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Implementation and Effectiveness of Nonspecialist-Delivered Interventions for Perinatal Mental Health in High-Income Countries
A Systematic Review and Meta-analysis

Daisy R. Singla, PhD; Andrea Lawson, PhD; Brandon A. Kohrt, MD; James W. Jung, BSc; Zifeng Meng, BSc; Clarissa Ratjen, BSc; Nika Zahedi, BSc; Cindy-Lee Dennis, PhD; Vikram Patel, PhD

IMPORTANCE Task sharing—or training of nonspecialist providers with no formal training in counseling—is an effective strategy to improve access to evidence-based counseling interventions and has the potential to address the burden of perinatal depression and anxiety.

OBJECTIVES To identify the relevant implementation processes (who, what, where, and how) and to assess the effectiveness of counseling interventions delivered by nonspecialist providers for perinatal depression and anxiety in high-income countries.

DATA SOURCES CINAHL, Ovid MEDLINE, Ovid MEDLINE In-Process, PsycINFO, Web of Science, Cochrane Central Register of Controlled Trials, and Embase through December 31, 2019. Relevant systematic reviews were also considered.

STUDY SELECTION Randomized clinical trials of counseling interventions that assessed depression or anxiety after intervention, delivered by a nonspecialist provider for adults, and that targeted perinatal populations in a high-income country were included. Self-help interventions that did not include a provider component were excluded.

DATA EXTRACTION AND SYNTHESIS Four researchers independently reviewed abstracts and full-text articles, and 2 independently rated the quality of included studies. Random-effects meta-analysis was used to estimate the benefits of the interventions. The Preferred Reporting Items for Systematic Reviews and Meta-analyses reporting guideline was followed.

MAIN OUTCOMES AND MEASURES For implementation processes, the frequencies represented by a total or percentage were estimated, where the denominator is the total number of eligible trials, unless otherwise indicated. For effectiveness, primary and secondary outcome data of depression, anxiety, or both symptoms were used, with separate analyses for prevention and treatment, stratified by depression or anxiety. Subgroup analyses compared outcome types (anxiety vs depression) and study objectives (treatment vs prevention).

RESULTS In total, 46 trials (18 321 participants) were included in the systematic review; 44 trials (18 101 participants) were included in the meta-analysis. Interventions were implemented across 11 countries, with the majority in Australia, UK, and US. Two-thirds (65%) of counseling interventions were provided by nurses and midwives, lasted a mean of 11.2 weeks (95% CI, 6.4-16.0 weeks), and most were delivered face to face (31 [67.4%]). Only 2 interventions were delivered online. A dearth of information related to important implementation processes, such as supervision, fidelity, and participant sociodemographic characteristics, was observed in many articles. Compared with controls, counseling interventions were associated with lower depressive symptoms (standardized mean difference [SMD], 0.24 [95% CI, 0.14-0.34]; 43 trials; I^2 = 81%) and anxiety scores (SMD, 0.30 [95% CI, 0.11-0.50]; 11 trials; I^2 = 80%). Treatment interventions were reported to be effective for both depressive symptoms (SMD, 0.38 [95% CI, 0.17-0.59]; 15 trials; I^2 = 69%) and anxiety symptoms (SMD, 0.34 [95% CI, 0.09-0.58]; 6 trials; I^2 = 71%). However, heterogeneity was high among the trials included in this analysis.

CONCLUSIONS AND RELEVANCE This study found evidence in high-income countries indicating that nonspecialist providers may be effective in delivering counseling interventions. Additional studies are needed to assess digital interventions and ensure the reporting of implementation processes to inform the optimal delivery and scale-up of these services.

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Supplemental content

Author Affiliations: Author affiliations are listed at the end of this article.

Corresponding Author: Daisy R. Singla, PhD, Department of Psychiatry, Sinai Health, University of Toronto, 600 University Ave, Room 914A, Toronto, ON M5G 1X5, Canada (daisy.singla@utoronto.ca).

An estimated 10% to 15% of women experience depression during pregnancy or in the year following childbirth.[1,2] In addition, approximately 15% to 20% of women experience anxiety symptoms perinatally.[3] Many of those symptoms begin during the antenatal period,[4] with annual costs amounting to more than $45.9 billion.[5]

Counseling interventions, notably cognitive, behavioral, and interpersonal therapies, are widely effective in preventing and treating major depression and anxiety disorders in perinatal women.[6,7] Although the US Preventive Services Task Force has endorsed counseling interventions for women at risk of perinatal mood disorders,[8] fewer than 20% of women with perinatal depression have access to these interventions.[9] The poor dissemination and uptake of effective counseling interventions is due, in part, to the limited number of skilled mental health professionals.

Task sharing is the "rational redistribution of tasks"[10] and has been used worldwide to improve access to health care. Nonspecialist providers (NSPs)—individuals with no formal training in mental health, such as lay counselors, nurses, midwives, and teachers—have been trained to prevent and treat perinatal depressive and anxiety symptoms worldwide.[11,12] In low- and middle-income countries, task sharing has wide currency,[13] with NSPs considered an important human resource because they are widely available, are cost-effective, and have regular, frequent contact with mothers.[14,15]

In high-income countries (HICs), the concept of NSPs for mental health care delivery has its own unique history, dating back to the paraprofessional movement in the United States and in the United Kingdom. More recently, NSPs have been successfully trained to address perinatal mental health in HIC contexts.[16,17] Thus, NSPs may have the potential to address the startling treatment gap for depression[18] and anxiety.[19]

In low- and middle-income countries, previous syntheses of NSP-delivered psychological interventions for perinatal populations[11,20] have been conducted. Examining these processes and their effectiveness may be helpful to improve the implementation and scale-up of counseling interventions to potentially address the significant burden of perinatal depression and anxiety across HICs.

