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Program factors related to women's substance abuse treatment retention and other outcomes: A review and critique

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Abstract

This study examined program factors related to women's substance abuse treatment outcomes. Although substance abuse research is traditionally focused on men, some more recent studies target women. A systematic review of 35 empirical studies that included solely women subjects or that analyzed female subjects separately from male subjects revealed five elements related to women's substance abuse treatment effectiveness; these are (1) single- versus mixed-sex programs, (2) treatment intensity, (3) provision for child care, (4) case management and the "one-stop shopping" model, and (5) supportive staff plus the offering of individual counseling. Although all 35 studies contribute to the knowledge base, critiques of six areas of design weakness in the studies were included to provide directions for future studies; these are (1) lack of a randomized controlled design, (2) nondisentanglement of multiple conditions, (3) lack of a consistent definition for treatment factors and outcomes, (4) small sample size, (5) lack of thorough program description, and (6) lack of thorough statistical analyses.

Keywords: Women; Program factors; Retention; Substance abuse treatment; Treatment outcomes

1. Introduction

The literature suggests that substance-abusing women may have needs and issues different from those of their male counterparts; however, most earlier studies have targeted only male subjects. Those studies include either only male subjects or a disproportionately small percentage of women (Vannicelli, 1984). Women-specific treatment and research began in the 1970s, faded in the 1980s, and reemerged in the 1990s. The uneven history may be related to (1) the federal government's and states' uneven efforts in funding such treatment and (2) the rise of crack cocaine babies. Finklestein (1994) summarized the public funding history of women's substance abuse treatment, showing that the federal effort (PL. 94-371) on funding such treatment began in 1976 but was shifted to block grants administered by the states in 1981, making women's substance abuse treatment compete with other local interests. In 1984, federal rules (RL. 98-509) required each state to set aside 5% of its block grant specifically for treating women, which increased to 10% in 1988. The Center for Substance Abuse Treatment [CSAT] (2001) stated that both the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism had conducted research and distributed information on the special needs of substance-abusing women by 1979; however, surveys of treatment programs in the 1980s showed that most programs were not treating women and the crack baby epidemic in the mid-1980s "caught most States with too few residential slots for the many pregnant women and mothers in need of specialized care" (p. 9).

More women-specific treatments and research have appeared since the 1990s. For example, the CSAT has funded approximately 85 treatment programs for pregnant and parenting women since 1991 and the Center for Substance Abuse Prevention has supported more than 100 programs to enhance services for pregnant/postpartum women and their infants (CSAT, 2001). A search of the PsycInfo database with the key words "women," "substance abuse," "treatment," and "gender-specific" indicated 1 article

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published prior to 1986, 1 during 1986–1990, 2 during 1991–1995, 19 during 1996–2000, and 19 during 2001–2004. Similar results were obtained when the PubMed database was searched with the same key words: 1 article was published prior to 1986, 1 during 1986–1990, 9 during 1991–1995, 27 during 1996–2000, and 36 during 2001–2004.

Although this is only one search, the trend is obvious. More recent studies have investigated treatment success factors specifically related to women. This article examines these recent empirical studies, eliciting factors related to women's alcohol and other drugs (AOD) treatment success. Understanding these factors may help determine women's special needs and plan more effective treatment and prevention programs to address those needs. Although a few meta-analyses of the current topic have been conducted (e.g., Ashley, Marsden, & Brady, 2003; Orwin, Francisco, & Bernichon, 2001), this review differs in its emphasis not only on organizing themes but also on critiquing the studies reviewed to evaluate the quality of the themes generated and to provide specific directions for future research improvement.

2. Materials and methods

Factors related to substance abuse treatment outcome may include both program factors (e.g., type, modality, and contents of treatment) and client characteristic factors (e.g., age, ethnicity, marital status, socioeconomic status, dual diagnosis, history of childhood sexual/physical abuse, and degree and type of drugs abused). This review focused only on program factors. Thirty-five studies were selected for review based on the following criteria: (1) an empirical study (quantitative or qualitative); (2) only women were included in the study or women were analyzed separately from men; (3) a focus on evaluating treatment outcome (e.g., reduced AOD use, obtaining and maintaining employment, improved emotional status, lower incidence of criminal behavior) and/or retention[1]; and (4) targeting treatment program factors and characteristics.

Thirty-five studies (see Table 1) were located through a search of citations in six databases and a screen of article reference lists. The six databases were PubMed of the National Library of Medicine, Social Work Abstracts, Sociological Abstracts, Social Services Abstracts, PsycInfo, and ERIC. With the use of content analysis methods, we identified five types of studies: (1) single- versus mixed-sex programs; (2) residential versus intensive outpatient/day treatment versus traditional outpatient treatment; (3) provision versus no provision for child care; (4) case management and/or a "one-stop shopping" model; and (5) supportive staff and provision for individual counseling. Within each of these categories, the studies were evaluated based on six methodological factors that were thought to be important for a study's ability to detect a causal relationship, to provide findings that might generalize to the wider women's population, and to be replicated by other researchers. These methodological areas included randomization; type of control condition; ability to disentangle multiple conditions, standard definition for treatment factors, and outcomes; sample size; program description; and statistical analyses.

3. Results

3.1. Single- versus mixed-sex programs

Nine studies suggested that women-only programs produce positive treatment outcomes/retention. The studies of Grosenick and Hatmaker (2000a) and Nelson-Zlupko et al. (1996) were qualitative studies with results suggesting that women perceive a women-only program to be more beneficial than a mixed-sex program because it was easier for them to discuss issues such as children, sexuality, prostitution, and sexual/physical abuse. These studies also suggested that a women-only program reduced sexual harassment. Ravndal and Vaglum (1994) found in their qualitative study that some women in their mixed-sex program were likely to develop a sexual relationship with male clients in the same setting, resulting in early dropout when their male partner dropped out. All three qualitative studies provided some theoretical background for the association between a single-sex program and positive treatment outcome.

Six quantitative studies (Dahlgren & Willander, 1989; Grella, 1999; Gutierres & Todd, 1997; Roberts & Nishimoto, 1996; Zankowski, 1987; Zilberman, Tavares, Andrade, & El-Guebaly, 2003) also suggested that women-only programs produce better treatment outcomes or retention than mixed-sex programs. However, three studies suggested no outcome difference between single- and mixed-sex programs.[2] Bride (2001) found no significant difference in length of stay (LOS) between single- and mixed-sex programs. Copeland et al. (1993) found that, although their women-only group had greater improvement than the mixed-sex group on depression and self-esteem at discharge, the two groups were not different in any of the treatment outcomes at the 6-month follow-up. Neither study used random assignment of participants to the groups; therefore, the no difference outcomes could be attributable to selection bias or idiosyncratic differences between groups. This is further supported by Copeland et al.'s

[1] Retention is included as an outcome variable because numerous empirical studies suggest its association with positive posttreatment outcomes for men and women (e.g., Messina, Wish, & Nemes, 2000; Stevens & Arbiter, 1995; Wexler, Cuadrado, & Stevens, 1998).

[2] The nonrandomized three-group study of Dodge and Potocky-Tripodi (2001) also indicated no treatment outcome difference between women-only and mixed-sex groups but is not included in this review because the authors concluded that all three treatments were ineffective.

