

OBSTETRICS

Brief interventions for illicit drug use among peripartum women

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We review the evidence and identify limitations of the current literature on the effectiveness of brief interventions (≤ 5 intervention sessions) on illicit drug use, treatment enrollment/retention, and pregnancy outcomes among pregnant and postpartum women; and consider this evidence in the context of the broader brief intervention literature. Among 4 published studies identified via systematic review and meeting a priori quality criteria, we found limited, yet promising evidence of the benefit of brief interventions to reduce illicit drug use among postpartum women. Two of the 4 randomized controlled trials tested similar computer-delivered single-session interventions; both demonstrate effects on postpartum drug use. Neither of the 2 randomized controlled trials that assessed treatment use found differences between intervention and control groups. Studies examining brief interventions for smoking and alcohol use among pregnant women, and for illicit drug use in the general adult population, have shown small but statistically significant results of the effectiveness of such interventions. Larger studies, those that examine the effect of assessment alone on illicit drug use, and those that use technology-delivered brief interventions are needed to assess the effectiveness of brief interventions for drug use in the peripartum period.

Key words: brief interventions, illicit drugs, postpartum, pregnant

Illicit drug use during pregnancy has been associated with a range of adverse neonatal outcomes, including intrauterine growth restriction, preterm birth and lower birthweight, neonatal abstinence syndrome, and neurocognitive delays and impairment.¹ Illicit drug use during the postpartum period is associated with increased risk of child neglect,² violence exposure,³ physical abuse,⁴

externalizing behavioral problems,⁵ and substance use in adolescence.⁶ Despite the frequency with which women reduce or quit drug use during pregnancy,⁷ nationally representative data show that 4.4% of pregnant women reported use of illicit drugs (marijuana/hashish, cocaine [including crack], heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically) in the past month.⁸

Candidate treatments for illicit drug use during pregnancy and the postpartum period include counseling and specialized maintenance treatment for opioid dependence. However, over 50% of illicit drug users neither seek nor receive treatment,⁸ making proactive identification necessary. Screening, brief intervention, and referral to treatment (SBIRT) is an evidence-based, proactive, and quick way for healthcare providers to identify, counsel, and refer patients to receive additional counseling and treatment for a behavioral health condition, usually substance abuse.

Among pregnant women, brief motivational interventions have been shown to modestly improve smoking cessation rates⁹ and alcohol abstinence.¹⁰ However, few studies have examined the effects of brief interventions for illicit drug use during pregnancy or the postpartum period. Therefore, we reviewed the available evidence and identified potential ways to improve future studies on the effectiveness of brief interventions on illicit drug use, treatment enrollment/retention, and pregnancy outcomes among pregnant and postpartum women.

Literature search

We searched the PubMed, Embase, and PsychInfo databases for research articles using keywords and MeSH terms associated with illicit drug use, related interventions, and pregnancy and postpartum. In 2001, the Institute of Medicine's Committee on the Quality of Health Care in America issued a call for screening for health risk behaviors, including substance use, in tandem with appropriate assessment and referral activities, and cited the SBIRT model as a promising practice.¹¹ Thus, we limited the search to articles published after the release of this Institute of Medicine report, between Jan. 1, 2002, and Sept. 20, 2013. We examined reference lists from the studies found and consulted with authors of peer-reviewed published papers on illicit drug use among pregnant and postpartum women to identify relevant articles published before 2002.

Eligibility criteria for this systematic review were based on intervention type, study population, design, and outcomes described below. In line with the substance abuse and mental health services administration definition, we defined brief interventions as consisting of 1-5 sessions lasting 5 minutes to 1 hour each, and excluded studies examining more

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intensive interventions. We included only studies examining brief interventions among pregnant women or women ≤ 1 year postpartum with the intended goal of reducing or abstaining from drug use, enrolling and retaining women in specialized drug treatment programs, and improving pregnancy and/or infant outcomes. We only included studies with a control group not offered the intervention during the study period.

