Birth outcomes for infants born to women participating in integrated substance abuse treatment programs: a meta-analytic review

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CRD summary
This review concluded that integrated substance-abuse treatment programmes could increase women's participation in prenatal care and decrease premature births, compared with non-integrated programmes. These conclusions should be interpreted with caution given the limited quality of the included studies and limitations in the review methods.

Authors' objectives
To assess birth outcomes for women participating in integrated substance-abuse treatment programmes.

Searching
The following databases were searched for studies published in English from 1990 to 2007: PsycINFO, PubMed, Web of Science, EMBASE, ProQuest Digital Dissertations, Sociological Abstracts, and CINAHL. The search terms were reported. Several relevant journals were manually searched and reference lists of relevant publications were screened. Study authors were contacted for additional relevant studies.

Study selection
Studies that evaluated integrated substance-abuse treatment programmes were eligible for inclusion if they evaluated at least one substance use treatment and a service for children under 16 years old, such as prenatal care, childcare, or parenting classes, for pregnant women or mothers, with substance misuse problems. Studies evaluating smoking cessation programmes were excluded. The studies had to report one of the following outcomes: length of treatment stay, treatment completion, maternal substance use, maternal well-being, or child well-being.

Most of the included studies were quasi-experimental, while the others were randomised controlled trials (RCTs). Most quasi-experimental studies compared integrated treatment with no treatment, while all the RCTs compared it with non-integrated treatment. The included studies were published between 1992 and 2003. Nearly half of the included studies included residential treatment. Most of the studies included both pregnant and parenting women; the others included only pregnant women.

Twenty percent of studies were assessed by two reviewers (0.81 agreement) and discrepancies were resolved by consensus.

Assessment of study quality
The quality of RCTs was assessed using the Jadad scale; a five-point scale evaluating randomisation, blinding, and withdrawals or dropouts. The quality of non-randomised studies was assessed using the Newcastle-Ottawa Scale.

Two reviewers assessed quality, with any disagreements resolved by consensus.

Data extraction
Means and standard deviations were extracted to calculate the standardised mean difference (Cohen’s d), with 95% confidence interval. Study authors were contacted for missing data, where necessary.

Two reviewers extracted the data from 20 percent of studies, with disagreements resolved by discussion. One reviewer extracted the data from the remaining studies.

Methods of synthesis
The studies were combined in a meta-analysis. The pooled Cohen's d with 95% confidence interval was calculated. A random-effects model was used where there was significant heterogeneity, otherwise a fixed-effect model was used. Statistical heterogeneity was assessed using X². Publication bias was assessed, using the file-drawer statistic. Where there was significant heterogeneity, regression analyses were used to explore the effects of the characteristics of the
participants, programmes, and studies.

Results of the review
Three RCTs, with 453 participants, and eight quasi-experimental studies, with 2,018 participants, were included in the review. The average Jadad score for the RCTs was 1.67. The quality scores for quasi-experimental studies ranged from two to six, with a mean score of 4.17.

Compared with those who received no treatment, women on integrated substance-abuse treatment programmes had infants with significantly higher birth weights (Cohen's d 0.46, 95% CI 0.60 to 0.86) and larger head circumferences (Cohen's d 0.55, 95% CI 0.26 to 0.84), had fewer birth complications (Cohen's d 0.37, 95% CI 0.02 to 0.73), and were more likely to have negative toxicology screens at birth (Cohen's d 0.87, 95% CI 0.52 to 1.23). Significant heterogeneity was observed only for the birth-weight analysis (p<0.001).

Compared with those on non-integrated programmes, women on integrated substance-abuse treatment programmes attended significantly more prenatal sessions (Cohen's d 2.21, 95% CI 1.23 to 3.19) and had significantly fewer pre-term births (Cohen's d 0.35, 95% CI 0.04 to 0.67). No significant heterogeneity was found for either analysis.

There was some evidence of publication bias.

Authors' conclusions
Integrating substance-abuse treatment programmes with antenatal or parenting care could increase participation in prenatal care and decrease premature births, compared with non-integrated programmes.

CRD commentary
This review's inclusion criteria were clear and a number of relevant databases were searched. Efforts were made to find both published and unpublished studies to minimise the risk of publication bias, but the statistical assessment indicated some evidence of bias. Only studies in English were included, which introduced a risk of language bias. Steps were taken to minimise reviewer errors and bias in quality assessment and part of the processes of study selection and data extraction. Appropriate criteria were used to assess study quality. Statistical heterogeneity was assessed and appropriate methods were used to pool the results.

The authors' conclusion should be interpreted with caution given the limited quality of included studies and limitations in the review methods.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that further research, with good methods, was required to assess the birth outcomes for children born to women participating in integrated substance-abuse treatment programmes. This research should investigate how best to meet the needs of pregnant women with substance abuse issues.

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