Table 1
Studies on program factors related to treatment effectiveness for women

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
Bride (2001)	Women who attend a single-sex program have a higher retention rate than those who attend a mixed-sex program.	A nonrandomized two-group comparison (southeastern United States): a mixed-sex group (n = 47 women, 72.3% African American) versus a single-sex group (n = 52, 67.3% African American). Both groups provided day Tx program. Data were collected retrospectively from clients' records.	LOS χ^2 Analysis and ANOVA	The single-sex group was not significantly different from the mixed-sex group in terms of program completion, 90-day completion, and LOS. Bride concluded that simply separating women from men does not improve women's Tx outcomes and that women-specific Tx must be added to improve women's Tx outcomes.
Comfort and Kaltenbach (1999)	(1) There is a relationship between type of Tx (residential vs. outpatient) and women's Tx outcomes. (2) Women who participate in a residential program have different biopsychosocial characteristics.	A nonrandomized two-group comparison (Philadelphia, PA): a residential Tx program (n = 32 women, 94% African American) versus an outpatient program (n = 32 women, 84% African American). Both provided comprehensive Txs: obstetrical care, psychiatric services, addiction counseling, case management, HIV testing and counseling, and parent–child services.	Urine drug screens were done on random weekly schedules from enrollment through the entire Tx. Birth outcomes data were also collected. t Tests, χ^2 analyses, and ANOVA were used. Confirmatory Kruskal–Wallis ANOVA tests were used for nonnormal data.	More women in the residential program (97%) were abstinent as compared with the women in the outpatient program (47%, $p < .005$) during the course of Tx. The residential Tx women also appeared to be more engaged in Tx during the early postpartum months than the outpatient women (p value not provided). There was no significant difference between the two groups on retention/birth outcomes.
Copeland, Hall, Didcott, and Biggs (1993)	Women attending a women-only Tx program have better Tx outcomes than those attending a mixed-sex Tx program.	A nonrandomized two-group comparison (Australia): a specialist women-only residential program (n = 80) versus two mixed-sex Tx services (n = 38 + 42, N = 80). The women-only program (length, 42 days) emphasized residential child care, parenting skills, individual counseling, health/dental care, and self-esteem/sexuality/assertiveness; the other two programs (21 days for the mixed-sex program and 7 days for the detox program) did not necessarily offer services in these areas. Posttest was done 6 months after discharge.	Opiate Treatment Index-Drug Use Scale, SADQ, SODQ, Beck Depression Inventory (BDI), Coopersmith Self-Esteem Inventory, Annis' Situational Confidence Questionnaire, Annis and Martin's Drug Taking Confidence Questionnaire, and so forth. Repeated-measures ANOVA and χ^2 analyses; logistic regression using the LOGIT module of SYSTAT was also used to adjust for possible confounds	Both groups improved at discharge regarding depression and self-esteem. However, the women-only group had a greater improvement on depression and self-esteem than the mixed-sex group. There was no significant difference in any outcome at the follow-up between the two groups. The authors concluded that simply offering a women-only program without changing Tx philosophy and approach will not make a women-only program more effective for women than a mixed-sex program.
Coughey, Feighan, Cheney, and Klein (1998)	Several factors, including the length of their previous residential Tx, are correlated with women's retention in aftercare.	A nonrandomized study (Philadelphia, PA; N = 135, 97.8% African American) including both qualitative and quantitative approaches Quantitative data were collected during intake and were analyzed comparing women who completed the aftercare program (>1 year) with those who dropped out. Qualitative data were notes of the accounts of case managers' interactions with the women.	Addiction Severity Index (ASI), Depression Scale (the Health and Daily Living Form), Rosenberg Self-Esteem Scale (RSES), Social Support Network Inventory, and so forth. Possibly, multiple t tests were performed, comparing the completed group with the dropout group regarding predictors.	Women who completed the aftercare had twice as much prior residential AOD Tx than those who dropped out ($p <$ .05) and had a longer sobriety time at admission ($p < .001$). Qualitative data: Case managers perceived that women who dropped out of aftercare tended to have less-stable conditions and inadequate primary AOD Tx. They suggested that those women receive first care instead of aftercare.
Dahlgren and Willander (1989)	Women with an early stage of alcoholism problems have better Tx outcomes if	A randomized two-group comparison (Stockholm, Sweden): a women-specific	"A consumption of 30 g+ of pure ethanol. . .in 24 hour was always considered a	Sixty-seven percent of the women-specific group showed total abstinence/>300 days a year

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Table 1 (*continued*)

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
Dahlgren and Willander (1989)	attending a women-specific Tx program versus a mixed-sex program.	group (n = 100; outpatient clinic with an eight-bed ward; women only; at least 1-year Tx required; individualized Tx program; close contact with staff; a focus on employment and family conditions; medical care; etc.) versus a mixed-sex group (n = 100) Two-year (after entry) follow-up conducted with 75 women in the women-specific group and 68 in the control group. Data on medical, psychological, and social areas were compared between the two groups.	relapse" (p. 500). t Tests and χ^2 analyses with Yates' correction were used.	without relapse in the first year and 59% in the second year versus 45% and 48% for the control group, respectively ($p < .01$). Fewer women in the women-specific group than women in the control group reported blackouts (25% vs. 40%, $p < .05$) and change in mood when intoxicated (17% vs. 40%, $p < .01$). More women in the women-specific group reported "definite improvement of the nervous symptoms" (43% vs. 18%, $p < .01$). Thirty-five percent of the women-specific group reported improved relationship with their children (vs. 12% of the control group).
Evenson, Binner, Cho, Schicht, and Topolski (1998)	Wraparound services and intensive case management provided by Comprehensive Substance Abuse Treatment and Rehabilitation (CSTAR) improve clients' Tx outcomes.	Focused on the women-with-children program (n = 99, 80% African American and 20% Caucasian), one of the three types of CSTAR programs evaluated (Missouri) One-group pretest and posttest design. Mainly a retrospective study comparing data for admission versus current period. It did not report on how the data for admission were acquired, possibly collected through women's recollection.	Clients filled out the CSTAR Substance Use, Family/Social Relationship, and Legal Difficulties Questionnaires (all three adapted from the ASI), Living Arrangement Questionnaire, Alcohol and Drug Problem Inventory, Missouri Symptom Checklist, Parenting and Childcare Questionnaire, and so forth. Staff filled out the Global Assessment of unctioning Scale, Educational and Status Offense Questionnaire, and so forth. Wilcoxon matched-pairs signed ranks.	Significant improvements were achieved between the admission and the current period on substance use (e.g., total abstinence, blackouts, overdoses), problems with substances, functional level, felt distress (Missouri Symptom Checklist), cost of addictions (amount of money spent on drugs), productivity, parenting skills, and so forth.
Gerstein and Johnson (2000)	To explore the relationships between various factors and Tx outcomes, including the factors of different types and intensities of the Tx.	It was based on the National Treatment Improvement Evaluation Study. There were 1,374 women (64% African American, 23% White, and 13% Hispanic) and 3,037 men. Separate analyses on women were reported. A nonrandomized three-group comparison: non-methadone outpatient versus short-term residential versus long-term residential A nonrandomized two-group comparison: low intensity (up to once a week) versus high intensity (more than once a week). Three-wave measurement: admission versus the end of Tx versus 12 months after Tx discharge.	Measuring percentage change between admission and follow-up on various variables, including crack use, drug expenditures, any arrest, and employment. Percent change was defined as 100 (After % − Before %) /Before %. Used two-tailed paired t tests.	Tx type had inconsistent effects on Tx effectiveness. For crack use, there was minimal difference among the groups, although all produced improvements. For drug expenditures, the short-term and long-term residential groups appeared to produce better outcomes than the outpatient group, although all three groups produced improvements. For employment, the outpatient group had better outcomes than the short-term and long-term residential groups, although all three groups produced improvements. Higher Tx intensity may improve Tx effectiveness, but only to a limited degree.
Grella (1999)	Several hypotheses, including whether women-only residential programs have a higher Tx completion rate than mixed-	It was based on the California Alcohol and Drug Data System database. A nonrandomized two-group comparison (Los	"Treatment completion was defined as completion of the planned treatment duration" (p. 220). Multivariate logistic	"Women in women-only programs were more than twice as likely to complete treatment as women in mixed-gender programs" [p. 225].

Table 1 (*continued*)

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
Grella (1999)	sex residential programs	Angeles; public funded, residential, drug Tx programs): women-only group (n = 800, 49.5% African American, 29.3% White, 16.8% Latino) versus mixed-sex group (n = 3,317, 55% African American, 27.5% White, 12.2% Latino).	regression was performed.	Grella stated that no information on whether the two programs offered different Tx contents, other than the fact that one is a women-only program and the other is a mixed-sex program, was available.
Grosenick and Hatmaker (2000a)	No hypothesis; mainly a qualitative/quantitative study exploring women's perceptions of the important features of a Tx program	Mainly a qualitative study (Pacific Northwest; n = 39 pregnant and parenting women and 51 staff from a residential program; the women were primarily Caucasian [85%]). Used both qualitative and quantitative methods	Clients' and staff's responses to the open-ended questions were grouped by themes. Women's ratings of the degree (*lots*/*quite a bit*, *some*, *hardly*, and *not at all*) to which specific setting characteristics mattered to them and have influenced their abilities to achieve program goals were computed.	Women rated several items important, including (1) residential life, which allows them to concentrate on Tx and prepares them for independent living after Tx; (2) onsite child care, which makes them more willing to enter Tx and allows them to concentrate on Tx—seeing their children daily increases their incentives to stay and decreases their depression; (3) all-women program, which makes recovery less overwhelming owing to the similar experience of others and enabled them to value themselves instead of their connection with men
Grosenick and Hatmaker (2000b)	No hypothesis; mainly a qualitative/quantitative study exploring women's (and staff's) perceptions of staff attributes that contribute to women's reaching Tx goals	Ditto	Clients' and staff's responses to the open-ended questions were grouped by themes. Women's ratings of the degree (*lots*/*quite a bit*, *some*, *hardly*, and *not at all*) to which staff displayed specific characteristics were computed.	Women rated several items important, including (1) supportiveness, the attribute most often considered to be influential (encompassing the elements of "empathetic, warm-hearted, unconditional caring provided within an understanding, encouraging, helpful, and compassionate atmosphere" [p. 283]) and (2) nonthreatening, women "felt that they could approach nonthreatening staff and thus were better able to achieve their treatment program goals" (p. 283).
Gutierres and Todd (1997)	There is an association between childhood abuse and AOD Tx completion. This study also explored relationships between Tx completion and other variables (sex, ethnicity, Tx type [e.g., single- vs. mixed-sex program]).	There were 72 women and 74 men recruited from four residential programs (Phoenix, AZ): one for men of any ethnicity, one for men and women of any ethnicity (n = 22 Anglo American women and 22 Mexican American women), and one for Native Americans, with men (n = 30) and women (n = 28) treated separately.	Tx completion was defined in two ways: (1) whether the client dropped out of Tx before completing the required days and (2) prognoses for clients who completed the Tx. Log-linear models were used to examine the relationships between the independent and dependent variables.	Women in the mixed-sex programs had a higher dropout rate than their male counterparts in the same programs. Native American women in the women-only program were not different from their male counterparts in the men-only program regarding dropout rate.