Our primary objective was to conduct a systematic review and meta-analysis to answer the following 2 questions: (1) What are the relevant implementation processes associated with the who (type of NSP), how (training and supervision), what (type of treatment), and where (type of setting) of NSP-delivered counseling interventions for perinatal depressive or anxiety symptoms in HICs? (2) Are NSP-delivered counseling interventions associated with effective prevention or treatment of depressive or anxiety symptoms among perinatal women residing in HICs?

Key Points

Question Are nonspecialist providers (such as lay counselors, nurses, midwives, and teachers with no formal training in counseling interventions) effective at preventing and treating perinatal depression and anxiety, and what are the relevant implementation processes for nonspecialist-delivered interventions?

Findings This systematic review of 46 trials (18 321 participants) and meta-analysis of 44 trials (18 101 participants) found that, compared with control groups, nonspecialist-delivered interventions were associated with lower depressive and anxiety symptoms for both preventive and treatment interventions, but there was high heterogeneity among the included trials. The majority of interventions were implemented in Australia, UK, and US, conducted by nurses and midwives, and delivered in person, in person combined with the telephone, or via telephone only, with only 2 interventions delivered online.

Meaning This study found evidence in high-income countries to support that nonspecialist providers may be effective in preventing and treating perinatal depressive and anxiety symptoms, which suggests that integrating nonspecialist providers to deliver evidence-based counseling interventions has the potential to address the significant burden of perinatal depression and anxiety worldwide.

Methods

Protocol Registration

This study used the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) reporting guideline[21] (eTable 1 in the Supplement) and followed the procedures of a recent review by members of our team of NSP-delivered interventions.[11] This study is registered with PROSPERO.[22]

Search Strategy

A member of our team (B.A.K.) conducted the electronic search for articles, with no time or language restrictions. Literature sources included CINAHL, Ovid MEDLINE, Ovid MEDLINE In-Process, PsycINFO, Web of Science, Cochrane Central Register of Controlled Trials, and Embase through December 31, 2019. Bibliographies of 108 systematic reviews of psychological interventions for perinatal populations in HICs were also considered.[23-25] Information was collected from primary trial articles and secondary articles (trial protocols, treatment development articles, or secondary analyses).

Eligibility Criteria

The inclusion criteria were as follows:

- An HIC setting, defined by the World Bank Group in 2015 at the time of the trial,[26] and exceptions made for Hong Kong and Taiwan;
- The counseling intervention involved a 2-way interaction between an NSP therapist and a client that focused on changing one's patterns and improving skills[27];
- A diagnosis or assessment using a validated tool in which symptoms of depression or anxiety were the primary or secondary outcome (after intervention);
- Included pregnant or postpartum (up to 1 year after delivery) adult women; and
- Evaluated through a randomized clinical trial (RCT).

The 2 exclusion criteria were self-help treatments without an NSP delivery component and published materials from books, conference papers, and theses.

Box. Checklist of Extracted Key Implementation Processes

Where?
- Country
- Geographical scope
- Intervention setting
  - Rationale of intervention setting
  - Barriers and facilitators

Who?
- Delivery agent
  - Who delivered the treatment?
    - Delivery agent rationale
- Specialist
  - What was the role of the specialist?
- Participants
  - Target population
  - Age
  - Marital status
  - No. of children
  - Sociodemographic variables (educational, race/ethnicity, and income levels)
  - Were other family members involved in the intervention?

What?
- Treatment theory
- Treatment rationale

How?
- Treatment characteristics
  - Treatment delivery method
  - Overall duration of treatment
    - No. of sessions (intended and completed)
    - Duration of each session
    - Was there sustained delivery past end of trial?
- Training
  - How were delivery agents trained?
    - Training content
    - Length of training
    - Competency evaluations
    - Treatment quality/fidelity assessment
- Supervision
  - Who was the supervisor?
    - How was supervision conducted?
    - How frequently?

Trial Selection and Data Extraction

Members of our team (J.W.J., Z.M., C.R., and N.Z.) systematically screened titles and abstracts to identify potentially eligible studies, of which full texts were then retrieved for further examination. A standardized data extraction form was used by those 4 team members to extract information regarding implementation processes (**Box**). Articles deemed ineligible or disagreements regarding eligibility were verified by another team member and, if needed, by the study leaders (D.R.S. and A.L.). The κ scores were calculated to estimate interrater reliability between researchers, resulting in a good score of κ = 0.75.

For the meta-analysis, we extracted mean (SD) values of the primary end points for both the intervention and the control groups and their respective sample sizes. When mean (SD) values were not available, we extracted the binary outcome data, with which we were able to estimate the effect size using an online calculator.[28] For studies reporting median values and ranges, we estimated the effect size via a second online calculator.[29] Effective sample sizes were used for all cluster trials, using reported or estimated intraclass correlation coefficients. When multiple control groups were available, data from active control groups were prioritized for extraction.

