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Parenting outcomes of parenting interventions in integrated substance-use treatment programs: A systematic review

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ABSTRACT

The high prevalence of women in substance use treatment programs with children, and the co-occurring negative physical and mental health outcomes associated with substance use, led to the development of integrated substance use treatment programs that target a range of women-specific issues. Integrated programs typically offer some type of parenting component, although the level of parenting services varies widely. Existing reviews have found positive child and parent outcomes following integrated treatment programs in general, although studies were not selected on the basis of whether they included parenting interventions. Due to the large percentage of substance using parents and research that parenting interventions contribute to decreased maternal substance use, this critical review examines parental outcomes of published studies on integrated programs that specifically include a parenting intervention component, as well as moderators of parenting and parental substance use/relapse. Across the 15 studies identified, this systematic review primarily focused on 8 parenting outcomes, including program retention, substance use, parenting stress, psychosocial adjustment, depression, child abuse potential, parenting behaviors, and parent-child interaction; as well as 5 additional secondary outcomes. The review discusses results on each of these outcomes, as well as retention rates across the parenting interventions.

1. Introduction

In the United States, between 59 and 70% of women in substance use treatment programs have children (SAMHSA, 2013), and women involved in substance use treatment programs are steadily increasing due to the high prevalence of substance use among reproductive-age women in general (McHugh, Wigderson, & Greenfield, 2014), and among pregnant women specifically (SAMHSA, 2013). In addition to stressors and unique needs associated with parenting, women in substance use treatment programs have a high prevalence of co-occurring negative physical health and mental health outcomes, including anxiety, depression, and posttraumatic stress disorder (Beckwith, Rozga, & Sigman, 2002; Luthar, Cushing, Merikangas, & Rounsaville, 1998); as well as histories of physical or sexual abuse, relationship problems, negative support systems, family substance use problems, and inadequate income (Greaves & Poole, 2007; Niccols, Milligan, Sword, Thabane, et al., 2010; Sword et al., 2009). Further, substance-using women display a higher likelihood of severe psychopathology and personality disorders that can significantly impact their emotional and cognitive ability to serve as effective parents (Luthar et al., 1998; Mayes & Truman, 2002; Najavits et al., 2003). Due to the significant needs identified in women with substance use problems, strong recommendations have been made by policymakers, clinicians, and researchers for women-specific, comprehensive, integrated treatment models conducted in centralized settings for women and their children (Coalescing on Women and Substance Use, 2007; Greenfield, 2002; Women's Service Strategy Work Group, 2005). Integrated treatment programs are those that focus on two or more conditions, such as substance use and mental health concerns, and also use a combination of psychotherapy and pharmacotherapy (Kelly & Daley, 2013). Integrated treatment involves an interdisciplinary team, such as social workers, therapists, and case managers, that address a range of concerns related to substance use. Research has found significantly greater positive outcomes for individuals involved in integrated treatment, when compared to treatment of individual disorders alone (Kelly & Daley, 2013).

These recommendations led to the development of integrated treatment programs that target a range of women-specific issues, including addiction treatment, maternal mental health services, trauma treatment, parenting education and counseling, life skills training, medical and nutrition services, education and employment assistance, child care, and children's services. Integrated programs vary

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significantly from one another and include residential, inpatient, and outpatient models; short- and long-term duration of treatment; and individual and/or group delivery of services. Integrated substance use treatment programs typically offer some type of parenting component, although the level of parenting services ranges from offering childcare to parents during treatment to fully integrated programs that devote a significant portion of treatment to parent-related issues. In a literature review of 38 studies, Ashley, Marsden, and Brady (2003) examined different components of women-specific substance use treatment (i.e., childcare, prenatal care, women-only admissions, supplemental services, mental health programming, comprehensive programing) and found positive outcomes (i.e., decreased substance use and relapse, healthy perinatal outcomes, increased self-esteem, less high risk sexual behavior, improved parenting knowledge) associated with comprehensive programs that address women's unique and specific needs. Additionally, a qualitative meta-analysis conducted by Sword et al. (2009) explored the processes that contribute to recovery in integrated substance use programs, and found that women reported positive experiences and perceived benefit to themselves and their children following involvement (Sword et al., 2009). Overall, these reviews establish support for integrated programs in general, but do not examine which pieces of integrated programs produce positive outcomes, nor do they examine outcomes specific to parenting.

