Archives of Psychiatric Nursing 33 (2019) 290–298

Contents lists available at ScienceDirect

Archives of Psychiatric Nursing

journal homepage: www.elsevier.com/locate/apnu

Group-based interventions for postpartum depression: An integrative review and conceptual model

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ARTICLE INFO

Keywords:
Group therapy
Integrative review
Postpartum depression
Support group
Women's mental health

ABSTRACT

This integrative review explores how and to what extent group-based therapy and social support interventions affect women's recovery from postpartum depression (PPD). Thirteen articles from three databases met inclusion criteria. The studies revealed that a group environment of acceptance and understanding set a foundation for women to share their experiences with PPD. As women shared challenges, wisdom, and guidance within the group, they attained positive outcomes: validation, empowerment, and improvements in depressive symptoms. An integrated conceptual model was created to depict the identified characteristics and outcomes of PPD groups; clinicians can use the model to optimize group-based PPD interventions.

Introduction

The risk for experiencing a major depressive episode is elevated during the postpartum period (Vesga-López et al., 2008), with 9.6% to 19.2% of mothers experiencing a major or minor depressive episode during the first 12 months after childbirth (Banti et al., 2011; Gavin et al., 2005). The deleterious impact of postpartum depression (PPD) on women and children is well documented (e.g., Da Costa, Drista, Rippen, Lowensteyn, & Khalife, 2006; Dubber, Reck, Müller, & Gawlik, 2015; Feldman et al., 2009; Giallo, Woolhouse, Gartland, Hiscock, & Brown, 2015; Grace, Evindar, & Stewart, 2003; Nishioka et al., 2011; Posmontier, 2008; Santos, Matijasevich, Barros, & Barros, 2014; Wisner et al., 2013; Zajicek-Farber, 2009). Compared to non-depressed mothers, women with PPD tend to exhibit poorer bonding with their infants (Dubber et al., 2015) and may engage in fewer infant safety measures, such as taking their infants to well-child healthcare visits (Field, 2010; Zajicek-Farber, 2009). PPD is also associated with an elevated risk for cognitive, affective, and behavioral problems in infancy and early childhood (Giallo et al., 2015; Feldman et al., 2009; Grace et al., 2003; Santos et al., 2014).

Health organizations in the United States (U.S.) recognize PPD as a public health concern (Siu, 2016; U.S. Department of Health and Human Services, 2014). Yet, inadequate detection and poor access to mental healthcare may prevent many women from receiving treatment for PPD (Byatt, Simas, Lundquist, Johnson, & Ziedonis, 2012; Byatt, Xiao, Dinh, & Waring, 2015). Systematic reviews demonstrate the efficacy of pharmacological (Molyneaux, Howard, McGeown, Karia, & Trevillion, 2014) and psychological (Dennis & Hodnett, 2007) interventions for reducing the morbidity of PPD. Moreover, women with current and past histories of PPD report that social support is essential to their recovery and wellbeing (Di Mascio, Kent, Fiander, & Lawrence, 2008; Haga, Lynne, Slinning, & Kraft, 2012), suggesting that group-based interventions may be especially helpful to mothers with PPD.

Group therapy is an acceptable and effective treatment modality for major depressive disorder (MDD) (Feng et al., 2012; Huntley, Araya, & Salisbury, 2012; Okumura & Ichikura, 2014). However, due to the unique hormonal and psychosocial factors associated with the perinatal period, research on MDD may not be directly applicable to women with PPD. For instance, maternal levels of estradiol, progesterone, and cortisol, as well as corticotrophin releasing hormone secreted by the placenta, increase dramatically during pregnancy and decline sharply after birth; these changes may be associated with PPD symptoms during the first several months after birth (Seth, Lewis, & Galbally, 2016; Yim, Tanner Stapleton, Guardino, Hahn-Holbrook, & Dunkel Schetter, 2015). Although there is no consistent evidence that women who develop PPD have more exaggerated hormone fluctuations during the perinatal period, compared to women who do not develop PPD, there is evidence supporting a “hormone-sensitive PPD phenotype” in which some women are more susceptible to affective dysregulation in response to reproductive hormone fluctuations (Schiller, Meltzer-Brody, & Rubinow, 2015, p. 10). Importantly, the birth of a child can lead to marked changes in a woman's daily responsibilities, relationships, and

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https://doi.org/10.1016/j.apnu.2019.01.009
Received 23 May 2018; Received in revised form 5 December 2018; Accepted 24 January 2019

self-concept. There is compelling evidence that elevated stress levels, insufficient social support, and troubled relationships (particularly with her partner or mother) during the postpartum period increase a woman's risk for developing PPD (Yim et al., 2015).

