research

As noted in Chapter 2, much of the research reported upon in the literature has relied on analyses of small, nonrepresentative samples. Large-scale data collection efforts, such as ADSS, have made strides in improving the data available to researchers. However, these data pose challenges as well.

Chapter 3 noted that many ADSS measures of programming were not defined or standardized, and services were reported as offered, but actual exposure, receipt, and intensity of services were not measured. An important limitation of the analyses in this report is that they are based on cross-sectional data; thus, they represent a single snapshot in time and cannot capture the dynamic nature of treatment service programming and utilization. Also, cross-sectional data do not allow for causal inferences (e.g., that women-only treatment or child care services cause longer stays in treatment). Thus, confounding factors linked to client characteristics, facility characteristics, and retention may explain findings. Although multivariate analyses controlled for many client and facility characteristics, data on the level of treatment need and care received were not considered. Another limitation of the analyses is that missing information about mental illness and pregnancy prevented examination of benefits among women with co-occurrence or among pregnant women.

Few studies have examined the reliability and validity or overall quality of facility administrator reports of facility size, characteristics of client populations, costs and revenues, and other facility characteristics through reinterview techniques or checking against other documents and collateral sources. However, as part of ADSS, investigators conducted a detailed audit of administrator reports of client populations and cost data (Office of Applied Studies [OAS], 2003). They found original administrator reports on client admissions to be less in need of revision than were data on average LOS, costs, and revenues. These data considerations suggest the need for closely controlled data collections on both client and facility characteristics, along with validation of client and administrator reports and other data.

Although ADSS used a structured client record abstraction data collection instrument, the quality and quantity of data collected by programs are highly variable. Records data often underreport drug and alcohol abuse and dependence, and some services may not be recorded if they are not reimbursed on a unit basis (Garnick, Hodgkin, & Horgan, 2002). The data are potentially not as rich as client interview data, are often incomplete, and vary considerably in quality and content across programs. However, client record abstracts may yield more accurate information about sensitive behaviors than do self-reports, which are subject to considerable bias and potential under-reporting (Harrison & Hughes, 1997). Collecting data from client record abstracts rather than from personal interviews also decreases the considerable costs and research burden to clients, as well as the problems associated with recall.

Implications for Future Research

Because performance-based programming is a priority at the national and State levels, more detailed service and cost information will be needed. The use of uniform client assessment procedures, as well as the development of management information systems, will enhance performance monitoring. Standardized measures of special programming for women are necessary for future research endeavors. More research also is needed to establish causal relationships between programming, retention, and longer-term outcomes. Specific analyses of especially vulnerable populations are needed, including women with co-occurring mental illness and substance use disorders, pregnant women, HIV-positive women, impoverished women, those with more than one child, domestic violence and child maltreatment victims, immigrants, and other disenfranchised racial/ethnic subgroups.

Conclusions

Substance abuse treatment programming for women is increasingly available but has not been adequately studied. This report has presented new research that helps to fill this gap. It gives policymakers and service providers at the Federal, State, and local levels a better understanding of why substance abuse treatment programming for women is needed, who has access to it, and needs of female clients that are unique from needs of male clients.

Several overarching conclusions emerge from the findings presented. Substance abuse treatment programming for women is beneficial for women and their children. Availability of such programming appears to be limited, despite positive associations with LOS in treatment. In multivariate analyses, gender was not associated with retention.

On the other hand, important differences between men and women were identified in descriptive analyses. Women in residential facilities exhibited lower levels of retention than men. In all types of care, female clients were more likely to have children at admission than males. In outpatient nonmethadone treatment, females exhibited lower levels of socioeconomic status than did males.

High-risk populations (women who are homeless, mentally ill, HIV positive, or violence victims) may need more intensive and specialized services. For example, a small pilot study in South Carolina found that rural HIV-positive women benefitted from a peer counseling intervention to help them access and begin substance abuse treatment (Boyd et al., 2005). Women with substance use and mental disorders may experience additional economic, social, and health problems that may adversely affect their ability to access and remain in treatment. However, providing treatment services to these vulnerable populations presents a difficult challenge to treatment providers because of the intensive, lengthy treatment required.