Three additional systematic reviews have examined parental outcomes following involvement in integrated substance use treatment programs and found positive parental outcomes, including improvements in parenting (Niccols et al., 2012) and maternal mental health (Niccols et al., 2010). Specifically, Niccols et al. (2012) examined the effectiveness of integrated substance use treatment programs on parenting outcomes; results of their review indicated a “small advantage” of integrated compared to nonintegrated programs on parenting skills and capacity. Niccols et al. (2010) conducted a meta-analysis of three studies comparing maternal mental health following participation in integrated versus non-integrated programs, and found that maternal mental health was improved slightly more for parents involved in integrated compared to non-integrated programs (effect size = 0.23). In another meta-analysis, Milligan et al. (2011) further selected evaluations of integrated treatment programs for substance-using women and their children by including studies that included at least one child treatment service (e.g., prenatal care, child care, parenting classes). Findings demonstrated that parents involved in integrated programs with child treatment services had reductions in severity of substance use (effect sizes ranged from 0.18 to 1.41). While these studies included reviews of integrated treatment programs, studies were not selected on the basis of whether they included interventions that addressed parenting specifically or the level of parenting services that were provided. Thus, conclusions can be made regarding the positive outcomes of integrated programs in general, but these positive outcomes cannot be directly tied to the involvement of parenting interventions, as the mechanisms of these integrated programs have not been separately examined.

Due to the large percentage of parents involved in substance use treatment programs (59–70%; SAMHSA, 2002) and research that parenting interventions contribute to decreased maternal substance use (Suchman, Pajulo, DeCoste, & Mayes, 2006), it is critical to examine parental outcomes specifically related to parenting interventions in integrated treatment, and the mechanisms of these interventions. To address this, two systematic reviews have been conducted to specifically investigate parenting interventions in integrated substance use treatment programs. Specifically, Renk et al. (2015) outlined several skill-based and attachment-based parenting interventions, describing the characteristics of several interventions, as well as the outcomes. In addition, Neger and Prinz (2015) conducted a systematic review to specifically investigate parenting interventions in integrated substance use treatment programs. The review examined reduction in parental substance use and improvements in parents following involvement in parenting interventions within integrated substance use treatment programs and found positive parental outcomes, including decreased substance use and improved parenting practices (Neger & Prinz, 2015). While not a systematic review, Mirick and Steenrod (2016) examined parenting interventions that target substance using parents and found similar results regarding the effectiveness of attachment-based approaches in improving parenting practices and the parent-child relationship.

While these reviews described characteristics of the interventions and examined overall substance use and general parenting practices, they focused more specifically on parenting outcomes and did not outline or specifically examine additional constructs related to parenting and parental substance use/relapse such as maternal mental health outcomes, parenting stress, and parent-child interactions. From a developmental-ecological theoretical model (Belsky, 1993), it is essential to broaden examination of parental outcome beyond specific characteristics in order to account for the multiple domains that interact in the parenting role and the parent-child relationship.

To address the need for more broadly examining constructs related to parenting and parental substance use, the current review focuses explicitly on studies that broaden outcomes beyond parenting or parent-child relationship outcomes into other essential outcomes related to parent-child relationships. Specifically, both parental outcomes, as well as related constructs of these relationships are examined in published studies on integrated substance use treatment programs that include a parenting intervention component. Integrated programs are those which address two or more conditions, such as substance use and related mental health concerns, and contain a combination of psychotherapy and pharmacotherapy (Kelly & Daley, 2013).

2. Method

2.1. Search strategy and selection criteria

The electronic databases PsychInfo, PubMed, and Google Scholar were used to identify relevant studies published between 1996 and 2016. Searches were based on keyword terms “substance use,” “substance abuse,” “addiction,” “treatment,” “intervention,” “integrated programs,” “parenting,” “parental,” “parent education,” “parenting skills,” “parent training.” Following the identification of relevant studies, we checked the reference sections of identified articles for additional studies that met inclusion criteria.

2.2. Inclusion and exclusion criteria

Studies were included if they met the following criteria: (1) publication in English between 1996 and 2016, (2) evaluation of parenting intervention within integrated substance use treatment program in the United States, defined as a substance use program that addresses at least one additional concern such as comorbid mental health, family and parenting issues, and (3) quantitative data including substance use and parental outcomes. Both randomized control trials and non-randomized designs were included. Qualitative studies, case studies, and unpublished dissertations were not included in the review.

2.3. Data extraction and synthesis

Database searches and study selection was conducted by the first author. A total of 312 studies were initially identified to meet search criteria. The titles and abstracts were reviewed, which narrowed the studies to 39. The full texts were then screened and all ineligible papers were excluded. Information relevant to the research question was systematically extracted and tabulated for synthesis of studies. Extracted data included publication data, country of origin, study design and data analysis methodology, sample and setting characteristics, parenting intervention, relevant measures, and main findings on parenting

Table 1
Study characteristics.