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Table 1 (*continued*)

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
Gutierres and Todd (1997)		Nonrandomized multiple-group comparisons, including women in the mixed-sex group versus those in the single-sex group.		
Howell and Chasnoff (1999)	Qualitative approach; no hypothesis; the purpose of the study was to identify successful program components to better help women who are at high risk.	There were 12 focus groups across five states, with a total of 88 pregnant/post partum women (ethnicity distribution not reported), conducted. In addition, five program administrators focus groups (n = 25) and 16 providers focus groups (n = 147) were conducted. Each group session lasted 1–2 hours and was audio taped and transcribed. Based on transcripts and the group facilitators' observations, a summary was developed for each focus group.	Data were analyzed by identifying cross-cutting issues and themes.	Providers perceived intensive case management as being critical for (pregnant) women after discharge/ delivery. The women, however, perceived case management as both positive and negative—some appreciated the support whereas others believed that such support may be misused by clients (i.e., enabling). Providers perceived residential Tx beneficial to the women, but the women expressed anxiety about attending residential programs because of separation from their family members/ children. Child care thus is important for both the outpatient and residential programs.
Hughes et al. (1995)	Cocaine-abusing women whose children stay with them in a residential program are more likely to have a longer LOS than their counterparts whose children are not allowed to reside with them while in the Tx.	A randomized two-group comparison (Southeastern United States): the demonstrated group allows children (only one or two children who are younger than 10 years are allowed) to reside with their mother while she is in the program (n = 31, 81% African American) whereas the standard group did not allow children to stay with their mother (n = 22, 82% African American).	Survival analysis methods were used to analyze retention data. The survival distribution data were compared using the Lee–Desu statistic (L). χ^2 and t tests were also used for the analyses of other relationships.	The demonstration group showed a greater LOS than the standard group (M = 300.4 days and SD = 242.3 vs. M = 101.9 days and SD = 93.7, $p < .05$).
Jansson, Svikis, and Beilenson (2003)	Evaluated the efficacy of the Reaching Families Early (RFE) Tx by comparing the high-intensive outreach case management group with the low-intensive one. Women receiving a high-intensive outreach case management have better Tx outcomes than those receiving a low-intensive one.	A nonrandomized two-group comparison (Baltimore, MD): the high-intervention group (n = 32, 90% African American) included women who received five or more RFE home visits during the first 2 years postpartum whereas the low-intervention group (n = 44, 89% African American) included women who received four or fewer home visits. The RFE model provided intensive outreach services, offered case management from birth to 3 years, and ensured that high-risk children received care that would promote. Used a 20-minute telephone survey.	Recent AOD use was measured using questions based on the ASI. χ^2 Analyses.	Low-intervention women were three times more likely to report recent heroin or cocaine use and twice as likely to report using AOD at the follow-up than their high-intervention counterparts. The high-intervention women were more likely than the low-intervention women to (1) use postpartum substance use Tx (83% vs. 56%, $p < .03$);(2) perceive their parenting skills being improved owing to the RFE (67% vs. 31%, $p < .006$); (3) report better infant health; and (4) have legal child custody (81% vs. 29%, $p < .0001$).
Kaskutas, Zhang, French, and Witbrodt (2005)	To compare Tx outcomes (AOD use and social/ psychiatric problems at follow-up) between women-only and mixed-sex	A randomized four-group comparison (Northern CA Bay Area; N = 122 women): women-only group (n = 31, 48% White and 52% non-	Subjects were measured using ASI (abbreviated form) at baseline, end of the Tx, and 6 and 12 months posttreatment regarding	There was no significant difference in follow-up AOD abstinence rate between the women-only and the two mixed-sex

Table 1 (*continued*)

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
Kaskutas, Zhang, French, and Witbrodt (2005)	programs.	White) versus mixed-sex community program 1 (n = 22, 45% White and 55% non-White) versus mixed-sex community program 2 (n = 27, 56% White and 44% non-White) versus mixed-sex hospital program (n = 42, 60% White and 40% non-White). All four programs were day Tx programs.	AOD use and psychiatric and social problems. Statistical analyses included paired t test, χ^2 analyses, and multivariate analyses (ANCOVA, logistic regression).	community programs, but the mixed-sex hospital program had a significantly higher AOD abstinence rate than the women-only program. There was no significant difference among the four groups regarding follow-up social and psychiatric problems. Authors suggested that substance-abusing women "may be treated as effectively in mixed-sex programs as in women's programs" (p. 60).
Laken and Ager (1996)	Case management enhances retention of pregnant women in AOD Tx.	One group, with no random assignment (Detroit, MI; N = 225, 88.4% African American). Data regarding the women's basic background information, their case management contacts, AOD Tx records, and hospital records (e.g., prenatal care) were collected.	LISREL path analysis was used. Results showed five factors that had significant path correlations to Tx attendance, including "intensity of case management" and "receiving transportation to drug treatment appointments" (p. 439).	The authors concluded that case management and transportation provision contribute significantly to women's retention in AOD Tx during pregnancy.
Lanehart, Clark, Rollings, Haradon, and Scrivner (1996)	The intensive case management provided by the Women's Intervention Services and Education (WISE) Project has a positive impact on Tx outcomes on substance use, employment, arrests, incarceration, birth weight, and social support.	A one-group pretest and posttest design (four-county rural district, FL; N = 152 pregnant/postpartum women who had at least 6 months' exposure to WISE, 66% African American). Intensive case management and other tailored support services were provided during and after women's residential AOD Tx for an extended period.	The WISE Intake Form (ASI and supplemental items) and the Client Follow-Along Tracking Form, which evaluates client status monthly. Examined across variables (AOD use, arrests, employment, social support, incarceration, and birth weight) and compared the results between the pre-WISE and the active intervention/aftercare periods. χ^2/linear trend tests were used.	Women were more likely to be substance free after the WISE intervention, with women with the longest tenure (≥18 months in WISE) being the most successful (mid and last 6-month period substance free). Compared with intake, women after the WISE intervention were (1) 43% more likely to be employed and/or enrolled in educational/vocational training; (2) six times less likely to have been arrested; and (3) 1.5 times less likely to deliver a low-birth-weight infant.
Marsh, D'Aunno, and Smith (2000)	Increasing access to Tx through transportation and outreach enhances clients' use of other social and health services and, ultimately, Tx effectiveness.	A quasi-experimental design with a nonequivalent control group (Chicago and Rockford, IL): a comparison of the initiative program (an enhanced program that increased transportation, child care, and outreach service; n = 73 women, 82% African American) versus the regular program (n = 75 women, 81% African American) Outcomes were measured at approximately 14 months after entering Tx.	Path analysis examining the impact of the enhanced program on clients' use of other social services and AOD use.	Participation in the initiative program was negatively related to AOD use (β = −.89, p < .01). Although the initiative program was positively related to access services and negatively related to AOD use, access service was positively related to AOD use. The authors explained the paradox as that high users of access service may be those who had the most serious psychiatric and family problems but had not been linked to the adequate services/Tx.