Large national datasets, such as ADSS, are available for additional study. Such datasets provide policymakers and researchers with an important base from which to study substance abusing populations and the systems providing services to these populations. A key implication of this report's analyses is that improvement of quality of data could come from standardizing and

defining measures. Clear definitions are needed for assessing clients and for defining the types of services they receive.

Managed care for substance abuse treatment services has shifted treatment from inpatient to outpatient treatment settings, thus bringing focus to outpatient nonmethadone and outpatient methadone facilities as settings where large proportion of women are served. Health economics research is needed to conduct cost analyses in these two settings. More detailed information about women, women's services, and retention in these settings also is needed.

Although more research is needed to determine causality of associations and to examine special populations of women, this report clearly shows that women in substance abuse treatment have needs that are unique and that components of substance abuse treatment programming are positively linked with treatment retention, after controlling for many potential confounders. It is hoped that the research presented here will help to inspire increased and improved policies and services and new research that will continue to improve the lives of women and their children.

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Appendix: Statistical Methods and Limitations of the Data

This section describes detailed analytic methodology used in the report. Additional limitations of the data are also discussed.

Suppression Criteria for Unreliable Estimates

Minimum nominal sample size suppression criteria ($n = 5$) were used that protect against unreliable estimates caused by small nominal sample sizes. To maximize reliability and minimize the need to suppress results, variable categories generally were collapsed where unweighted cell counts were less than 5.

National Facility Rates

For each client characteristic reported by facilities (i.e., gender, race/ethnicity, age, and payment source) in Chapter 5, an individual facility rate was calculated by dividing the number of active clients with each characteristic by the total number of active clients for each facility. Next, a *national facility rate* for each characteristic was calculated by summing individual facility percentages and dividing by the number of facilities with active clients reporting the characteristic across all facilities. The prevalence of selected facility characteristics (type of care, size, ownership, special programs, and services offered) was calculated as percentages of the number of facilities overall.

Because of this methodology, rates discussed in this report are not strictly comparable with percentages of clients at facilities reported by other data sources. Rates represent an average of percentages reported by facilities, regardless of the number of clients each facility served. This calculation underestimates the true proportions of client characteristics among sampled facilities with large numbers of clients and overestimates the proportions among sampled facilities with small numbers of clients. However, estimates for some client characteristics reported by facilities are similar to those reported by other national studies of substance abuse treatment clients.

Multivariate Analyses

Treatment completion and length of stay (LOS) were modeled in a series of multivariate analyses in Chapter 6. Variables of interest were analyzed separately and together with various combinations of control variables. Findings were consistent across various models containing different sets of variables, indirectly implying that the models are stable.

Because many prior studies examining retention analyzed clients separately by type of care received, descriptive analyses in the present study were stratified by type of care. Multivariate analyses were conducted on the full samples of adult clients or adult female clients to preserve these large samples. Accordingly, three dummy variables were included in the models indicating treatment at residential facilities, outpatient nonmethadone facilities, or facilities offering a combination of types of care.

Two final comprehensive models analyzed (1) treatment completion or (2) LOS as a function of gender, controlling for facility type of care, age at admission, race, education at admission, primary source of referral to treatment, and primary expected source of payment for treatment. Correlations between organizational characteristics were calculated to test for multicollinearity of variables prior to modeling and to test assumptions about relationships between these characteristics. Although many organizational characteristics were significantly correlated, Pearson product-moment correlation coefficients were relatively low (range = -0.09 to 0.40), indicating that multicollinearity was not an issue in the analyses. Therefore, all organizational characteristics were included in one model for treatment completion and one model for LOS. These additional two final comprehensive models analyzed retention as a function of organizational characteristics of interest, controlling for facility type of care, client age at admission, client race, client education at admission, primary source of referral for treatment, primary expected source of payment for treatment, marital status at admission, having children at admission, type of presenting substance abuse problem at admission, and treatment at facilities offering prenatal care services, transportation, or combined substance abuse and mental health treatment services.