One author (Y.L.H.) extracted data from the studies included in the review into a standardized Table and a second author (S.L.F.) checked the extracted data for accuracy. The authors assessed quality of each study by adapting a published set of criteria developed and piloted by the US preventive services task force.¹² A grade was given for research design (I = randomized controlled trials (RCTs); II-1 = well-designed controlled trial without randomization; and II-2 = well-designed cohort or case-control study) and internal validity (good, fair, or poor). For RCTs, internal validity was based on the 7 following criteria: adequate randomization, low attrition and high adherence, low differential or total loss to follow-up, clear definition of intervention, high reliability and validity of exposure and outcome measures, important outcomes considered, and an intent-to-treat analysis. "Good" studies met ≥ 6 of the 7 criteria, "fair" studies met < 6 of the criteria, but did not have a methodologic flaw that invalidated the study's findings, and "poor" studies contained a methodologic flaw that invalidated the study's findings.¹²

Our search found 3792 unique articles (Figure). Two authors (S.L.F. and Y.L.H.) reviewed titles and abstracts and determined that 114 articles were potentially eligible for inclusion in the review. Separately, both authors reviewed the 114 articles in full and agreed that 3 articles met all inclusion criteria. Three additional articles published before 2002 were found after reviewing reference lists of the 114 articles and consulting with experts in the field. Of the 3 additional articles, only 1 met all inclusion criteria. Therefore, a total of 4 articles (1 published before and 3

published after 2002) met our inclusion criteria and were included in this systematic review.

Brief interventions for illicit drug use among pregnant and postpartum women

We identified 4 RCTs published between 1996 and 2013 ranging in sample size from 71 to 179 women (Table 1).¹³⁻¹⁶ One RCT recruited postpartum¹⁴ women enrolled in outpatient treatment programs, and 3 RCTs enrolled pregnant¹³ and postpartum women^{15,16} through prenatal clinics or during their delivery hospitalizations. Outcomes examined included drug use and specialized treatment enrollment or retention; no studies examined pregnancy or infant outcomes (Table 2). Three studies were considered "good" quality,¹⁴⁻¹⁶ and 1 was "fair" quality.¹³

Two "good" quality RCTs^{10,11} were conducted to assess the effectiveness of a computerized single-session intervention for illicit drug use among postpartum women enrolled during their delivery hospitalization. Both RCTs used a brief computerized intervention administered via laptop or tablet computer and based on motivational interviewing techniques. The more recently published RCT, a replication of the 2007 study, enrolled at their delivery hospitalization 143 women who self-reported illicit drug use in the 3 months before pregnancy and met eligibility criteria. All women received a 30-minute assessment prerandomization. Based on self-reported illicit drug use before pregnancy, women were randomized to computerized brief intervention ($n = 72$) or an inactive control condition ($n = 71$). Intervention components included eliciting the participant's thoughts and perceived advantages of change; providing normed feedback; and goal-setting. The 2 primary outcomes were 7-day point prevalence abstinence from illicit drugs based on self-report and negative toxicology screen at 3 and 6 months, and self-reported number of substance-using days in the last 90 days. At the 3-month follow-up, the authors found a statistically higher 7-day point-prevalence of abstinence in the intervention compared with the control arm (26.4% vs 9.9%; odds ratio [OR], 3.3;

95% confidence interval [CI], 1.3–8.4; $P = .01$); median number of substance-using days showed a positive trend (25.6 vs 51.4 days; $P = .06$), but was not significant. At the 6-month follow-up, neither the self-report of 7-day point prevalence in the intervention and control groups (13.9% and 9.9%, respectively; OR, 1.5; 95% CI, 0.5–4.1) nor the median number of substance-using days (31.6 days and 77.2 days, respectively; $P = .21$) differed significantly. However, based on hair sample results, the intervention group had 4.8 times greater odds of drug abstinence at 6 months compared with the control group ($P = .02$).

In the initial and smaller of these 2 RCTs, also of "good" quality, the authors enrolled 107 postpartum women ≥ 18 years who self-reported illicit drug use in the month before pregnancy.¹⁵ Women were randomized into assessment only ($n = 52$) or assessment plus brief intervention ($n = 55$) conditions. During their delivery hospitalization, all women completed a 45-minute assessment using a laptop with integrated touchscreen and headphones. Women in the assessment plus intervention arm also received a 20-minute, single-session, computer-based motivational intervention that elicited the participant's thoughts and perceived advantages of change, provided normed feedback, and offered goal-setting; this intervention and that from the more recent trial described previously differed moderately (eg, the more recent intervention referred specifically to the type of drug used, rather than only to "drugs" generically, and presented the content differently for those who reported being ready to change or having already done so). Outcomes assessed at 4 months postbaseline included drug abstinence and frequency of drug use measured by self-report using the Alcohol, Smoking, and Substance Involvement Screening Test questionnaire and a urine toxicology test. Women in the assessment plus intervention arm self-reported less use of any drugs combined ($P = .04$) and of drugs other than marijuana ($P = .03$), but effects on marijuana use alone failed to reach statistical significance. Group differences for dichotomized outcomes

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