Assessment of Risk of Bias

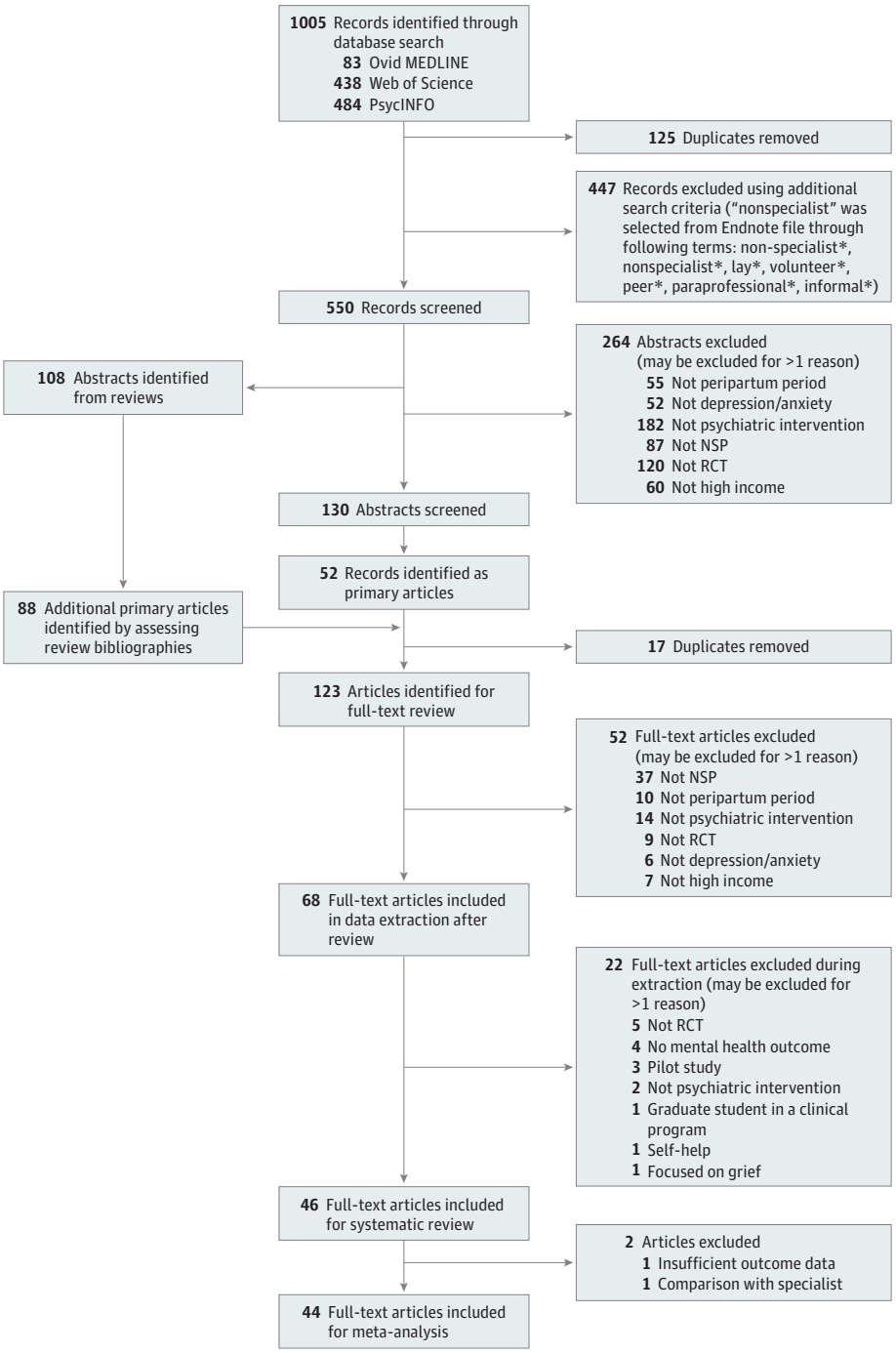
The Cochrane Collaboration tool for assessing risk of bias[30] was used by a minimum of 2 independent coauthors (Z.M., C.R., or N.Z.) to review the included studies (κ = 0.79). This included random sequence generation, allocation concealment, selective reporting, masking of research personnel and participants, masking of outcome assessors, attrition bias, and other biases. Studies meeting 3 or more high-risk criteria or missing details were considered low quality according to previously established criteria[31] (eFigure 1 in the Supplement).

Statistical Analysis

We estimated the frequencies of all implementation processes, represented by a total or percentage, where the denominator was the total number of eligible trials, unless otherwise indicated (eg, when data were not specified or were missing for a particular variable). When possible, the mean was calculated along with the 95% CI. When ranges were provided for a particular variable (eg, 6-10 sessions), the mean was used (eg, 8 sessions). Outliers were identified, and analyses were repeated without these outliers.

For the meta-analyses, we used all available primary and secondary outcome data for perinatal depression, anxiety, or both for each trial. Analyses were performed using Review Manager, version 5.3,[32] with the results presented as forest plots of standardized mean differences (SMDs), their 95% CIs, and relative weights calculated as the inverse of the variance and accounted for both original within-study variance and between-study variance τ.[33] The SMDs were estimated using Hedges *g*,[34] with between-group postintervention mean values.[35] We used a random-effects analysis[36] because of the expected heterogeneity. A test for subgroup differences was conducted comparing prevention and treatment trials, evidence-based (eg, interpersonal psychotherapy [IPT] and cognitive-behavioral therapy [CBT]) vs non–evidence-based interventions (supportive counseling); sample age demographic characteristics (adult only vs mixed adolescents and adults); and outcome measure (clinical diagnostic tool vs self-report). We conducted a post hoc sensitivity analysis using leave-1-out analyses to test the effect of excluding single trials that had the largest and smallest sample size and the largest and smallest effect sizes. This was conducted separately for treatment and prevention trials and for outcomes of interest (depression and anxiety).