Study	Sample size	Design	Parenting intervention	Intervention type	Intervention setting	Delivered by	Intervention length	Retention
Belcher et al. (2005)	80	Pre-post	Project STRIVE	Individual and group	Outpatient and In-Home	Social worker	~1 year	13% completed treatment
Berlin et al. (2014)	11	RCT	Attachment and Biobehavioral Catch-up (ABC)	Individual	In-Home	Parenting Coach	10 sessions; 1 h/week	76% completed treatment
Camp and Finkelstein (1997)	170	Pre-post	The Nurturing Program for Parents of Children Birth to Five Years Old	Group	Outpatient	Clinician	23 weeks; 2.5 h/week	Not reported
Catalano et al. (1999)	130	RCT	Focus on Families (FOF)	Group	Outpatient	Clinician	53 h; 5-h retreat, 32 90-min meetings	51% completed at least 50% of treatment
Dakof et al. (2010)	62	RCT	Emerging Moms	Individual	Outpatient	Clinician	Ongoing	82% completed treatment
Dawe and Harnett (2007)	64	Quasi	Parents Under Pressure (PUP)	Individual	In-Home	Clinician	10–12 sessions; 1–2 h/week	91% completed 6-month FU
Dawe et al. (2003)	9	Pre-post	Parents Under Pressure (PUP)	Individual	In-Home	Clinician	10–12 sessions; 1–2 h/week	89% completed 3-month FU
Donohue et al. (2014)	72	RCT	Family Behavior Therapy (FBT)	Individual	In-Home	Clinician	20 sessions; 75 min/week	No difference in FBT and TAU groups
Lam et al. (2009)	30	RCT	Parent Skills with Behavioral Couples Therapy (PSBCT)	Individual	Outpatient	Clinician	24 sessions; biweekly	84% completed treatment
Luthar and Suchman (2000)	37	RCT	Relational Psychotherapy Mothers' Group (RPMG)	Group	Outpatient	Clinician	24 sessions; 1 h/week	86% completed treatment
Luthar et al. (2007)	60	RCT	Relational Psychotherapy Mothers' Group (RPMG)	Group	Outpatient	Clinician	24 sessions; 1 h/week	75% completed 6-month FU
Niccols and Sword (2005)	13	Pre-post	New Choices	Individual and Group	Outpatient	Staff member	~ 4 months; 2× week	54% completed 6-month FU
Schaeffer et al. (2013)	25	Pre-post, Quasi	MST-Building Stronger Families (MST-BSF)	Individual and Group	Outpatient	Case-worker	~1 year	92% completed treatment
Suchman et al. (2008)	14	Pre-post	Mothers and Toddlers Program (MTP)	Individual	Outpatient	Clinician	12 sessions; 1 h/week	57% completed treatment
Suchman et al. (2010)	47	RCT	Mothers and Toddlers Program (MTP)	Individual	Outpatient	Clinician	12 sessions; 1 h/week	82% completed treatment
Suchman et al. (2011)	56	RCT	Mothers and Toddlers Program (MTP)	Individual	Outpatient	Clinician	12 sessions; 1 h/week	72% of scheduled sessions completed
Suchman (2016)	17	RCT	Mothers and Toddlers Program (MTP)	Individual	Outpatient	Clinician	12 sessions; 1 h/week	83% completed treatment
Suchman et al. (2017)	87	RCT	Mothers and Toddlers Program (MTP)	Individual	Outpatient	Clinician	12 sessions; 1 h/week	71% of scheduled sessions completed

Table 2
Primary variables and outcome assessment time points.

Study	Program retention	Substance use	Parenting stress	Psychosocial adjustment	Depression	Child Abuse potential	Parenting Outcomes/ Behaviors	Parent-child interactions	Outcome assessment time point
Belcher et al. (2005)	X				X	X			Pre and post intervention
Berlin et al. (2014)	X							X	Pre and post intervention
Camp and Finkelstein (1997)						X		X	Pre, 3-months, post
Catalano, Gainey, Fleming, Haggerty, and Johnson (1999)	X	X							Pre, 6-, 12-months
Dakof et al. (2010)	X	X		X		X			Pre, 3-, 6-, 9-, 12-, 18-month
Dawe and Harnett (2007)	X	X	X			X			Pre, 3-, 6-months
Dawe, Harnett, Rendalls, and Staiger (2003)	X	X	X			X			Pre, 3-months (post)
Donohue et al. (2014)	X	X				X			Pre, 6-, 10-months
Lam et al. (2009)	X	X					X		Pre, 12-months
Luthar and Suchman (2000)		X		X		X	X		Pre, post, 6-month FU
Luthar, Suchman, and Altomare (2007)	X			X	X	X	X		Pre, 6-months
Niccols and Sword (2005)	X	X			X				Pre, 3-, 6-months
Schaeffer et al. (2013)	X	X			X				Pre and post intervention
Suchman, DeCoste, Castiglioni, Legow, and Mayes (2008)	X	X		X					Pre and post intervention
Suchman et al. (2010)	X	X		X	X				Pre and post intervention
Suchman, DeCoste, McMahon, Rounsaville, and Mayes (2011)	X	X			X			X	Pre and post intervention
Suchman (2016)	X		X	X				X	Pre and post intervention
Suchman et al. (2017)	X	X		X				X	Pre, post, 3-month FU

outcomes. This data extraction procedure resulted in 15 studies included in the current review.