Psychotherapy interventions, including group therapy, are within the scope of practice for psychiatric-mental health advanced practice nurses (PMH-APRNs); further, conducting evidence-based group therapy is an expected competency for PMH-APRNs (American Nurses Association [ANA], 2014). Recent literature has addressed the efficacy of group-based therapies specifically for PPD, and the body of evidence on this topic includes systematic reviews of quantitative (Goodman & Santangelo, 2011) and qualitative studies (Scope, Booth, & Sutcliffe, 2012). Stevenson et al. (2010) conducted two systematic reviews of quantitative and qualitative data on the efficacy of group cognitive-behavioral therapy (CBT) for PPD, depicting relationships among qualitative themes with a flow diagram. The flow diagram provides insight into how PPD groups function and may contribute to positive outcomes for women. However, limitations of Stevenson et al.'s (2010) diagram include that it was based on a modest number ($n = 6$) of articles; included only qualitative information, and not quantitative measures of PPD symptom improvement; and included only PPD groups with a CBT or non-theoretical framework. A model that integrates quantitative and qualitative outcomes, includes more recent evidence, and is constructed from evidence on a diverse sample of group-based PPD interventions could provide a more robust representation of the ways in which PPD groups function and provide help to mothers.

Integrative reviews offer rich, comprehensive perspectives on healthcare phenomena and are therefore uniquely valuable to evidence-based practice (Whittemore & Knafl, 2005). The current review integrates empirical and descriptive literature on group-based interventions, specifically group therapy and social support groups, for women experiencing depression during the first postpartum year. The aim of this review is to explore how and to what extent group-based PPD interventions affect women's recovery from PPD.

The ANA's *Scope and Standards of Practice: Psychiatric-Mental Health Nursing* (2014) recognizes that recovery can imply a process for attaining greater quality of life, or it can imply an outcome of symptom improvement or remission. Similarly, numerous definitions for recovery exist in mental health literature (Rodgers, Norell, Roll, & Dyck, 2007). Authors reporting on women's recovery from PPD do not endorse a single definition. Some use a particular cutoff score on a validated symptom scale (e.g., Sexton et al., 2012), while others conceptualize recovery as an individualized, self-defined process (e.g., Di Mascio et al., 2008). For this review, we have integrated quantitative and qualitative perspectives on recovery. We define recovery from PPD as a process by which women attain greater psychological wellness and functional capacity that is frequently reflected by measurable reductions in depressive symptoms.

Methods

Whittemore and Knafl's (2005) updated integrative review methodology provided the framework for this review. Whittemore and Knafl's (2005) methodology calls for a clear problem statement; rigorous literature search, including experimental and non-experimental studies on the phenomenon of interest; data evaluation and analysis; and data presentation in the form of a synthesis or conceptual model. To integrate our findings on group-based interventions for PPD, we chose to develop a proposed conceptual model.

Problem statement

The purpose of this review is to synthesize research on the usefulness of group-based interventions among women recovering from PPD. To capture quantitative and qualitative aspects of recovery, outcomes considered in this review include: changes in women's depression scores on validated symptom scales, and women's subjective experience of participating in PPD-specific therapy and support groups. An integrated understanding of the ways in which group-based interventions affect women's recovery from PPD may inform the design, provision, and funding of such interventions.

Literature search

In January and February of 2016, a search of the PubMed, CINAHL, and PsycINFO databases yielded potential articles for this review. The following search algorithm was used to obtain articles from each of the three databases: postpartum AND depression AND ("group therapy" OR "support group"). To obtain current information on women's experience in PPD groups, we limited the search to studies published within the past 10 years (i.e., 2006–2016). Consistent with other integrative reviews on postpartum mood disorders (Edward, Castle, Mills, Davis, & Casey, 2015; Reid & Meadows-Oliver, 2007), we limited the search to published, peer-reviewed articles written in English.