Figure 1. Flowchart for Identifying Eligible Articles



NSP indicates nonspecialist provider; RCT, randomized clinical trial.

Results

Figure 1 shows the flowchart of eligible articles. In total, 46 trials (18 321 participants) were included in the systematic review, and 44 trials (18 101 participants) were included in the meta-analysis. Two trials were excluded from the meta-analysis because the active control group included specialists[37] and because of insufficiently reported outcomes.[38]

Trial Characteristics

Of the eligible trials (eTable 2 in the Supplement), 42 were individual RCTs, and 4 were cluster RCTs. The trials were conducted in 11 countries, including Australia (12 trials [26.1%]), the United Kingdom (10 trials [21.7%]), the United States (10 trials [21.7%]), Canada (3 trials [6.5%]), Scotland (3 trials [6.5%]), Sweden (2 trials [4.3%]), and Singapore (2 trials [4.3%]) and 1 trial (2.2%) each in Hong Kong, Finland, Norway, and Taiwan. Participants were recruited primarily

from primary care settings (44 trials [95.7%]) followed by online methods (2 trials [4.3%]). The median trial sample size was 186 participants (range, 37-2064 participants). Participants were primarily from an urban population (31 trials [67.4%]) followed by semiurban (7 trials [15.2%]) and rural (2 trials [4.3%]) populations. Most participants were selected based on a self-report measure of depression (35 trials [76.1%]) rather than a diagnostic interview (11 trials [23.9%]). Most studies focused on the prevention of maternal mental health symptoms (28 trials [60.9%]), treatment (17 trials [37.0%]), or both (1 trial [2.2%]).

Delivery Agents, Specialists, and Participants

Delivery Agents

The most common type of NSP were midwives (16 trials) followed by nurses (14 trials), peers or community members (10 trials), health visitors (4 trials) or junior research staff (4 trials), occupational therapists (3 trials), family physicians (2 trials), and community health workers (1 trial), with at least 5 trials using a combination of NSP cadre previously mentioned. The NSPs were selected owing to their involvement with perinatal populations in an existing health care service (11 trials [23.9%]); however, most studies (35 [76.1%]) did not provide a rationale for NSP selection.

Specialists

The primary roles of mental health specialists included acting as a supervisor (16 trials [34.8%]), a trainer in the selected treatment (14 trials [30.4%]), or a research evaluator (12 trials [26.1%]) or providing referrals (4 trials [8.7%]).

Participants

The target population typically included general primary care attendees (31 trials [67.4%]), most of whom were recruited from obstetrical units (n = 21) if specified, primary care attendees who were at high risk (15 trials [32.6%]), or general perinatal populations outside of the hospital (2 trials [4.3%]). Primary care settings included obstetrical, family medicine, or mental health clinics or a ward within a hospital (31 trials [67.4%]), a collection of clinics within a certain area (8 trials [17.4%]), other community health programs (3 trials [6.5%]), general practitioners (2 trials [4.3%]), or an unspecified health-related program (1 trial [2.2%]). Those considered at high risk were identified based on a self-reported risk scale (7 of 15 trials [46.7%]) or by being part of a low-income group (5 trials [33.3%]) or an ethnic minority (3 trials [20%]), having a traumatic birth experience (2 trials [13.3%]), or having a history of mental illness (1 trial [6.7%]).

All studies included adult women between 18 and 45 years of age; however, 9 trials also included adolescent participants,[39-47] some as young as 14 years. Marital status was reported in 34 trials, in which most participants were married (19 trials [55.9%]) but a sizable number were divorced or separated (14 trials [41.2%]). The mean (SD) number of children in reported studies (24 trials) was 1.88 (0.86) children per participant. Most studies did not report important socioeconomic variables, such as educational level (24 trials [52.2%]) or race/ethnicity (19 trials [41.3%]). Among studies that did, most participants had completed some form of secondary education (16 of 25 trials [64.0%]); the majority of the sample was categorized as White (12 of 20 trials [60.0%]) followed by Latinx (4 trials [20.0%]), Black (2 trials [10.0%]), and Asian (2 trials [10.0%]). Of 46 trials, 10 (21.7%) reported involving either the participant's spouse or partner (5 [50.0%]) or her child (5 [50.0%]).

Intervention Content

Most interventions were described as supportive counseling (18 of 46 trials [39.1%]) or as an evidence-based psychological treatment (17 trials [37.0%]), such as CBT (n = 12), IPT (n = 3), or behavioral activation (n = 2) or as some combination of psychoeducation related to maternal mental health and parenting and self-efficacy (10 trials [21.7%]) or stress debriefing (2 trials [4.3%]). The rationale for selecting a particular treatment modality was identified in 26 trials (56.5%) and included being a contextually relevant treatment (7 of 26 trials [26.9%]), maintaining maternal or child health during or after pregnancy (6 trials [23.1%]), providing support (5 trials [19.2%]), using an evidence-based treatment (4 trials [15.4%]), being cost-effective (2 trials [7.7%]), reaching at-risk groups (n = 2), and deploying existing resources (n = 2).