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Table 1 (*continued*)

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
McLellan et al. (2003)	The CASAWORKS for Families intervention has a positive impact on TANF clients regarding employment, substance abuse and domestic violence, and basic needs.	One group with repeated measures, including baseline and 6- and 12-month follow-up measures. The goal was not to test the efficacy of the intervention but to provide "proof of concept" (p. 662). Eleven sites (countrywide) were covered (N = 529, 48% African American, 38% White, and 12% Hispanic). The CASAWORKS for Families provided multifaceted services emphasizing case management, individualized Tx, and the integration of the various involved agencies.	Outcome measures included ASI composite scores and the selected ASI individual items. F tests were used to analyze and contrast change across baseline and 6- and 12-month follow-ups.	Results showed a significant reduction in the women's AOD use at 12-month follow-up and a significant increase in the women's employment outcomes. Results also showed significant improvement in the areas of domestic violence, child care, and housing, but there was only modest improvement in the women's medical, psychiatric, and legal problems.
McMurtrie, Rosenberg, Kerker, Kan, and Graham (1999)	The Parent and Child Enrichment (PACE) project, a one-stop shopping project, has a positive impact on birth outcomes and decreases fetal exposure to cocaine.	A "posttest-only design with nonequivalent groups" (New York City; N = 186 women, 80% African American) to compare birth outcomes (birth weight, percentage of low birth weight, and percentage of intrauterine growth retardation). A pretest and a posttest to compare rates of positive urine drug test were also used. Qualitative data on Tx effectiveness were also gathered.	The qualitative part: themes were organized based on interviews with program staff and clients (did not differentiate between the staff's and the clients' views). The quantitative part: Yates-corrected χ^2 analyses, Fisher's exact tests, and t tests were used.	One-stop shopping allows women to build trusting relationships with providers, encourages women to use a wide range of service, and reduces the dropout rate. The PACE long-stayed (≥42 days) women had better birth outcomes than the women in a local prenatal clinic and cocaine-positive women in a local health district. The PACE long-stayed women also significantly reduced their positive urine drug test rate, comparing "during enrollment" with "during the Tx."
Messina et al. (2000)	Several variables, including "length of inpatient and out patient treatment," may predict Tx outcomes.	The study included men and women, but data were analyzed separately (Washington, DC; n = 116 women, 98% African American). A randomized two-group comparison: the standard inpatient program was composed of a 10-month inpatient Tx followed by a 2-month outpatient Tx; the abbreviated inpatient group offered a 6-month inpatient Tx followed by 6-month outpatient Tx. Outcomes were measured at 19 months postdischarge.	Individual Assessment Profile, Structured Clinical Interview for *DSM-III-R* Disorders, urine specimens at follow-up. Logistical regression analyses for each outcome variable, including urinalysis, postdischarge arrest, and employment. The independent variables were Tx completion, criminal status at admission, age, education, marital status, Tx site (standard vs. abbreviated), and so forth.	Women who attended the standard program had better Tx outcomes in the areas of postdischarge arrest and employment than their counterparts who attended the abbreviated program. There was no significant difference between the two groups regarding the urinalysis outcome at follow-up.
Metsch et al. (2001)	Women whose children entered the residential Tx with them are less likely to relapse at follow-up than their counterparts whose children did not enter the	A nonrandom naturally occurring three-group comparison (Key West, FL; 65% Caucasian, 27.5% African American, and 7.5% Hispanic). The three	ASI, BDI, the Parenting Stress Index, and the Symptom Checklist. χ^2 Analyses, Fisher's exact test, t tests, as well as the univariate odd ratios	Women who entered the Tx with their children had a significantly lower relapse rate (18.2%) than those whose children never joined them in Tx (78.6%) and

Table 1 (*continued*)

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
Metsch et al. (2001)	program with them.	groups were (1) women who entered the Tx with their children (n = 22); (2) women who entered the Tx with their children joining them >30 days after intake (n = 4); and (3) women whose children never joined them in Tx (n = 14). Outcomes were measured at 6 months postdischarge.	were used.	those whose children joined them >30 days after intake (100%, $p < .001$). The with-children group also had a significantly greater LOS (M = 401 days for the entered with-children group and 449 days for the children entered >30 days after intake group) than the with no-children group (M = 330 days, $p < .05$). The authors said that the small sample size hindered multivariate analyses, leaving the question as to whether a woman having her child stay with her would have an independent impact on Tx outcomes unanswered.
Nelson-Zlupko, Dore, Kauffman, and Kaltenbach (1996)	No hypothesis; mainly a qualitative approach exploring women's perceptions of Tx effectiveness.	Mainly a qualitative study (Philadelphia, PA; N = 24; 58% White and 38% African American). Use of semistructured and in-depth interviews with open-ended questions to explore women's Tx experience, "perceived helpfulness of services," "impact of services on outcomes," and so forth. (p. 52).	Women were asked to rate each service item (*very helpful* to *very unhelpful*) and provide explanations regarding why a specific service is (un)helpful to their recovery. Themes emerged and were organized.	The women perceived (1) the conventional coed Tx as not meeting their needs: they experienced sexual harassment from male counselors and negative stereotypes from male clients and there were no fora for expression of women's specific needs; (2) child care being critical in strengthening their attendance in Tx; and (3) that individual counseling and a good counselor enhanced their retention.
Ravndal and Vaglum (1994)	No hypothesis; a qualitative study exploring the impact of women's relationships with their parents, partners, and peers on their Tx outcomes.	Mainly a qualitative study (N = 13 women; Norwegian) comparing women who successfully completed Tx (completed the program, involved in school/job, worked on relationships with others, and used no drugs; n = 7) versus those who did not successfully complete Tx (dropped out of the program or had relapses during the outpatient Tx; n = 6). Women were observed prospectively from intake through 1-year residential Tx plus 6-month outpatient Tx. Structured interviews and instruments measuring psychopathology were implemented.	The data included notes based on participant observation and different therapy groups, as well as reports from discussions with the staff and interviews with the women. Factors/themes were sought, based on the qualitative data, to understand why women (have not) succeeded in the Tx.	"All women in the nonsuccessful group established a sexual relationship" with male partners early during the outpatient Tx. They discontinued Tx when their partners discontinued the Tx. "None of the women in the successful group established a steady relationship" with a male partner (within or outside the program) [p. 121]. All but one woman in the nonsuccessful group attended the mixed-sex group during the out patient period; four of the seven women in the successful group attended the women-only outpatient Tx.
Roberts and Nishimoto (1996)	Intensity of Tx programs has an impact on retention.	A three-group comparison with a combination of a randomized field experiment (day Tx vs. outpatient) and a quasi-experiment design (residential; Los Angeles,	Data were collected both from the clients' records and by personal interviews. χ^2 and survival analyses.	The day Tx (women only and woman focused) program had a significantly higher retention and completion rate than either the outpatient (mostly coed,

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Table 1 (*continued*)

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
Roberts and Nishimoto (1996)		CA; n = 151, 94% African American, 1.6% White, 3.5% Hispanic, 0.5% Asian Pacific, and 0.3% mixed) Day Tx (n = 151) was women only and women sensitive; 5.5 hours/day, 7 days a week; with child care and transportation service. The outpatient Tx (n = 141) was mostly coed but women sensitive; 1.5 hours a day, at least once a week. The residential Tx (n = 77) was coed/male based.		less woman focused) or the residential program (coed, male based). There was no difference between the out patient and residential programs.
Scott-Lennox, Rose, Bohlig, and Lennox (2000)	Explored the association between several variables, including whether a woman received residential Tx from the same program and women's outpatient Tx completion.	A nonrandomized two-group comparison (IL; N = 9,142 women): the outpatient completed group (40.2% African American) versus the noncompleted group (55.2% African American). Data were from the administrative files of the Illinois Office of Alcoholism and Substance Abuse (1996–1997), including women attending publicly funded AOD Tx who completed intake and whose outpatient records were closed at the end of the year.	Multivariate logistic regression models were adopted, with the dependent variable being completion of the outpatient AOD Tx or not and the independent variables being family status, demographic characteristics, other Tx, use characteristics, and so forth.	Results showed that several factors were related to not completing the outpatient Tx (e.g., "being pregnant, having dependent children, being African American, being younger than 21 years," etc.), but several other factors were related to outpatient Tx completion, including that "women who had residential care from the same agency that provided their outpatient care" [p. 374].
Sowers, Ellis, Washington, and Currant (2002)	Several hypotheses, including that the SBAC would have better Tx outcomes than a day Tx program on three variables: substance abuse, employment, and arrest.	A nonrandomized two-group comparison (ex post facto design; Broward County, FL): the residential (SBAC; n = 26, 65.4% White, 15.4% African American, and 7.7% Hispanic) versus the day Tx group (n = 15, 60% White, 33.33% African American, and 6.7% Hispanic). Both groups shared similar services except that the SBAC included child care and the one-stop shopping model, which the day Tx program did not have.	Substance abuse was defined as "any use of alcohol or an illegal substance after beginning treatment"; employment as "any legal, gainful employment, full or parttime"; and arrest as "any offense after beginning treatment" (p. 151). χ^2 Analyses were used to compare the two groups regarding Tx outcome variables. The α value was set at .15 because of the small sample size.	The SBAC had better outcomes in arrest (p = .013) and in employment (p =.133) than the day Tx program. Although 38.5% of the women in the SBAC used substance versus 53.3% of those in the day Tx program, the difference was not statistically significant.
Stevens and Patton (1998)	Women whose children reside with them while in residential Tx have better Tx outcomes at 6-month follow-up than those whose children do not reside with them regarding AOD use, employment, arrest data, child custody, and aftercare/ support groups involvement.	A randomized comparison (Tucson, AZ; 37.7% Caucasian, 28.3% Hispanic, 25.5% African American, and 8.5% Native American): the experimental group (children allowed to reside with their mothers) versus the control group (children not allowed to reside with their mothers). Follow-up measures (6 months postdischarge) were conducted with three groups: control (n = 21),	ASI Number, mean, and percentage distributions were presented. No information on inferential statistics/ significance level was provided.	"A greater percentage of the women who had their children live with them reported abstaining from alcohol and drugs, being employed, having custody of their children, not being arrested or incarcerated and being involved in aftercare or support groups." (p. 235). The experimental group also had a longer mean LOS than the control group.