Studies were eligible for inclusion if they investigated the efficacy of group therapy or social support interventions for women with PPD, or explored women's subjective experience of participating in these groups; included women who had been diagnosed with PPD or reported significant depressive symptoms after childbirth; and, for quantitative studies, measured women's depressive symptoms pre and post-intervention using validated symptom scales. Due to probable differences between in-person and web-based groups, we only included research pertaining to in-person group interventions. Similarly, we included studies with groups that were designed for postpartum women, and we excluded studies with groups that focused on mother-infant dyads. To promote consistency with other reviews on PPD (e.g., Dennis & Hodnett, 2007; Reid & Meadows-Oliver, 2007; Stevenson et al., 2010), we defined PPD as depression occurring in the first postpartum year. Thus, we excluded studies pertaining to depression in pregnancy or after the first 12 months postpartum. We also excluded articles that studied women with mental illnesses other than PPD.

The initial database search yielded over 400 articles. We retrieved three additional articles through cross-referencing and purposive sampling. After removing duplicate publications and applying inclusion and exclusion criteria to the titles and abstracts, 22 relevant articles remained. We read these articles in full to assess their appropriateness for the current review. In November of 2017, we replicated the initial database search using the same search procedure and did not find any additional reports that met the inclusion criteria for this review. We again replicated the initial database search in November–December 2018, and we found one additional article (Hall & Grundy, 2014) that met the initial inclusion criteria.

Data evaluation

After evaluating each of the initial 22 articles, we eliminated three studies with interventions that did not fall under the categories of group therapy or social support groups, including a maternal yoga group (Field et al. 2013), an infant massage group (O'Higgins et al. 2008), and a home-based peer support program (Letourneau et al. 2011). One quantitative study did not report women's depression outcomes (Van Puyvelde et al. 2014), and another study focused solely on the cost-effectiveness of group cognitive behavioral therapy for PPD (Stevenson, Scope, and Sutcliffe, 2010). We eliminated one article (Reay et al. 2012) that focused on describing the development of a PPD group, which the authors had implemented in another study (i.e., Mulcahy, Reay, Wilkinson, & Owen, 2010). We eliminated one qualitative study (Goldvarg & Kissen, 2011) in which the authors did not describe their data collection procedure. Finally, we eliminated one study that included mothers with mental illnesses other than PPD (de Camps Meschino et al. 2015), and two studies that included mothers beyond 12 months postpartum (Clark et al. 2008; Smith et al. 2010). Some

Table 1
Characteristics of the final literature sample.

Reference and year	Study design	Sample Size	Population	Intervention	Depression measurement tool(s)
Anderson (2013)	Descriptive, phenomenological	27	Ages 18 +	Social support group for PPD	Semi-structured interviews
Cuijpers et al. (2008)	Meta-analysis	17 studies $n = 9$ to $n = 88$	Not addressed	Various group and individual therapy interventions for PPD	BDI; EPDS
Goodman and Santangelo (2011)	Systematic review of quantitative research	11 studies $n = 14$ to $n = 192$	The studies that reported were generally homogenous: white, educated, partnered	Various group therapy interventions for PPD	BDI; EPDS
Griffiths and Barker-Collo (2008)	Quasi-experimental, pretest/posttest study	45	22–40 y/o, 86/7% W, 3 Maori, 1 Asian, 1 Tongan, 1 Indian	CBT group for PPD	EPDS
Hall and Grundy (2014)	Retrospective, non-controlled pretest/posttest study	50	19–42 y/o, 57% first-time mothers, in Bury, United Kingdom	CBT-based group with peer support and social support elements for PPD	PHQ-9
Kurzweil (2008)	Retrospective cohort study	31	Not addressed	Relational-developmental therapy group for PPD	Exit questionnaire, developed by the authors; GAF from DSM-IV-TR
Montgomery et al. (2012)	Descriptive, focused ethnography	7	18–30 y/o, all partnered; self-reported range of socioeconomic statuses (no details)	Social support group for PPD	Transcribed group therapy sessions Semi-structured interviews with 3 group members
Mulcahy et al. (2010)	RCT	50	86% born in Australia, 98% partnered, 70% university educated, mean age 32 y/o (23–37 y/o)	IPT group for PPD	BDI; EPDS
Mureşan-Madar and Băban (2015)	RCT	60		CBT group for PPD	BDI; EPDS
Pessagno and Hunker (2013)	Quasi-experimental, time series study design	16	20–38 y/o, all W, only 1 single, 86% college educated	IPT group for PPD	EPDS
Scope et al. (2012)	Systematic review of qualitative research	6 studies $n = 5$ to $n = 34$	Not addressed	CBT and other, unspecified therapy groups for PPD	Observation; In-depth interviews; Unstructured interviews; Surveys; Open-ended questionnaires
Scope et al. (2013)	Systematic review and meta-analysis	7 studies $n = 20$ to $n = 230$	Not addressed	CBT groups for PPD	BDI; EPDS
Stevenson et al. (2010)	Systematic review of quantitative research; systematic review of qualitative research	6 studies (quantitative) n = 20 to n = 230 2 studies (qualitative) n = 8 and n = 34	Studies that reported were mostly white and educated	Quantitative: CBT, psychoeducation groups, multicomponent interventions utilizing CBT principles Qualitative: CBT, social support group utilizing CBT principles	Quantitative: EPDS, BDI Qualitative: None specified