Intervention Setting

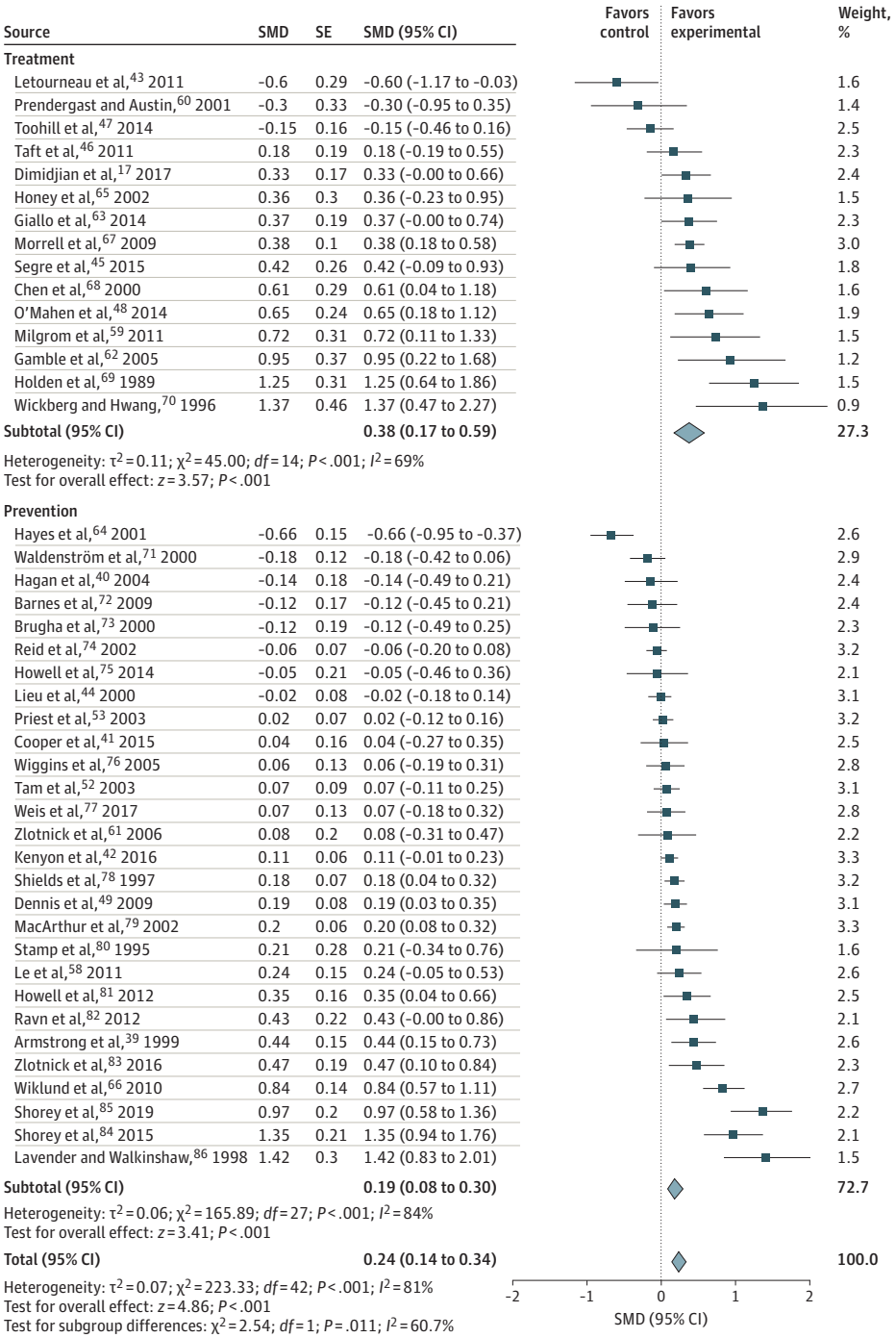
The intervention setting was reported in 38 trials. More than half the trials were conducted within nonmental health primary care settings (20 of 38 trials [52.6%]), including child health or obstetric clinics, general practice, and other locations within the hospital, at home or by telephone (16 trials [42.1%]), online (1 trial [2.6%]), or within (1 trial [2.6%]) the community. In the minority of trials that mentioned why the particular setting was selected (n = 6), patient centeredness and flexibility were listed (4 [66.7%]), followed by feasibility (2 [33.3%]). For those trials that reported barriers in current care (n = 5), they reported an intervention delivered via telephone when it was intended for in-person treatment (1 [20%]), language barriers (1 [20%]), attitudinal barriers such as stigma (1 [20%]), or preference for in-person sessions (2 [40%]). Facilitators (n = 2) included the provision of food for the study participant and peer connection.

Intervention Delivery and Monitoring

Treatment Characteristics

Most treatments were delivered face to face (31 trials [67.4%]), through a combination of face to face and telephone (10 trials [21.7%]), or via telephone only (3 trials [6.5%]). Only 1 study (2.2%) delivered treatment via the internet,[48] and 1 other study (2.2%) delivered treatment via a combination of the internet (email and communication applications) and the telephone.[49] Almost all studies (42 trials [91.3%]) reported whether a group or individual format was used, with most delivering treatment individually (30 of 42 trials [71.4%]) or in group formats (12 trials [28.6%]). Treatments lasted a mean of 11.2 weeks (95% CI, 6.4-16.0 weeks), with a mean of 5.9 (95% CI, 4.9-7.0) intended sessions compared with a mean of 4.8 (95% CI, 3.8-5.8) actual sessions completed; however, this information was only reported by half of the eligible trials (n = 23). In 6 of 23

Figure 2. Effectiveness of Counseling Interventions on Depression, Stratified by Treatment and Prevention



Random-effects models with inverse variance weighting were used. Each square shows the effect size for a single study with the horizontal error bars representing the width of the 95% CI. Each diamond shows the summary effect size, with the diamond width indicating the overall 95% CIs. SMD indicates standardized mean difference.