The range of parenting interventions and outcome measures of the included studies precluded meta-analysis. Therefore, a narrative synthesis was conducted, guided by methods outlined by the Centre for Reviews and Dissemination (2009).

3. Results

3.1. Search results

Some of the included articles came from the same sample or had overlapping samples. These have been denoted in the relevant tables and text. Table 2 displays the characteristics of the 18 included articles. Studies were published from 1997 to 2017, with sample sizes ranging from 9 to 170 (M = 54.67, SD = 43.25, Mdn = 51.50). Sixteen studies were conducted in the United States, one was conducted in Australia (Dawe & Harnett, 2007), and one was conducted in Canada (Niccols & Sword, 2005). Eleven studies relied on randomized controlled trials, one on a quasi-experimental design, and six on pre-post comparisons. Many of the included studies focused on interventions of parents of young children, although a few focused on interventions for older children.

Twelve different parenting interventions were utilized, including Project STRIVE (1 study; Belcher et al., 2005), Attachment and Biobehavioral Catch-up (ABC; 1 study; Berlin, Shanahan, & Carmody, 2014), The Nurturing Program for Parents of Children Birth to Five Years Old (1 study, Camp & Finkelstein, 1997), Focus on Families (FOF; 1 study; Catalano et al., 1999), Emerging Moms (1 study; Dakof et al., 2010), Parents Under Pressure (PUP; 2 studies; Dawe & Harnett, 2007 and Dawe et al., 2003), Family Behavior Therapy (FBT; 1 study; Donohue et al., 2014), Parent Skills with Behavioral Couples Therapy (PSBCT; 1 study; Lam, Fals-Stewart, & Kelley, 2009), Relational Psychotherapy Mothers' Group (RPMG; 2 studies; Luthar & Suchman, 2000 and Luthar et al., 2007), New Choices (1 study; Niccols & Sword, 2005), Multisystemic Therapy – Building Stronger Families (MST-BSF; 1 study; Schaeffer, Swenson, Tuerk, & Henggeler, 2013), and Mothers and Toddlers Program (MTP; 5 studies; Suchman et al., 2008; Suchman et al., 2010; Suchman et al., 2011; Suchman, 2016; Suchman et al., 2017; now titled Mothering from the Inside Out). Eleven of the parenting interventions were delivered individually, four in a group setting, and three in both individual and group settings. Twelve were delivered in an outpatient setting, four were delivered in the parent's home, and one in a combined outpatient and in-home setting. The length of the parenting interventions ranged from 10 sessions to one year.

3.2. Parenting outcomes

Across the 18 studies, 14 relevant treatment outcomes were identified. The current systematic review will primarily focus on 8 parenting outcomes including: (1) program retention; (2) substance use; (3) parenting stress; (4) psychosocial adjustment; (5) depression; (6) child abuse potential; (7) parenting outcomes/behaviors; and (8) parent-child interaction. The additional 5 outcomes (i.e., maternal social support, family conflict and violence, reflective functioning, problem solving, and self-esteem) will be discussed briefly following full discussion of the primary outcomes. See Table 2 for description of outcomes assessed in each study, as well as outcome assessment time points.

3.2.1. Program retention

Seventeen articles specifically assessed program retention in the parenting intervention delivered in the integrated substance use treatment program. The majority of studies (n = 9) reported on percentage of parents that completed the parenting intervention, which ranged

from 13% (Belcher et al., 2005) to 92% (Schaeffer et al., 2013). Mean retention rate for the eight programs was 72.8%. Retention rates for all programs are reported in Table 1. Of the studies that did not report retention rates at completion of the parenting intervention, one study reported that 51% of participants completed 50% of the intervention (Catalano et al., 1999). Another study reported no significant differences in retention between the parenting intervention and treatment as usual groups (Donohue et al., 2014). Niccols and Sword (2005) and Dawe and Harnett (2007) assessed retention of participants 6 months into the parenting program and found that 54% and 91%, respectively, remained active in the intervention. Dawe et al. (2003) reported that 89% of parents completed the 3-month follow-up. Suchman (2016) and Suchman et al. (2017) compared attendance of scheduled treatment sessions between two different treatment interventions (72% vs. 78% of scheduled sessions; and 71% vs. 75% of scheduled sessions). One study did not report on program retention rates (Camp & Finkelstein, 1997). Taken together, retention rates in parenting interventions imbedded within integrated substance use programs varied across studies.