Abbreviations: BDI, Beck Depression Inventory; CBT, cognitive behavioral therapy; EPDS, Edinburgh Postnatal Depression Scale; PHQ-9, Patient Health Questionnaire; PPD, postpartum depression; RCT, randomized controlled trial.

articles failed to provide clear information about mothers' proximity to childbirth (e.g., Kurzweil, 2008). Thus, although we eliminated studies with mothers beyond the first postpartum year, we included studies that did not specifically state this information. After obtaining the additional article in 2018, we incorporated the results into our existing review. Ultimately, 13 studies were eligible for inclusion in the integrative review. Characteristics of the final literature sample are shown in Table 1.

Data analysis

Consistent with Whittemore and Knafl's (2005) methodology, we analyzed source data using the following processes: data reduction, data display, data comparison, conclusion drawing, and verification. We first divided sources into qualitative ($n = 4$) and quantitative ($n = 10$) subgroups. Stevenson et al.'s (2010) article was included as source data in our integrative review; since their article contained two separate systematic reviews (i.e., one quantitative and one qualitative), we included this report in both our quantitative and qualitative subgroups. In the qualitative subgroup, we reduced data by constantly comparing reports' major themes to find recurring concepts and patterns. In the quantitative subgroup, we organized findings by outcome measure and then looked for themes and patterns in the outcomes. Three quantitative reports (Griffiths & Barker-Collo, 2008; Hall & Grundy, 2014; Pessagno & Hunker, 2013) also included some participant feedback related to the experience of engaging in PPD groups. We likewise noted themes in this data.

We then integrated the qualitative and quantitative subgroups and applied constant comparison to the merged table. As patterns emerged, we sorted the major findings into categories and began searching for relationships between categories. As we identified relationships, we began to construct a visualization of the integrated findings. Both authors participated in collaborative, critical analysis to make determinations on final categories and relationships. We continuously compared our conclusions with primary source data to assure accuracy.

Results

Characteristics of the literature sample

Study designs

A defining characteristic of integrative reviews is their inclusion of diverse types of empirical and theoretical literature, which collectively provide an integrated perspective on a single phenomenon (Whittemore & Knafl, 2005). The articles included in this review comprise quantitative and qualitative research on group-based interventions for PPD. Study designs ranged from individual descriptive studies (Anderson, 2013; Montgomery, Mossey, Adams, & Bailey, 2012) to meta-analyses (Cuijpers, Brännmark, & van Straten, 2008; Scope et al., 2013).

Theoretical orientations

Although we did not restrict our literature search to studies of any particular theoretical orientation, over half of the articles ($n = 8$; 57.1%) described PPD groups that were based upon CBT principles. Groups' fidelity to traditional CBT methodology, such as that outlined by Beck and Dozois (2011), varied. Whereas some groups adhered to a structured CBT protocol (e.g., Griffiths & Barker-Collo, 2008), others employed less structured approaches with elements of CBT (e.g., Hall & Grundy, 2014; Stevenson et al., 2010). The remaining six studies reported outcomes from interpersonal therapy (IPT) groups, social support groups, and other eclectic therapy or support groups for women with PPD.