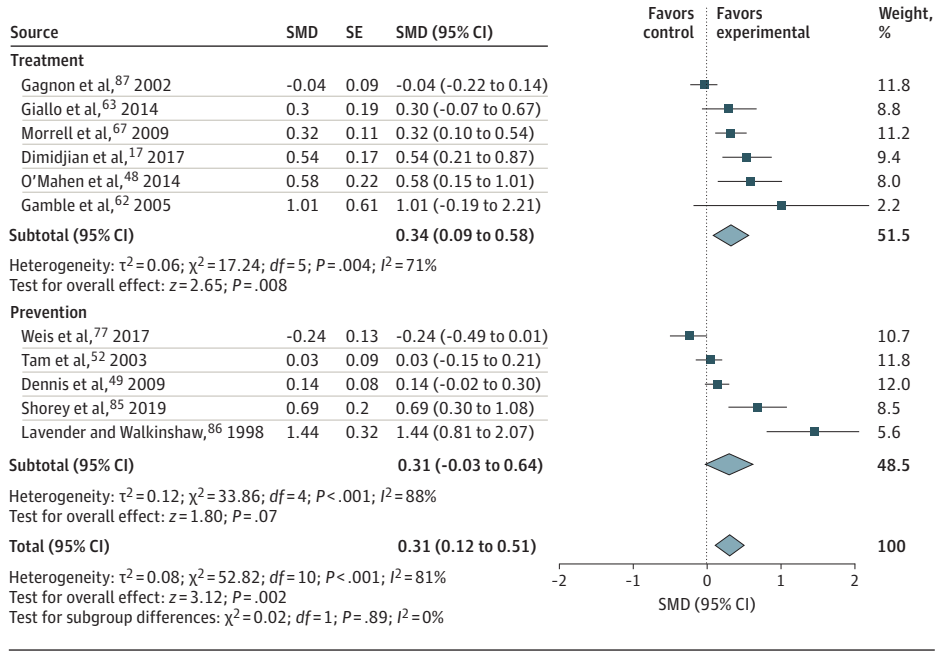
studies (26.1%) reporting treatment dosage, the number of sessions was variable, determined by the NSP and not specified.

Training and Supervision

Training methods were only reported for half of the trials (23 [50%]). Most trials reportedly used didactic practices (12 of 23 [52.2%]) or a mix of didactics and practice approaches (9 [39.1%]). The duration of training was reported in 15 of 46 trials (32.6%). Training typically lasted between 0.5 and 5 days (10 trials [66.7%]), but 3 trials (20%) indicated that training lasted between 1 week and 1 month,[38,43,50] 1 trial (6.7%)[51] reported 3 months' training, and 1 trial (6.7%)[52] conducted training that lasted a year, in which the NSPs received training during a year-long counseling course. Only 8 trials reported an assessment of treatment quality through fidelity ratings, and only 2 trials mentioned a requirement of a competency evaluation.

Supervision methods were reported by only 6 of 46 trials (13.0%). Most of those methods involved observing sessions

Figure 3. Effectiveness of Counseling Interventions on Anxiety, Stratified by Treatment and Prevention



Random-effects models with inverse variance weighting were used. Each square shows the effect size for a single study with the horizontal error bars representing the width of the 95% CI. Each diamond shows the summary effect size, with the diamond width indicating the overall 95% CIs. SMD indicates standardized mean difference.

(3 trials [50%]), listening to audio-recorded sessions (1 trial [16.7%]), or both (1 trial [16.7%]) or providing consultation on an ad hoc basis (1 trial [16.7%]). Only 4 studies reported using a supervision format, including group supervision (1 of 4 [25%]), individual supervision (2 [50%]), or a combination of both (1 [25%]). Supervision frequency was reported in 8 trials and was conducted weekly (5 trials [62.5%]) or biweekly (1 trial [12.5%]) or the frequency varied (2 trials [25.0%]). Supervision was typically provided by a mental health expert, such as a psychiatrist or psychologist. No trials used peer supervision models.

Control groups were described by 44 of 46 (95.6%) trials. Most trials reported using treatment as usual or routine care without specifying what either involved (25 of 44 [56.8%]), treatment as usual with routine home or clinic visits (10 [22.7%]), treatment as usual with provision of community resources and referrals (4 [9.1%]), and treatment as usual with provision of postpartum education (2 [4.5%]). Of 44 trials, 3 (6.8%) reported delivering support to the control group, including peer support (1 [2.3%]),[43] a single debriefing session (1 [2.3%]),[53] and interpersonal therapy by specialists (1 [2.3%]).[37]

Effectiveness of NSP-Delivered Interventions

We included 44 trials in the meta-analysis. The most common outcome assessment tool used for the primary outcome of depression was the Edinburgh Postnatal Depression Scale,[54] which was used in 30 of 44 trials (68.2%); 7 trials (15.9%) included a diagnostic interview. In 11 trials, anxiety was assessed using a self-report measure, such as the State-Trait Anxiety Inventory[55] (4 trials [36.4%]), the Generalized Anxiety Disorder 7-item scale[56] (2 trials [18.2%]), or the Depression Anxiety Stress Scales[57] (3 trials [27.3%]). Compared with controls, counseling interventions were associated with lower depressive symptoms (SMD, 0.24 [95% CI, 0.14-0.34]; 43 trials; I^2 = 81%) and anxiety scores (SMD, 0.30 [95% CI, 0.11-0.50]; 11 trials; I^2 = 80%). However, heterogeneity was high among the trials included in this analysis.