Analyses of LOS used survival analysis (specifically, Cox's proportional hazard regression analysis), which considers situations in which (1) a dependent variable represents a time to a terminal event and (2) the duration of the study is limited in time. In this analysis, the terminal event was discharge from treatment. Survival analysis can include both censored and noncensored observations. An observation is considered censored by the end of the study period if the terminal event had not yet occurred or if the observation was followed up to a certain time point, after which there was no further information on the client. ADSS provides information on the duration of stay in treatment for all subjects from the beginning to the end of the observation period. For the purposes of this analysis, the time of study was determined to be 3,000 days, and observations with a longer stay in treatment than 3,000 days were considered to be censored.

In Cox's hazard regression analysis, it is assumed that (1) a hazard function is constant over time and (2) all deviations are random. Under the assumption that hazard function is constant, it is possible to say that a higher hazard ratio (HR) suggests that clients in the "exposed" group stay in treatment a shorter time than the comparison group. Fitting the models was assessed using criteria provided in SUDAAN® Survival Analysis (RTI International, 1995) output as follows:

1. $-2 \times$ normalized Log-Likelihood with = 0.
2. $-2 \times$ normalized Log-Likelihood for a full model.
3. Approximate 2 ($-2 \times$ Log-Likelihood Ratio).

Target Population

An important limitation of the Alcohol and Drug Services Study (ADSS) estimates of substance abuse treatment facility and client characteristics is that they are designed only to describe the target populations of the study: (1) active public and private substance abuse treatment facilities and (2) clients discharged from substance abuse treatment facilities. Although 12,387 facilities and 2.2 million clients are represented by these populations, ADSS excludes some important and unique subpopulations that may have very different characteristics. For

example, the Phase I survey excludes halfway houses without paid counselors, which may have significantly different client and facility characteristics. Client records from hospital inpatient facilities are not included in Phase II and have been shown to involve shorter stays in treatment. Also excluded are client records from facilities in which 100 percent of clients were treated for alcohol abuse, a population with different client characteristics and retention rates.

Screening and Interview Response Rate Patterns

The Phase I screening facility response rate was about 79 percent, and the interview response rate was about 91 percent. Rates of nonresponse ranged from 5 percent among nonhospital residential facilities to 12 percent among outpatient, almost exclusively alcohol facilities.

Item Nonresponse

Among Phase I facilities, item response rates were above 98 percent for most questionnaire items. About 80 percent of the 240 items on the facility questionnaire had less than 1 percent missing data, 15 percent (35 items) had between 1 and 10 percent missing values, and only 5 percent (12 items) had between 20 and 25 percent nonresponse. Logical imputations, imputations using external sources, and imputations using statistical methods were used to fill in missing values for key variables. Statistical methods included two nondeterministic methods: random regression (Montaquila & Ponickowski, 1995) and random within-class hot deck (Kalton & Kish, 1984). Imputation was performed to blocks of items at a time—point-prevalence counts, admissions, and other items. Within each block, missing totals were imputed first, followed by imputation of missing components of the total to produce internally consistent responses.

In Phase II, several items required data that could not be ascertained from the client discharge abstract. To address this, variables with 15 percent or more missing data for the total sample, or 25 percent or more missing data for one of the treatment service types, were excluded from analyses of client characteristics in Chapter 4. For example, ethnicity was not ascertained for 26 percent of the total sample and was not included in the analyses. Lifetime use of alcohol also was not ascertained for 7 percent of the total sample, including 29 percent of females discharged from methadone treatment, and was not included in the analyses. In addition, because 31 percent of records for female clients discharged from outpatient nonmethadone or nonhospital residential treatment were missing data about pregnancy at admission, planned analyses about pregnancy could not be conducted.

Validity of Facility Administrator Reports

Estimates of the availability of substance abuse treatment programming for women in Chapter 5 are based on facility director reports of client and facility characteristics, and their value depends on respondents' truthfulness and accuracy. No studies have been published to address the validity and reliability of facility administrator reports. Director, record, and client data may be inconsistent because program directors may have inaccurate or incomplete information about the logistics of their programs.

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