Measurement tools

Eight (80.0%) quantitative studies measured women's PPD symptoms using the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987), the Beck Depression Inventory (BDI, BDI-II; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Beck, Steer, & Brown, 1996), or both. One quantitative study (Hall & Grundy, 2014) used the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) to measure women's depressive symptoms pre and post-intervention. One retrospective study (Kurzweil, 2008) used the Global Assessment of Functioning (GAF) from the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2000) to quantify women's depression severity pre and post-intervention. Although the GAF is not specific to depression, it is a validated scale for quantifying the severity of psychiatric illness (Hilsenroth et al., 2000). Several of the quantitative studies used additional scales to measure non-depression outcomes, including maternal attachment (Mulcahy et al., 2010) and anxiety (Griffiths & Barker-Collo, 2008; Hall & Grundy, 2014). In this integrative review, we only considered depression outcomes.

Qualitative studies employed various methods for obtaining data about mothers' experience in group-based PPD interventions, including interviews, questionnaires, and transcriptions of group sessions. Systematic reviews of qualitative research (Scope et al., 2012; Stevenson et al., 2010) included studies with diverse data collection methods, and one source (Montgomery et al., 2012) used both interview and transcribed session data to identify themes.

Themes related to women's experience in PPD groups

In synthesizing the data, we found that three major themes (i.e., domains) related to women's experience in group-based PPD interventions emerged: group environment, sharing, and outcomes. Relationships within and among the domains created a framework for our conceptual model depicting the impact of group-based interventions on women's recovery from PPD (Fig. 1). It is important to note that the major concepts (i.e., domains) were identified as themes in many of the studies; relationships among the concepts were seldom tested in the literature. We endeavored to discern links among the major concepts identified in our review, and these links are depicted in our proposed conceptual model.

Domain 1: group environment: not alone anymore

The first major theme that emerged from the data pertained to the therapeutic environment of PPD groups. While therapeutic environment is arguably an important component of any successful psychological intervention, there were two aspects of the environment of PPD groups that emerged as unique to the population and care modality.

Moms who understand was a crucial aspect of the PPD group environment. The value of interacting with other women experiencing PPD was a notable topic that emerged in two of the three qualitative studies (Anderson, 2013; Montgomery et al., 2012) and in three quantitative studies (Griffiths & Barker-Collo, 2008; Hall & Grundy, 2014; Pessagno & Hunker, 2013). Women expressed the belief that only those who have personally experienced PPD can comprehend the emotional anguish it causes to mothers (Montgomery et al., 2012). Participants in group-based PPD interventions felt that receiving support from other women with PPD was a very important function of the group (Anderson, 2013), with some women reporting that interacting with similar others was the most helpful aspect of their group experience (Griffiths & Barker-Collo, 2008; Hall & Grundy, 2014). Ultimately, women valued the decreased sense of loneliness and isolation they felt in the presence of others who understood PPD (Montgomery et al., 2012; Scope et al., 2012).

Notably, Anderson's (2013) phenomenological study reported that women participating in non-specific mothers' groups (i.e., local mothers' groups, working mothers' groups) hesitated to disclose their struggle with PPD to other participants. The author concluded that non-specific groups may silence the voices of women with PPD (Anderson, 2013). In contrast, interacting with similar others promoted a positive