Figure 2 presents the forest plot of the effectiveness analyses for 15 trials[17,32,39,40,42-49,52,53,58-86] that focused on treatment of depression as the primary or secondary outcome. In those trials, the SMD was 0.38 (95% CI, 0.17-0.59; I^2 = 69%). Figure 2 also presents the forest plot of the effectiveness analysis for 28 trials focused on prevention that reported depression as a primary or secondary outcome. For those trials, the SMD was 0.19 (95% CI, 0.08-0.30), favoring the intervention, with the inconsistency measure (I^2 = 81%) suggesting substantial heterogeneity among the trials.

Figure 3[17,48,49,52,62,63,67,77,85-87] presents the effectiveness analyses for 6 trials focusing on treatment of anxiety as the primary or secondary outcome. For those trials, the SMD was 0.34 (95% CI, 0.09-0.58; I^2 = 71%). Figure 3 also presents the effectiveness analyses for 5 trials focusing on prevention that reported anxiety as a primary or secondary outcome. For those trials, the SMD was 0.31 (95% CI, −0.03 to 0.64; I^2 = 88%). The effective sample sizes and mean (SD) values for all studies are given in eTable 3 in the Supplement. Leave-1-out analyses are presented in the eAppendix in the Supplement.

The **Table** provides the SMD, 95% CIs, and high heterogeneity estimates (I^2) for all trials and for subgroup analyses, by condition, treatment vs prevention, evidence-based treatment, sample age, and outcome measure. There were no statistically significant differences when comparing diagnostic vs self-reported outcomes (eFigure 2 in the Supplement); however, there were stronger effect sizes for evidence-based treatments (eg, CBT, IPT, and BA) compared with non-evidence-

Table. Effect Sizes and Heterogeneity Estimates for All 44 Trials and Grouped by Outcome, Intervention Type, Evidence-Based Treatment, Age, and Measurement Type for the Primary Mental Health Outcome With Subgroup Comparisons

Outcome and comparison	Standardized mean difference (95% CI)	I^2, %	Subgroup comparisons		
			χ^2	*P* value	I^2, %
Comparisons of depression vs anxiety by prevention or treatment					
Depression only					
Prevention or treatment (n = 44)	0.24 (0.14 to 0.34)	81			
Anxiety only			0.30	.59	0
Prevention or treatment (n = 11)	0.30 (0.11 to 0.50)	80			
Depression or anxiety					
Treatment only (n = 16)	0.34 (0.14 to 0.55)	74			
Prevention only (n = 28)	0.19 (0.08 to 0.30)	84	1.75	.19	42.9
Depression only					
Treatment only (n = 15)[a]	0.38 (0.17 to 0.59)	69			
Anxiety only			0.16	.69	0
Treatment only (n = 6)[b]	0.32 (0.07 to 0.56)	68			
Depression only					
Prevention only (n = 28)[a]	0.19 (0.08 to 0.30)	84			
Anxiety only			0.41	.52	0
Prevention only (n = 5)[b]	0.31 (−0.03 to 0.64)	88			
Comparisons of evidence-based vs non-evidence-based treatments					
Depression or anxiety/prevention or treatment					
Evidence-based treatment (n = 15)	0.30 (0.08 to 0.52)	82	0.63	.43	0
Non-evidence-based treatment (n = 29)	0.20 (0.10 to 0.30)	80			
Depression treatment only					
Evidence-based treatment (n = 8)	0.43 (0.30 to 0.56)	0	0.32	.57	0
Non-evidence-based treatment (n = 7)	0.29 (−0.18 to 0.75)	82			
Depression prevention only					
Evidence-based treatment (n = 7)	0.20 (−0.23 to 0.63)	92	0.06	.81	0
Non-evidence-based treatment (n = 21)	0.27 (−0.04 to 0.57)	99			
Comparisons of mixed age samples (adolescent and adult) vs adult only samples					
Depression or anxiety/prevention or treatment					
Mixed ages (n = 9)	0.05 (−0.09 to 0.20)	57	6.43	.01	84.4
Adults (n = 35)	0.29 (0.18 to 0.41)	83			
Comparison of diagnostic interviews vs self-report outcome measures					
Depression or anxiety/prevention or treatment					
Diagnostic interview (n = 7)	0.20 (−0.8 to 0.47)	62	0.05	.83	0
Self-report (n = 43)	0.23 (0.13 to 0.32)	81			

[a] Subgroup comparison for depression treatment vs prevention: $\chi^2 = 2.54$, $P = .11$, $I^2 = 60.7\%$.

[b] Subgroup comparison for anxiety treatment vs prevention: $\chi^2 = 0.2$, $P = .89$, $I^2 = 0\%$.

based treatments (eg, supportive counseling). Trials including mixed age samples (both adolescents and adults) showed no treatment benefit for depression, whereas samples of only adults showed significant benefit of treatment for depression (eFigure 3 in the Supplement).