Table 1 (*continued*)

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
Stevens and Patton (1998)		experimental (n = 17), and seed (women who were already in the Tx and were with their children; n = 10).		
Strantz and Welch (1995)	Several hypotheses, including that (1) program type and individual psychosocial factors predict Tx retention and that (2) the intensive day Tx program has a higher completion rate than the regular outpatient program.	A randomized two-group comparison (Los Angeles; N = 292 postpartum women; specific ethnicity distribution not reported except the statement "A large majority. . .were African American" [p. 361]): the intensive day Tx (5½ hours/day, 7 days/ week) versus the traditional outpatient (1½ hours/day, at least once a week) programs.	LOS, ASI, BDI, the Brief Symptom Inventory, the Index of Self-Esteem, the Social Support Questionnaire, and so forth. t Tests, percentages, p values, and a stepwise multiple regression procedure.	Women in the outpatient group were significantly less likely to remain in Tx beyond 4 months (z = 2.17, p = .02) than those in the day Tx group (46.1% vs. 60.2%). The Tx completion rate was significantly higher at the day Tx program (45.0%) than at the outpatient program (21%, z = 3.40, p = .000).
Sun (2001)	No hypothesis; a qualitative study exploring the recovery journey of substance-abusing mothers in the child welfare system.	A qualitatively study (Las Vegas, NV; N = 8 substance-abusing women in the child welfare system, 5 Caucasian, 2 African American, and 1 Latino). In-depth interviews of the women using four open-ended guiding questions and supplemented with questions probing further.	Subthemes were identified and labeled. Themes that cut across the subthemes were organized.	Several (sub)themes were identified from the women's perceptions regarding counselor/social worker factors contributing to their Tx success, including "nonjudgmental and nonauthoritative attitudes," "help clients recognize their dreams," and "care about and have faith in clients."
Volpicelli, Markman, Monterosso, Filing, and O'Brien (2000)	The provision of onsite psychosocial services results in better Tx outcomes/retention than the regular case management that refers clients out for psychosocial services.	A randomized two-group comparison (Philadelphia, PA; 96.4% African American): the case management-oriented Tx (n = 42) versus the PET program (n = 42). Both programs were outpatient and provided onsite child care, free transportation, and standard addiction Tx in women-only groups. The only difference is that case management referred clients out for psychosocial services whereas PET offered one-stop shopping and provided onsite psycho social services.	ASI, the Brief Symptoms Inventory, and the Treatment Services Review. Linear regression with the dependent variable being log-transformed total weeks of attendance and the independent variable being the Tx group assigned. The three covariates were base line urinalysis, client's age, and pregnancy status. Also used was a regression analysis with the dependent variable being days of cocaine use at 12-month follow up and the independent variable being the Tx group type. Covariates were baseline urinalysis and abuse history.	Compared with the case management clients, the PET clients had a better retention rate (applied only to clients with high psychological symptomatology) and reported less cocaine use at the 12-month follow-up but did not show better psycho social functioning outcomes (the authors attributed the insignificant results to the small sample size). Individual therapy was mostly used by the PET clients, with parenting skills and GED only modestly used. The authors therefore stated, "PET superiority may be a function of individual therapy" (p. 47).
Wald (1992)	This study examined the association of three factors and women's Tx continuation and completion. The three factors were the predisposing factor (e.g., a woman's education level), the enabling factor (e.g., referral source), and the treatment service (e.g., individual counseling). Explored the impact of	A nonrandomized study (Portland, OR; N = 207 pregnant/parenting women, 61% Caucasian): women receiving individual counseling versus those receiving no individual counseling; women receiving intensive counseling (≥6 hours per week) versus those receiving less-intensive counseling.	Tx continuation was defined as "weeks of therapy participation," and Tx completion as "whether the client had completed treatment or had dropped out of treatment" (p. 83). Pearson correlation matrix, χ^2 analysis, t test, ANOVA, and a multivariate analysis.	Among the three categories of factors, Tx service factor appeared to be more likely to affect Tx continuation/ completion. Women receiving individual counseling had a longer stay than those not receiving the individual counseling (22.38 vs. 9.98 weeks, p < .001). The former subjects also had a higher completion rate than the

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Table 1 (*continued*)

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
Wald (1992)	various Tx service factors on Tx continuation/ completion.	Data were gathered from client charts at three outpatient women-only programs.		latter subjects (37.7% vs. 12.8%, $p < .01$). Women who received intensive counseling were also more likely to complete Tx than those who received less-intensive counseling (50.8% vs. 19.4%, $p < .001$). Logistic regression further confirmed the two factors (individual counseling and intensive counseling) in predicting Tx completion.
Wobbie, Eyler, Conlon, Clarke, and Behnke (1997)	Women whose children reside with them while attending a residential Tx are more likely to complete the Tx and to have higher psychosocial scores than their counterparts whose children do not reside with them.	Data were collected as part of the evaluation of the Women's Residential Treatment Center (Orlando, FL; $N = 86$, 61.6% African American, 25.6% Caucasian, and 12.8% Hispanic). A nonrandomized naturalistic two-group comparison: women who resided with their babies versus those who did not regarding Tx completion and mothers' psychosocial outcomes and infants' mental and psychomotor developmental outcomes. Structured onsite interviews were conducted with all clients during pregnancy or postpartum. Data on mothers' discharge status and babies' mental and psychomotor developmental data at 6 months and 1 year of age were also collected.	LOS, CES-D Scale, the RSES, and the Parenting Sense of Competence Scale. Infants were assessed using BSID. χ^2 Analyses analyzing the relationship between the variable of whether a mother resided with her baby and the variable of Tx completion. Student's t test was used to compare the psychosocial measures (depression and self-esteem).	The women who resided with their children while in Tx had a higher Tx completion rate than those who did not reside with their children. The former subjects also had (1) a longer LOS ($M = 252.7$ days) than the latter subjects ($M = 91.7$ days; $p = .0001$; no SD reported) and (2) lower depression ($p = .004$) and higher self-esteem ($p = .028$). No difference was found regarding parenting sense of competence between the two groups. There was no difference among the three groups of infants who started residing with their mothers at different times on developmental indices. There were no comparisons made for babies who resided with mothers versus those who did not.
Zankowski (1987)	Women-sensitive Tx has a positive impact on women's Tx completion rate.	The program (Eagleville, PA) is an acute care substance abuse Tx hospital with 149 beds (26 of them for women) and a 70-bed partial hospitalization (number not reported; patient population in 1986 was 49.6% African American and 49.6% White). To offer women-sensitive Tx, the program restructured its Tx components by changing the following: the coed addiction education to women-specific seminar; the coed assertiveness training to women's assertiveness training group; the coed leisure activities programming to one responding more to women's needs (e.g., gym	Not reported.	The program completion rate rose by 20% in the year the program was restructured. The retention rate increased by 25% between the last quarter of fiscal year 1984 and the last quarter of fiscal year 1986.

Table 1 (*continued*)

Citation	Hypotheses/Purposes	Methods/Design	Measures/Analyses	Results/Conclusions
Zankowski (1987)		was reserved for women only for certain time slots). It also added women's AA meetings.		
Zilberman, Tavares, Andrade, and El-Guebaly (2003)	A women-only program would render a higher 3-month retention rate than a mixed-sex program. This study also explored whether certain types of Tx would better match the needs of women with certain substances of choice (alcohol vs. drugs).	A nonrandomized two-group comparison (Brazil): a mixed-sex program from 1986 to 1996 (n = 181 women) versus a women-only program from 1997 to 1998 (n = 80). Both programs were outpatient. Both groups received the same Tx except for group psychotherapy. The mixed-group women attended the group with men, but the women-only group women were encouraged to discuss sex-related topics.	Binary and multinomial logistic regressions.	The women-only program showed a significantly higher 3-month retention rate than the mixed-sex program. Nonetheless, only the alcohol-dependent women in the women-only program indicated a significantly higher 3-month retention rate than their counterparts in the mixed-sex program. No significant difference was found between the two groups for the drug-dependent women.