3.2.2. Substance use

Thirteen studies assessed parental substance use following completion of the parenting intervention in the integrated substance use program. Results from all thirteen studies demonstrated reduction in substance use; ten of the studies reported decreased substance use from pre- to post-intervention (i.e., Catalano et al., 1999; Dawe et al., 2003; Dawe & Harnett, 2007; Donohue et al., 2014; Niccols & Sword, 2005; Schaeffer et al., 2013; Suchman et al., 2008; Suchman et al., 2010; Suchman et al., 2011; Suchman et al., 2017), one of the studies reported steeper declines in substance use for parents who completed versus did not complete treatment (Dakof et al., 2010), and two of the studies reported steeper declines in substance use for the intervention compared to the comparison group (i.e., Lam et al., 2009; Luthar & Suchman, 2000). Overall, results indicated that substance use in parents significantly decreases following engagement in a parenting intervention in integrated substance use treatment programs.

3.2.3. Parenting stress

Three studies evaluated the change in parenting stress due to engagement in a parenting intervention (Dawe et al., 2003; Dawe & Harnett, 2007; Suchman, 2016). All three utilized the Parenting Stress Index to measure parenting stress. Dawe and Harnett (2007) found significant reductions in parenting stress for parents that completed the Parenting Under Stress (PUP) program ($z = 2.20$, $p < 0.001$), but not for parents who completed standard care ($z = 0.88$, *ns*) or a brief intervention ($z = 0.43$, *ns*). Similarly, Dawe et al. (2003) found significant pre-post intervention decreases in parenting stress following completion of the PUP program. Suchman (2016) found different results on each subscale of the PSI, with parents showing decreased scores on the Personal Distress and Difficult Child subscales, but not on the Parent-Child Dysfunctional Interaction scale.

3.2.4. Psychosocial adjustment

Six studies assessed parental psychosocial adjustment following completion of parenting interventions; five utilized the Brief Symptom Inventory (BSI, Derogatis & Spencer, 1993; i.e., Dakof et al., 2010; Suchman et al., 2008; Suchman et al., 2010; Suchman, 2016) and one used the Clinical Assessment of Functioning (CAP, Luthar & Suchman, 2000; i.e., Luthar et al., 2007). Results of these studies were mixed, with three studies finding significant improvements in psychosocial adjustment (Dakof et al., 2010; Suchman, 2016; Suchman et al., 2010) and two studies failing to find significant differences (Luthar et al., 2007; Suchman et al., 2008). Specifically, Dakof et al. (2010) found improvements in psychosocial functioning at 3-months ($t = -0.51$, $p < 0.01$) and 18-months ($t = -0.04$, $p < 0.01$) following completion of the Emerging Moms parenting intervention. Similarly, Suchman et al. (2010) and Suchman (2016) found a moderate to large significant pre-post intervention reductions in parental BSI symptoms following completion of the Mothers and Toddlers Program ($d = 0.22$ and $d = 0.41$). Finally, Suchman et al. (2017) compared the Mothers and Toddlers Program to Parent Education and found lower symptoms in the comparison group at post-intervention. Overall, the results on the impact of parenting interventions on psychosocial adjustment among parents involved in parenting interventions in substance use treatment were mixed.

3.2.5. Depression

The systematic review included five studies that assessed changes in depression among parents involved in parenting interventions in substance use treatment. All six of the studies utilized the Beck Depression Inventory (BDI; Beck, Steer, & Brown, 1996) to measure parental depressive symptoms. Similar to psychosocial adjustment, results were mixed. Specifically, significant decreases in depression from pre- to post-intervention were reported in Belcher et al. (2005; $p < 0.01$), Suchman et al. (2010; $d = 0.33$), and Suchman et al. (2011; $d > 0.20$). The other three studies did not demonstrate significant change from pre- to post-intervention (Luthar et al., 2007; Niccols & Sword, 2005; Schaeffer et al., 2013). It is important to note that in all of the studies, pre-intervention levels of depression ranged from mild to moderate depression, with none of the five studies showing severe depression in substance using parents at baseline. As with psychosocial adjustment, results on the impact of parenting interventions on depression among parents in integrated substance use treatment are mixed.