A systematic assessment of risk bias was conducted (eTable 2 and eFigure 1 in the Supplement). We found low risk of bias on randomization and outcome blinding. Although the most commonly used random allocation method was opaque envelopes containing computer-generated random numbers, details related to allocation concealment and masking of participants and personnel were frequently lacking.

Discussion

The present study examined the implementation processes and effectiveness of counseling interventions delivered by NSPs for perinatal depression and for anxiety in HICs. Our results highlight findings relevant to the delivery and scalability of effective NSP-delivered interventions.

First, the present study found an impressive and growing evidence base of 46 RCTs examining NSP-delivered interventions for perinatal populations, highlighting the importance of task sharing in HIC contexts. Since having conducted our

search, there has been at least 1 RCT showing the effectiveness of NSP-delivered counseling interventions in perinatal populations.[88] We highlight that NSPs can be trained to fulfill an important gap in the provision of effective psychological interventions for both depression and anxiety treatments. Consistent with the wider literature,[89] effect sizes were stronger for treatments compared with preventive interventions.

Second, most studies included herein trained nurses and midwives to deliver counseling interventions. These findings are consistent with a recent qualitative study that independently found that nurses and midwives were considered to be the most preferred nonspecialist provider to deliver counseling interventions for perinatal interventions.[90] This reflects the contextual reality of HICs, with nurses and midwives being frontline workers who can provide adequate and effective mental health care to perinatal populations.

Third, we found stronger effect sizes for evidence-based treatments (eg, CBT, IPT, and behavioral activation) compared with non–evidence-based treatments (eg, supportive counseling). This is similar to other analyses that have suggested CBT and IPT are superior to other interventions in both treatment[6] and prevention[91] of perinatal depression and anxiety. Considering our findings that NSPs can effectively deliver manualized evidence-based psychotherapies, such as CBT and IPT,[17,37,38,40,45,48,58-66] these approaches should be advocated for NSPs, just as they are for specialists. Although "supportive" interventions may be simpler for training, further research is needed to expand the evidence base for these approaches.

Fourth, similar to effective NSP-delivered interventions for perinatal populations in low- and middle-income countries,[11] we found that most studies relied on conventional face-to-face methods for intervention delivery, training, and supervision. No trial used peer supervision methods despite their potential to address the bottleneck imposed by relying on expert supervisors.[92] Digital platforms for intervention delivery, the provision of training and supervision, and the demonstration of the reliability and validity of peer supervision all offer potential solutions to facilitate scaling up of quality-ensured interventions. This is particularly relevant during the ongoing coronavirus pandemic in which one of the most important lessons is how much of our daily roles and activities can be moved to digital platforms. To address the burden of perinatal depression and anxiety, it will be essential to offer and assess evidence-based counseling interventions through digital platforms and for RCTs to compare their relative effectiveness with traditional in-person models of delivery and supervision.

Limitations

In addition to the high rates of heterogeneity observed among the included trials, a major limitation of this study is the dearth of relevant indicators related to important implementation processes reported by authors. For example, only half of eligible trials reported treatment dosages and less than 15% of eligible trials reported key processes related to supervision. We recommend that authors of trials systematically report key implementation details (Box), as has been proposed for other public health, behavior change interventions.[93] Our review was limited to samples composed of adults, which included some studies with mixed adult and adolescent populations. We found no observed benefit for studies that included both adolescents and adults compared with adult-only studies. This highlights the need for future reviews of NSP-delivered interventions for adolescents, a highly vulnerable group for perinatal depression and anxiety.

Conclusions

In sum, this study synthesizes a compelling evidence base that suggests that NSPs effectively deliver preventive and treatment interventions to manage perinatal depression and anxiety symptoms in HICs. The potential for such approaches is now widely accepted for mental health care globally[94] and increasingly being advocated for in high-resource contexts.[13] This delivery strategy may address one of the most significant gaps in mental health care (ie, access to evidence-based counseling interventions) to influence perinatal populations worldwide.

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Author Affiliations: Department of Psychiatry, Sinai Health, Toronto, Ontario, Canada (Singla); Department of Psychiatry, University of Toronto, Toronto, Ontario, Canada (Singla); Lunenfeld Tanenbaum Research Institute, Toronto, Ontario, Canada (Singla, Jung, Meng, Ratjen); Women's College Hospital, Canada, Toronto, Ontario, Canada (Lawson); Division of Global Mental Health, Department of Psychiatry and Behavioral Sciences, George Washington University, Washington, DC (Kohrt); Department of Psychology, McGill University, Montreal, Quebec, Canada (Zahedi); Lawrence S. Bloomberg Faculty of Nursing, University of Toronto, Ontario, Canada (Dennis); Li Ka Shing Knowledge Institute, St Michael's Hospital, Ontario, Canada (Dennis); Department of Global Health and Social Medicine, Harvard Medical School, Boston, Massachusetts (Patel); Sangath, Alto Porvorim, Goa, India (Patel).

Author Contributions: Messrs Jung and Meng and Mss Ratjen and Zahedi contributed equally to this work. Drs Singla and Lawson had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.
Concept and design: Singla, Patel.
Acquisition, analysis, or interpretation of data: Singla, Lawson, Kohrt, Jung, Meng, Ratjen, Zahedi, Dennis.
Drafting of the manuscript: Singla, Lawson, Jung, Meng, Ratjen, Zahedi.
Critical revision of the manuscript for important intellectual content: Lawson, Kohrt, Zahedi, Dennis, Patel.
Statistical analysis: Singla, Lawson, Kohrt, Jung, Meng, Zahedi.
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