Note. Tx indicates treatment; ANOVA, analysis of variance; PET, psychosocially enhanced Tx.

suggestion that lesbians, women with young children, and women with a history of childhood sexual abuse tended to participate in the women-only group and that, therefore, "the expected differential treatment outcome for the [women-only] group was attenuated by these comparatively more 'difficult' clients. . ." (p. 90). Finally, Kaskutas et al. (2005), in their four-group randomized study, also found no treatment outcome difference between single- and mixed-sex programs. However, the short LOS of participants at all four sites questions whether the programs actually affected the participants regardless of which group they attended. Specifically, the planned LOS was 6 weeks for the women-only group and the first mixed-sex community group and 3 weeks for the second mixed-sex community group and mixed-sex hospital group. However, the participants' actual mean LOSs were 9.4, 12.9, 10.4, and 10.2 days, respectively.

3.1.1. Critique

Although all nine studies contribute to the knowledge base, they also all suffer some design weaknesses. Grosenick and Hatmaker (2000a) and Nelson-Zlupko et al. (1996) surveyed women's perceptions instead of actually measuring the actual behaviors targeted. Ravndal and Vaglum (1994) included only six women in the mixed-sex group and four in the women-only group, making generalization difficult. The women-only and mixed-sex samples in the study of Zilberman, Tavares, Andrade, and El-Guebaly (2003) were collected in different periods (the former sample, 1997–1998; the latter sample, 1986–1996), as were those in the study of Zankowski (1987; women only, 1986; mixed sex, 1984); thus, the impact of selection bias (e.g., change of subject profiles over time) cannot be ruled out.

The remaining four quantitative studies did not control for multiple factors associated with treatment outcome that were operating within their studies. Therefore, it is difficult to assess which factor(s) contributed most or even at all to the outcomes. For example, the single-sex program in the study of Gutierres and Todd (1997) not only involved a single sex but also provided child care and culturally sensitive practices, which were unavailable for women in the coed program. The single-sex program in the study of Roberts and Nishimoto (1996) provided day treatment whereas the mixed-sex program provided a traditional outpatient program. Although Dahlgren and Willander (1989) used a randomized controlled trial, their women-only group lasted for 8 months whereas their control group lasted for only 5 months. Because LOS proved to be significantly related to outcome for both groups, the longer treatment for the women-only group makes it difficult to determine the pure effect of the single-sex factor (Hodgins, El-Guebaly, & Addington, 1997).

Therefore, the hypothesis that a single-sex program may have more positive treatment outcomes for women seems to be supported by the research findings, with a ratio of nine versus three studies. However, a critical review suggests significant methodological problems with most of these studies and more empirical studies, with better methods needed before we can confidently claim such a relationship.

In addition, four other design and procedure issues are worthy of attention. The first issue involves controlling "substance abuse choice" in evaluating treatment program effectiveness. Zilberman, Tavares, Andrade, and El-Guebaly (2003) found that only alcohol-dependent women, not drug-dependent women, in the women-only program had significantly higher retention than women in the mixed-sex

group. Their findings may reconcile the inconsistent results between the study of Dahlgren and Willander (1989) and that of Bride (2001). The Dahlgren and Willander study (findings suggested better outcome/retention in the women-only group) included only "women in early phases of alcohol dependence" (p. 499) whereas the Bride study (which found no outcome/retention difference between the women-only and mixed-sex groups) had 72% of the sample identify cocaine as their primary drug. Drug-dependent women may be a distinctly different group as compared with alcohol-dependent women (Zilberman, Tavares, & Andrade, 2003) and, therefore, require different treatment strategies.

The second issue concerns standardizing outcome variables and time intervals for follow-up measurements. In this regard, McLellan et al. (1996) suggested three outcome domains: "reduction of alcohol and drug use," "improvement in personal and social function," and "reduction in public health and safety threats" (p. 56). The outcome variables and the times that they were measured varied considerably in the studies reviewed. Some studies included LOS only; others included abstinence and relapses at the 1- and 2-year follow-ups, depression and self-esteem at the 6-month follow-up, and so forth.

For alcohol treatment effectiveness, Kadden and Litt (2004) suggested drinking frequency, intensity, and consequences as universal treatment outcome indicators but not psychosocial or biologic measurements. From the perspective of study replication and cross-study comparison, an overlap of outcome variables across various studies would be both necessary and feasible.

A third issue is whether the single-sex element should be applied to both clients and staff or just to clients. Although 82.4% of the women in the Grosenick and Hatmaker (2000b) study perceived it important to have female staff, 38% believed that having male staff as male figures for their children was also important, to show that "not all men are bad" and to offer male perspectives on issues such as anger and healthy relationships. Finally, Blume and Zilberman (2004) suggested that single- or mixed-sex group choice should be based on an individual client's needs; the combination of women-only group therapy and mixed-sex group therapy may be suggested; and a client's needs may change throughout a treatment process and, thus, the treatment strategies may need to be reassessed.

3.2. Treatment intensity

3.2.1. Residential treatment and retention/other outcomes

Five studies (one qualitative and four quantitative) were included in this category, and all those reviewed showed that residential treatment had a more positive impact on women's treatment outcome than the alternative (usually outpatient care). One qualitative study (Grosenick & Hatmaker, 2000a) offered a theoretical basis for this conclusion. It found that clients consistently reported that the residential nature of treatment would help them decrease substance abuse and prepare them for independent living after discharge. Most of these clients had received outpatient treatment previously and had relapsed. Perhaps because women are more likely than men to lack resources and to experience stress and burdens from their families (Yaffe, Jenson, & Howard, 1995), a residential program might be more necessary to provide women with a more stabilized structure and necessary support to help them concentrate on recovery (Grosenick & Hatmaker, 2000a).

Two quantitative studies found that residential treatment had a more positive impact on women's treatment outcomes than did less-intensive forms of care. Messina et al. (2000) compared clients randomly assigned to a longer-term inpatient program (10 months of inpatient treatment plus 2 months of outpatient treatment) with those assigned to an abbreviated inpatient program (6 months of inpatient treatment plus 6 months of outpatient treatment). They found that at the 19-month postdischarge follow-up, women in the longer-term program had lower criminal activity and higher employment rates than those in the abbreviated program. Sowers et al. (2002) compared women attending a women's residential program with those attending a day treatment program and found that the residential clients had better outcomes in abstinence, criminal activity, and employment at the "posttest and follow-up" (the specific period not reported, possibly at the end of treatment or shortly after program completion).

Two other quantitative studies suggested the greater impact of residential treatment on women's successful completion of continuing treatment. Scott-Lennox et al. (2000) found that women who had received prior residential care from the same agency as their outpatient treatment were more likely to complete the outpatient treatment. Coughey et al. (1998) found that clients who had received residential treatment were more likely to complete the aftercare program than those who had not received residential treatment. The aftercare program case managers stated that women with unstable conditions or inadequate prior drug treatment were most likely to drop out and that those women should receive "first care" prior to aftercare.

3.2.1.1. Critique. Although the five studies cited contribute to the knowledge base, they must be viewed with their limitations. For example, Grosenick and Hatmaker (2000a) surveyed women's perceptions rather than their actual behaviors in residential care. Sowers et al. (2002) did not disentangle multiple treatment conditions in their design. The programs were different not only in treatment types (residential vs. day treatment) but also in many other aspects (the residential clients received many onsite services plus onsite child care whereas the day treatment clients did not have such services, the residential program had more voluntarily admitted clients than the day treatment center, etc.). Thus, it is difficult to assess which factor(s) may have affected the outcomes.

3.2.2. Treatment intensity, retention, and other outcomes

The review findings indicate that treatment intensity increases retention (four studies) but has only limited impact on treatment outcomes (one study). This means, for example, that a woman may be more likely to complete a treatment if she attends treatment more than once a week but this may not make much difference in her treatment outcomes (AOD use, employment, and criminal behavior), assuming she completes the treatment. It may be that the more intensively a person attends a program, the more likely she will identify with the program, its staff, and other members; develop a sense of belongingness; and, therefore, be less likely to drop out of the program. However, once the program is completed, personal and environmental relapse factors may operate in much the same way, regardless of the intensity of the treatment experience.

Three of the four studies (i.e., Comfort & Kaltenbach, 1999; Roberts & Nishimoto, 1996; Strantz & Welch, 1995) indicate that the dropout rate may not differ much between regular and intensive outpatient programs or among regular, intensive, and residential programs for the first 3 months after admission but that both the intensive outpatient and residential programs have significantly better retention than the regular outpatient program after 3 months. One of the four studies (Wald, 1992) found that clients who received intensive outpatient treatment (≥6 hours of counseling per week) were more likely to complete treatment than those assigned to the less-intensive treatment (51% vs. 19%, $p < .0001$).