3.2.6. Child abuse potential

Eight studies assessed child abuse potential following engagement in parenting interventions in integrated substance use treatment programs. Of the eight studies, five used the Child Abuse Potential Inventory (CAPI, Milner, 1986; Belcher et al., 2005; Dawe & Harnett, 2007; Dawe et al., 2003; Donohue et al., 2014) or Brief Child Abuse Potential Inventory (B-CAP, Ondersma, Chaffin, Mullins, & LeBreton, 2005; Dakof et al., 2010); two used the Parental Acceptance/Rejection Questionnaire (PARQ, Rohner, 1991; Luthar & Suchman, 2000; Luthar et al., 2007); and one used the Adult-Adolescent Parenting Inventory (AAPI; Camp & Finkelstein, 1997). Results on child maltreatment potential were mixed. Results from four studies demonstrated significant decreases in child abuse potential from pre- to post-intervention ($t = -17.479$, $p < 0.001$; Dawe & Harnett, 2007), from pre-intervention to 6-month and 10-month follow-up ($F = 15.82$, $p < 0.001$ and $F = 12.156$, $p < 0.001$, respectively; Donohue et al., 2014), and from pre-intervention to 3-months ($p < 0.01$ to 0.001; Camp & Finkelstein, 1997) and 18-months ($p < 0.001$). Interestingly, Donohue et al. (2014) examined statistical interactions with children of substance-using and non-substance using parents and found that treatment was most effective among children of parents who did not use substances and in the treatment as usual group. Two additional studies statistically compared the treatment to comparison groups; one found a significant difference between the treatment and comparison group ($F = 3.77$, $d = 0.054$, moderate effect size; Luthar & Suchman, 2000) and one found a marginal difference between the treatment and comparison group, as child maltreatment potential remained the same for mothers in the treatment group and increased for mothers in the comparison group (Luthar et al., 2007). The final two studies did not find significant differences from pre- to post-intervention (Belcher et al., 2005; Dawe et al., 2003).

3.2.7. Parenting behaviors

Three studies were identified in the systematic review as measuring parenting behaviors after engagement in a parenting intervention. All three studies utilized parental self-report measures to capture parenting behaviors, which included the Parenting Scale (Arnold, O'Leary, Wolff, & Acker, 1993; Lam et al., 2009), and the Parent-Child Relationship Inventory (PCRI, Gerard, 1994; Luthar & Suchman, 2000 and Luthar et al., 2007). Regardless of measurement, two of the studies reported

significant improvement in parenting behaviors following engagement in the parenting program, while one study did not find significant differences in the treatment versus comparison group (Luthar et al., 2007). Specifically, Lam et al. (2009) identified medium to large effect sizes ($r > 0.20$) from pretreatment to each of the follow up period (i.e., post-intervention, 6-month, 12-month) for the treatment group. Utilizing the PCRI, Luthar and Suchman (2000) found significant differences in the Affective Interactions subscale at both post-treatment ($d = 0.94$) and follow-up ($d = 0.54$), while Luthar et al. (2007) did not find significant differences in the treatment versus comparison group. These mixed findings indicate that the measure used to capture parenting behaviors may be critical in determining the effect of a parenting intervention within integrated substance use treatment.

3.2.8. Parent-child interactions

The systematic review included five studies that used observations of parent-child interactions as indicators of positive outcome following engagement in the parenting interventions. Results from these studies were mixed with regard to improvements in parent-child interactions following engagement in the parenting interventions. Specifically, Camp and Finkelstein (1997) observed interactions, which were coded in session by trained observers, between mothers and children and found an improvement in the number of women with positive mother-child interactions following engagement in the parenting program. Similarly, Berlin et al. (2014) noted a significant effect of the parenting intervention on observed sensitive parenting behavior in the treatment versus comparison group ($d = 0.67$); observations were coded in session. Another study (Suchman et al., 2011) compared parent-child interactions on the Nursing Child Assessment Satellite Training Teaching Scales, in which interactions were videotaped and coded, and found that mothers in the treatment condition had higher scores for interactions than in the comparison condition ($d < 0.20$). Finally, Suchman (2016) and Suchman et al. (2017) videotaped, and later coded a free-play session to measure quality of mother-child interactions. Results in Suchman (2016) did not find significant change in interactions following the intervention; and Suchman et al. (2017) demonstrated that parent-child dyads in the Mothers and Toddlers Program (now titled Mothering from the Inside Out) displayed higher interactions following treatment, when compared to the Parent Education graoup. These findings indicate an improvement in parent-child interactions following engagement in a parenting intervention, although only two studies measured this outcome.

3.2.9. Other constructs

Five additional outcomes related to parenting were identified in the systematic review (i.e., maternal social support, family conflict and violence, reflective functioning, self-esteem, and problem solving). First, Niccols and Sword (2005) assessed maternal social support and did not find significant differences in social provisions from pre- to post-intervention, which indicates that maternal social support may not be directly impacted by engagement in parenting interventions. Two studies (Dakof et al., 2010; Schaeffer et al., 2013) assessed family conflict and violence according to the Conflict Tactics Scale (Straus, 1979). One study found decreases in family conflict and violence from 3- to 18-month follow-up ($t = 1.70$, $p < 0.01$; Dakof et al., 2010), while the other only resulted in significant change in nonviolence discipline ($t = 2.26$, $p = 0.034$) and psychological aggression ($t = 4.76$, $p = 0.000$) reported by the mother. Five studies (Suchman, 2016; Suchman et al., 2008; Suchman et al., 2010; Suchman et al., 2011; Suchman et al., 2017) in the systematic review assessed reflective functioning, defined as the "mother's capacity to mentalize about her own and her child's behavior," following engagement in parenting interventions. Reflective functioning is often examined in the context of parenting interventions focused on attachment, as it describes the parent's ability to increase capacity for sensitivity and responsiveness to the child's emotional cues, which may be especially difficult for substance using parents. Reflective functioning was measured using the Parent Development Interview (PDI; Slade, Aber, Berger, Bresgi, & Kaplan, 2002) in all five studies. Results indicated that reflective functioning was marginally significantly improved from pre- to post-intervention ($t = -1.89$, $p = 0.10$; Suchman et al., 2008; $d = 0.34$, Suchman et al., 2016) and that reflective functioning levels were higher for treatment than comparison group mothers at post-intervention ($d = 0.56$, moderate effect, Suchman et al., 2010; $d > 0.50$, Suchman et al., 2011) and 3-month follow-up ($d = 0.36$; Suchman et al., 2017).