3.2.2.1. Critique. Once again, the studies of Stranze and Welch (1995) and Roberts and Nishimoto (1996) did not disentangle coexisting multiple conditions (i.e., the day treatment [intensive] and regular outpatient programs were different not only in terms of the required number of sessions per week but also in terms of single versus coed treatment and treatment approach. Thus, it is uncertain as to what degree the retention difference was attributable to treatment intensity, other factors, or an interaction among all the factors. One problem with the retention study of Wald (1992) is that one of the agencies studied provided both intensive and nonintensive therapies with 22% self-referred subjects; the second agency provided only nonintensive therapy but with 85% self-referred subjects. Wald's analysis also indicates that self-referred women were less likely to complete the treatment than mandated women. Could the association between treatment intensity and retention, in fact, be the association between referral source and retention?

Although the abovementioned four studies suggest that treatment intensity increases retention, Gerstein and Johnson (2000) found that treatment intensity does not have a strong impact on treatment outcomes. They found that for women, the treatment type (modality/intensity) had an inconsistent impact on treatment outcomes. Although all three types (non-methadone outpatient, short-term residential, and long-term residential) produced change, the amount of change in crack use seen at posttreatment follow-up was similar across all treatment types although the outpatient group showed almost twice the amount of change in employment as the long-term residential group for level of employment rate. No datum was reported on methadone programs. Those authors also found only modest and inconsistent differences in posttreatment outcome associated with different levels of treatment intensity (i.e., "more than once a week" vs. "up to once a week").

In conclusion, all but one study suggested that women were more likely to complete and do well following residential treatment than they were from other types of treatment. More studies of outcomes other than retention are needed to verify this conclusion.

3.3. Provision for child care

Six studies examined the role of child care in addiction treatment; all six (two qualitative and four quantitative) indicated that providing child care had a positive impact on women's treatment outcomes. Two qualitative studies (Grosenick & Hatmaker, 2000a; Nelson-Zlupko et al., 1996) measured mothers' perceptions of how child care service impacts treatment outcomes and provided a theoretical background for such an association: mothers perceived that they would be less likely to enter treatment without child care; onsite child care services free them from juggling between treatment and arranging child care, thus allowing them to concentrate on treatment; and seeing their child daily makes them feel good about themselves.

Four quantitative studies—the randomized two-group design studies of Hughes et al. (1995) and Stevens and Patton (1998), the nonrandomized three-group design study of Metsch et al. (2001), and the nonrandomized two-group design study of Wobbie et al. (1997)—found that the mothers whose child stayed with them during residential treatment had a significantly longer LOS or were more likely to complete the treatment than the mothers whose child was not with them during treatment.

3.3.1. Critique

Only two of the four studies (Metsch et al., 2001; Stevens & Patton, 1998) investigated follow-up outcomes in addition to LOS. Stevens and Patton measured AOD use, employment, child custody, incidence of arrest, and aftercare involvement. Metsch et al. measured AOD use. Both follow-ups were done at 6 months after discharge; however, Stevens and Patton did not provide p values and it is uncertain if the differences are statistically significant. Furthermore, the data provided by Hughes et al. (1995) indicated that although women in the with-child care program had a significantly higher LOS ($M = 300.4$ days) than those in the no-child care program ($M = 101.9$ days; $p < .05$), the standard deviation was much greater for the former program ($SD = 242.3$ days) than for the latter

program (*SD* = 93.7 days). This may mean that the with-child care program did not benefit all mothers and thus may enhance retention for only certain groups of mothers. In this regard, a CSAT-sponsored focus group of women (CSAT, 2001) revealed that not all women preferred to have their children join them in residential treatment. Some women felt that being a consistent parent was too demanding and thus wanted to initiate their recovery alone to build a foundation and then gradually involve their children into their recovery program. Unfortunately, these possibilities could not be verified through examination of the other three studies in our review (Metsch et al., 2001; Stevens & Patton, 1998; Wobbie et al., 1997); none of them provided standard deviations for their mean LOS.

In summary, these studies offer consistent findings on this issue: the state of knowledge regarding child care and treatment outcomes can still be improved. Future studies should provide complete statistical analyses, investigate whether certain types of mothers are more likely to benefit from residential programs, and analyze multiple factors and interaction effects in assessing the effect of the child care service. Second, studies should measure not only LOS but also other outcomes such as AOD use, employment, child custody, and criminal behavior. Third, studies should use the same time intervals for follow-up measurements.

One double-edged methodological sword is the issue of random assignment of mothers to with-child care versus no-child care groups. On one hand, random assignment can ensure that the two groups share equivalent characteristics and would thus avoid selection bias as in the statement of Wobbie et al. (1997) that the longer LOS for the child-with-the-mother group could be attributable to the possibility that only the less-problematic mothers were allowed to have their child stay with them and that the less-problematic clients normally tend to comply with treatment, resulting in a longer LOS and a higher likelihood of completing the treatment. On the other hand, researchers may need to pay attention to the possible negative impact of the random assignment on women. A woman assigned to a no-child care group may feel disempowered because of her inability to choose to have her child stay with her in treatment, which in turn may negatively impact her recovery. The less-positive outcomes of the no-child care group may not be related to no child care per se but to a mother's feelings of being disempowered by her lack of options (Stevens & Patton, 1998).

3.4. Case management and/or one-stop shopping model

Seven studies examined the role of case management in addiction treatment. Five of these (Evenson et al., 1998; Jansson et al., 2003; Laken & Ager, 1996; Lanehart et al., 1996; McLellan et al., 2003) found that case management enhanced retention or treatment outcomes. Two other studies (Howell & Chasnoff, 1999; Marsh et al., 2000) found inconclusive or paradoxical findings regarding the effect of case management. Two additional studies (McMurtrie et al., 1999; Volpicelli et al., 2000) examined the one-stop shopping model of onsite access to health and social services. Both found these services to be positively related to retention and/or treatment outcomes.

3.4.1. Provision for case management

The qualitative study of Howell and Chasnoff (1999) revealed that treatment providers perceived intensive case management to be critical in helping women recover, particularly after discharge from residential care. Clients, however, perceived case management as both positive and negative. Some appreciated the support whereas others believed that such support may be misused by clients (i.e., enabling). Although this study measured staff's and clients' perceptions regarding the relationship between case management and treatment outcome instead of the actual behaviors, it provides some theoretical foundation for the complexity of this relationship.

Five studies suggested that case management enhances retention or treatment outcomes. The one-group study of pregnant and postpartum substance-abusing women of Lanehart et al. (1996) indicated that intensive case management and aftercare support produced good post-treatment outcomes in the areas of substance abuse, employment, incarceration, and children's birth weight. Evenson et al. (1998) evaluated programs that offered wraparound and intensive case management for women with children. They found that women performed better during the treatment than prior to admission in the areas of substance abuse (e.g., 41% to 94% abstinent), parenting, functional level, and employment. The path analysis results of Laken and Ager (1996) showed a significant association between case management service and treatment retention for pregnant women. McLellan et al. (2003) showed that welfare-recipient women who participated in the CASAWORKS for Families program made significant improvements in the areas of substance abuse and social/family functioning at 6-month follow-up and employment at 12-month follow-up. The CASAWORKS for Families program emphasized inter-organizational coordination so that women could receive comprehensive and concurrent services. Jansson et al. (2003) found that, as compared with mothers of drug-exposed infants who received a low-intervention (four or fewer visits within 2 years) case management, mothers who received a high-intervention (five or more outreach service visits) case management were more likely to use postpartum substance treatment, less likely to report recent drug use at 2-year follow-up, and more likely to have child custody rights.

3.4.1.1. Critique. Four of the five positive studies reviewed were of a one-group design and one was of a nonrandomized two-group design. All of them may have threats to internal validity, making it difficult to infer a causal relationship.

Another weakness with the study of Evenson et al. (1998) is that it was a retrospective study and did not describe how the retrospective study was conducted. If we assumed that clients were asked to recall data for then versus now (e.g., blackouts occurrence at admission vs. current period), the reliability of the data may be questionable. Also, the five studies did not share consistent dependent variables. For example, Lanehart et al. (1996) evaluated AOD use, employment, incarceration, and birth weight; Jansson et al. (2003) focused on AOD use, AOD treatment service use, and child custody right; and Laken and Ager (1996) targeted retention. Furthermore, only two of the five studies (Laken & Ager, 1996; McLellan et al., 2003) provided a detailed description regarding case management content.