Two additional studies examined self-esteem and problem solving among parents involved in parenting interventions in integrated substance use treatment programs. Specifically, Camp and Finkelstein (1997) found significant improvements in self-esteem from pre-intervention to 9-month follow-up in parents involved in the parenting intervention. Regarding problem-solving, Catalano et al. (1999) reported better problem solving skills in parents involved in the parenting intervention group compared to the control group.

4. Discussion

This systematic review identified 18 studies that specifically evaluated parenting outcomes following engagement in parenting interventions embedded in integrated substance use treatment programs. Within these 18 studies, 8 primary parenting outcomes and 5 additional parenting outcomes were evaluated. Twelve different parenting interventions were investigated in the systematic review (see Table 1). Across studies, samples differed in regards to design (i.e., 11 RCTs, 1 quasi-experimental design, 6 pre-post comparisons), parenting intervention delivery (i.e., 11 individual, 4 group, 3 individual and group), and setting (i.e., 12 outpatient, 4 in-home, 1 combined outpatient and in-home).

Retention rates in parenting interventions imbedded within integrated substance use programs varied across studies, which is possibly due to the differences in delivery method (e.g., individual, group), setting (e.g., home, treatment setting), and length of parenting intervention. For example, Project STRIVE (Belcher et al., 2005) was very comprehensive and included parent education, intensive home- and center-based social work, and onsite obstetric and pediatric care. Mean number of program days was 300.2. The retention rate of 13% completing all program requirements suggests that, while services may be beneficial, parents tended to drop out of treatment prematurely. It may be important to examine the requirements of this treatment, to determine how to better retain parents in such a program. On the other hand, Dawe and Harnett (2007) reported a 91% completion rate in the Parents Under Pressure (PUP) program, which included 10–12 sessions of in-home, individual therapy lasting approximately 2 h per week. Differences in retention rates makes it difficult to generalize overall effectiveness of parenting interventions in integrated substance use treatment programs, suggesting the need for more standardization of parenting interventions for this population. While the current study focused on outcomes of the interventions, rather than examining and dismantling the content of the various interventions, it is imperative that the content of the interventions be examined in future studies to determine the elements that should be included in parenting interventions targeting substance using parents.

The majority of studies in the systematic review assessed substance use following engagement in parenting interventions, and overall results indicated a reduction in use. While the finding of decreased substance use is positive among this population, sweeping conclusions that the parenting intervention directly addresses this outcome may not be accurate, especially given that the results come from both controlled and uncontrolled studies. Specifically, most of the parenting interventions were not specifically developed or adapted for use with this population; rather, they are parenting interventions developed for general or high-risk populations that have been simply implemented with parents in substance use treatment programs. Given this, it is more

likely that other aspects of the integrated treatment program directly impact substance use, and that other factors targeted by the parenting intervention (e.g., parenting stress, parenting behavior) may indirectly impact substance use. Research is needed to examine different mechanisms by which engagement in parenting interventions decreases substance use, by examining mediators and moderators of the relationship between substance use and intervention outcomes. Results from this review suggest that important mechanisms to examine include parenting stress, psychosocial adjustment, parental depression, child abuse potential, parenting outcomes/behaviors, and parent-child interactions.

Although results on parenting stress outcomes were mixed, findings are notable given the high levels of parenting stress typically reported by parents in substance use treatment. For example, pre-intervention level of parenting stress ($M = 103.0$, $SD = 23.32$) were higher than typically found in high risk samples of parents engaging in a parenting intervention in community (e.g., $M = 85.64$, $SD = 21.52$ in Begle & Dumas, 2011). Given that only the PUP group displayed significant reductions in parenting stress following completion of the intervention indicates that this may be an important, yet rarely measured, outcome to target among parents in substance use treatment. The fact that only 3 studies in the systematic review focused on parenting stress is problematic given that stress is a significant risk factor for substance use (Sinha, 2001), 59–70% of adults in substance use treatment programs are parents (SAMHSA, 2002), and parenting is associated with high levels of stress (Deater-Deckard, 2008). Further, a recent study indicated that, among adult substance users, female parents reported significantly higher daily stress than male parents and non-parents (Moreland et al., under review). Of note, the majority of evaluations of parenting interventions among general populations include parenting stress as an important outcomes measure (e.g., Begle & Dumas, 2011). As substance-using parents typically report higher levels of stress than non-parents, it is critical to assess parenting stress following engagement in parenting interventions in integrated substance use treatment programs, as this may be a primary direct outcome.

Results from the six studies that evaluated psychological adjustment, the six studies that assessed depression, and the eight studies that measured child abuse potential were mixed in regards to outcomes. These results are somewhat surprising, given that parenting interventions targeting community and child welfare samples have both demonstrated significant improvements in parental psychosocial adjustment, parental depression, and child abuse potential following engagement in parenting interventions (Barlow, Smailagic, Huband, Roloff, & Bennett, 2014; Chen & Chan, 2015). One hypothesis for this finding is that the interventions selected in the systematic review do not directly target psychosocial adjustment, depression, and child abuse potential for substance using parents, but may indirectly target them through other mechanisms (e.g., parenting stress). Another hypothesis may speak to the need for adapting parenting interventions for substance using parents, rather than applying general parenting interventions to this population and expecting the same outcomes. Outcome studies show that adaptations for high-risk population enhance interventions, and are critical for engagement (Griner & Smith, 2006); this review suggests that they may also impact outcomes. In addition, the time periods utilized in the studies within the systematic review may not have been long enough to adequately measure changes in psychosocial adjustment, depression, and child abuse potential. Overall, mixed results regarding changes in psychosocial adjustment and depression following engagement in parenting interventions among parents in substance use treatment suggests that more research is necessary to delineate the mechanisms in treatment that may target this construct among substance using and recovering parents.

Examination of parenting behaviors within the systematic review also demonstrated mixed findings, which was not surprising given that this was the least standardized construct within the review. The included studies all used different measures and constructs to operationalize parenting behaviors. These findings should therefore be interpreted with caution given that the measurement of parenting behaviors was not standardized and each study may be capturing very different aspects of parenting. These results suggest that further work is necessary to standardize measurement of parenting behaviors, especially when evaluating parenting interventions within integrated substance use treatment programs.

Finally, results demonstrated improved parent-child interactions in the five studies that observed interactions following engagement in parenting interventions. The underutilization of this outcome was surprising, given that evaluation studies of behavioral parent training programs often include this outcome (Kaminski, Valle, Filene, & Boyle, 2008; Thomas & Zimmer-Gembeck, 2007) and that this may be a critical component due to the frequent separation of children from substance-using parents. In qualitative interviews with parents in substance use treatment programs, parents reported re-integration with children as being a primary stressor during and following integrated substance use treatment (Moreland et al., under review). Thus, evaluating these interactions following engagement in a parenting intervention may be a key indicator of program effectiveness. Further, inclusion of multiple measurement methods (e.g., self-report and observation) strengthens results of treatment effectiveness. It should also be noted that the measures used in the reviewed studies are relevant for young children and would not be appropriate for programs that address parenting in school-age children or adolescents. Future research should include parent-child interactions as a parenting outcome following engagement in a parenting intervention in integrated substance use treatment programs.

In addition to the limitations already outlined, several other limitations are important to note. First, while many of the studies focused on interventions for parents of young children, some focused on older children; which the authors felt was important in order to fully examine the broad, related outcomes examined in the current study. These results should be interpreted with caution that interventions targeting infants and older children may be different from one another; and future studies should examine differences among interventions with younger versus older children. In addition, the study included both RCTs and uncontrolled studies in the review. It is important to note that implications drawn from these different types of studies are different and authors should examine results in the context of the type of study from which they are drawn.

4.1. Recommendations

Taken together, results of this review inform several recommendations. First, positive parenting outcomes following the inclusion of parenting interventions in integrated substance use treatment programs provides evidence that parenting interventions should be tailored for substance users and provided within substance use treatment programs. Given the unique needs of substance using parents, it is critical to make specific adaptations to evidence-based parenting interventions for use with this population. While some programs have been specifically developed and adapted for women in substance use treatment, it is essential to further evaluate the use of these interventions so that they can be widely disseminated. Second, as results were often correlated with the length of parenting interventions, special considerations should be given to the retention and length of parenting interventions. Finally, while previous reviews have established that parenting interventions in integrated programs contribute to positive overall parenting outcomes, results from the current review indicate that it is critical to include additional related outcomes, such as parenting stress, in future research. Including these important related constructs will allow for examination of the mechanisms that underlie positive outcomes in parenting interventions integrated within substance use treatment programs.

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