With regard to the negative studies, the quantitative study of Marsh et al. (2000) suggested that case management did not necessarily improve treatment outcomes directly but rather may improve outcomes indirectly through linking clients to the appropriate health and social services they need. Marsh et al. compared participants who attended an initiative program (enhanced services on transportation, outreach, etc.) with those who attended a regular program. Their path analysis showed paradoxical findings. Women in the initiative program were more likely to abstain from drugs than those in the regular program; use of the access services (transportation and outreach) was positively related to use of social services; and use of social services was negatively related to drug use. However, women who used transportation and outreach the most were significantly less likely to abstain from drugs. These authors explained the paradox in two ways. First, possibly, clients who used transportation and outreach services the most were also clients who had the most severe psychiatric, family, and drug problems. "Even though these clients are gaining access to programs, social services provided apparently are not effectively addressing their problems so that they can reduce their drug use" (p. 1245). Second, "there is clearly something else besides the access services that makes the enhanced service program more effective" (p. 1246).

In summary, although five of the seven case management studies showed an indication of a positive relationship between case management or service use and retention/treatment outcomes, all were complicated studies with some design weaknesses. Future studies in this area should consider a randomized two-group pretest and posttest design and disentangle multiple coexisting treatment conditions from the treatment intervention. Outcome variables should also be standardized to include not only LOS but also other widely measured treatment outcomes. In addition, case management services may encompass different levels of intensity and types of services. Future research should also identify and measure the core ingredients of a case management package that are thought to contribute to a positive outcome (Jansson et al., 2003; Marsh et al., 2000).

3.4.2. One-stop shopping model

McMurtrie et al. (1999) stated that comprehensive services provided onsite help women build a trusting relationship with the treatment team, encourage them to use a wide range of services, and prevent dropout. Onsite services also may promote mutual understanding and coordination among various professionals who often have different treatment philosophies and approaches. Both McMurtrie et al.'s nonrandomized three-group design and Volpicelli et al.'s (2000) randomized two-group design suggest a positive impact of the one-stop shopping model on treatment outcomes. McMurtrie et al. found that mothers who participated in the one-stop shopping treatment had a significantly lower percentage of low-birth-weight babies than mothers who attended two other local special prenatal clinics (23% vs. 35% and 47%).

Volpicelli et al. (2000) compared outcomes between a case management outpatient program and a psychosocially enhanced treatment program, in that both programs provided group therapy and onsite child care but the psychosocially enhanced treatment program offered onsite individual counseling and other services whereas the case management outpatient program referred clients offsite to other community sources for such services. The authors found that although clients in both groups made progress, those who attended the one-stop shopping program had higher retention and lower cocaine use at the 12-month follow-up.

To summarize, because there were only two studies reviewed for this issue, more future studies with a randomized controlled design are needed to enhance our confidence in these conclusions. It might also be interesting to compare four groups in a continuum: no case management, regular case management, case management that specifically emphasizes interagency coordination, and case management that provides onsite comprehensive services (e.g., McLellan et al., 2003). In addition, the outcome variables need to be standardized and include not only AOD use but also measures of parenting, depression/anxiety, criminal behavior, and employment.

3.5. Supportive/nonconfrontational staff and individual counseling

Five studies examined the role of supportive and/or individual counseling in women's addiction treatment. All five found that staff supportiveness and/or the availability of individual counseling were positively associated with better treatment outcomes. The elements of supportive/nonconfrontational quality and individual counseling are grouped together because both are designed to help women deal with personal issues of shame, stigma, and low self-esteem. Three of the five studies were qualitative (Grosenick & Hatmaker, 2000b; Nelson-Zlupko et al., 1996; Sun, 2001) and suggested the importance of a counselor's genuine concern, respect for and trust in the

client, as well as supportive, nonjudgmental attitudes. These three qualitative studies measured women's perceptions but provided some theoretical framework for the importance of supportive individual counseling for women.

Although group treatment may be a standard part of treatments for both men and women (Luthar & Walsh, 1995), the additional individual counseling offered by a nonjudgmental counselor appears to add a special benefit for women. This may be because women in treatment often experience more emotional stress, depression, childhood sexual/physical abuse, and other psychological disturbance than men (Wechsberg, Craddock, & Hubbard, 1998). In addition, women experience a higher level of stigma and condemnation from society for their substance abuse as compared with men (Finklestein, 1994).

In this regard, Sterk et al. studied HIV risk prevention programs for women; they found that women "wanted to start with one-on-one sessions" because it was easier for them to talk about their experiences concerning previous abuse and their behavior to support drug habits with one person instead of a group (cited in NIDA Notes, 2004). A supportive and confidential individual counseling approach may more effectively handle women's feelings of shame, guilt, and inadequacy than a group counseling session.

Two quantitative studies found that the addition of individual counseling to group treatment particularly benefits women. Volpicelli et al. (2000) showed that mothers receiving onsite individual counseling and other services had better retention and lower cocaine use at the 12-month follow-up than those receiving group counseling with referral out for individual counseling and other services. Wald (1992), in a nonrandomized two-group comparison study, also indicated that women attending an agency that provided both individual counseling and group treatment had a better retention rate than those attending an agency providing only group treatment.

3.5.1. Critique

More large-scale studies should be conducted to investigate directly the relationship between a counselor's degree of genuine concern/supportive attitudes and client treatment outcomes. Because only two quantitative studies were identified and reviewed, more randomized two-group studies are needed to verify the function of individual counseling for women. Future studies are also needed to evaluate different types of counseling (individual vs. group) with different styles (supportive vs. confrontational), exploring if a supportive group approach can achieve the same effect as a supportive individual approach does or has a better effect than a confrontational individual approach. Finally, the outcome variables should also be extended to include depression, anxiety, criminal behavior, and employment, in addition to AOD use and retention.

4. Conclusion

This systematic review focused on program factors related to women's AOD treatment success. Although 35 empirical studies were identified and five types of care and services were reviewed, our review criteria excluded many related studies and omitted several emerging factors that have not yet been studied. One limitation of this review is a potential bias owing to its being based only on published studies from peer-reviewed journals. Often, a positive (hypothesis was confirmed) study is more likely to be accepted for publication in such journals (Shields, 2000).

The findings from this review indicate that empirical research on female AOD treatment efficacy is still in its infancy (Dodge & Potocky-Tripodi, 2001). Many of the studies reviewed had various levels of research design weaknesses, including a lack of a randomization and appropriate control groups, which makes causal inference difficult. For example, most case management efficacy studies were of a one-group design, with the lack of a control group possibly caused by an unwillingness to deprive clients of case management services that were thought helpful to the clients. In addition, cost-effectiveness analysis was not included in many of the existing studies (Ashley et al., 2003).

Despite limitations, the 35 studies still provide some directions regarding future research, as well as suggestions for potentially effective program planning and practices with substance-abusing women. The following are some of the direct implications from our review:

1. Women-only programs are still scarce and policymakers must make such programs more available to women.
2. Agency administrators and practitioners should make women-only groups available as an option if a program is unable to take only women.
3. When referring a woman, particularly one with few resources and heightened environmental stress, practitioners should keep in mind that a residential program is likely to have a more solid and long-lasting effect on her recovery. Thus, the current American Society of Addictions Medicine's least restriction patient placement criteria and managed care rules must be tempered by the philosophies that many women may need first care instead of aftercare and habilitation instead of rehabilitation and that treatment intensity enhances treatment retention.
4. Policymakers and administrators should consider child care and other services onsite as being an optimal treatment for women. Case management with the availability of community services is a potentially viable alternative.
5. Administrators and practitioners must emphasize a nonjudgmental and nonconfrontational approach in

working with women and provide women with individual counseling in addition to group counseling.

Although these suggestions are supportable from the review, it must be emphasized that all findings need to be further verified, expanded, or modified by more and better research. There are many important questions remaining from this review that should be addressed by future research. For example, a single-sex treatment may show better outcomes/retention than a mixed-sex treatment, but what are the specific ingredients of the treatment and therapeutic issues during women-only treatment that actually produce the better outcomes? Case management service may be generally seen as beneficial from this review, but case management encompasses a wide range of services and intensities. Which of its particular features/processes actually contribute to outcome change? Does the counselor's supportiveness and the quality of client–counselor interaction matter more than the treatment contents or services provided? Finally, to what degree does aftercare or continuing care affect postdischarge outcomes?

In conclusion, although more studies have been conducted regarding women-specific substance abuse treatment since the 1990s, more empirical studies with sound research designs are still needed to advance our understanding on this topic. The 35 articles reviewed offered us rather strong suggestions for important components (i.e., women-only group, residential treatment, child care, case management, and supportive individual counseling) required for effective treatment of substance-abusing women. However, these suggestions need to be confirmed and expanded by additional scientific research with better designs (e.g., randomized two-group design). At the same time, it is recognized that this type of research may face many challenges, including compliance with the ethical guidelines, obtaining agency cooperation, recruiting representative samples of participants, and tracking those participants.

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