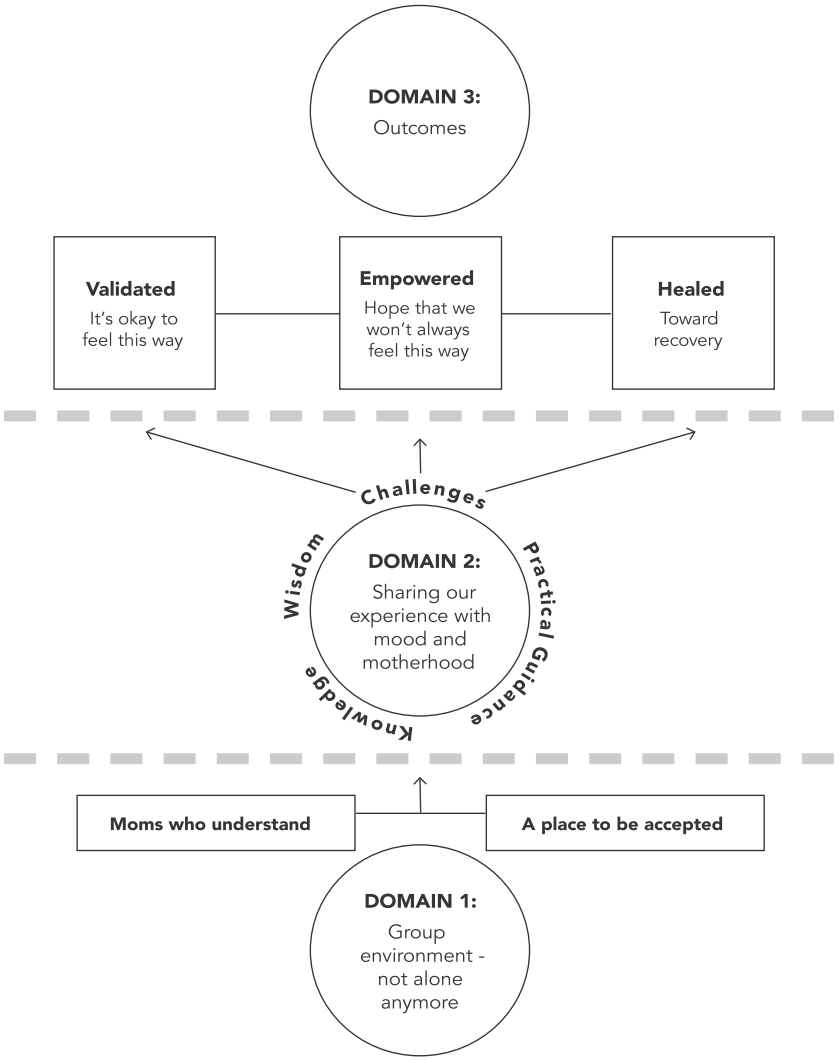

Fig. 1. Conceptual model depicting the process and outcomes of group-based interventions for PPD.

group atmosphere (Pessagno & Hunker, 2013).

A place to be accepted was another noteworthy component of the group environment theme. Safety (Pessagno & Hunker, 2013; Scope et al., 2012; Stevenson et al., 2010), authenticity (Montgomery et al., 2012; Pessagno & Hunker, 2013; Stevenson et al., 2010), and non-judgmental attitudes (Hall & Grundy, 2014; Pessagno & Hunker, 2013; Scope et al., 2012) emerged as elements of a therapeutic atmosphere in PPD groups. Being among other women experiencing PPD fostered a sense of safety in participants (Pessagno & Hunker, 2013), who found PPD groups to be safe spaces for sharing feelings and seeking support (Montgomery et al., 2012; Scope et al., 2012). Women in PPD groups expressed an ability to be real, authentic, and honest with one another (Montgomery et al., 2012; Pessagno & Hunker, 2013; Stevenson et al., 2010). In contrast, women did not perceive non-specific mothers' groups to provide a safe atmosphere for openly sharing PPD-related issues (Anderson, 2013). Some women attributed their perception of safety in PPD groups to members' non-judgmental attitudes (Pessagno & Hunker, 2013), suggesting that members' common experience promoted a unique sense of security and understanding.

Domain 2: sharing our experience with mood and motherhood

Our analysis suggests that the PPD group environment sets a foundation for the main work of the group: sharing challenges, knowledge, practical guidance, and wisdom. Sharing struggles with other group members was an important theme in Montgomery et al.'s (2012) focused ethnographic study; participants felt that expressing the challenges of living with PPD lessened the burden of their illness and helped them progress toward recovery. In other qualitative studies, the ability to share feelings and challenges with group members was closely tied to the perception of a safe group environment (Pessagno & Hunker, 2013; Scope et al., 2012). Safety may therefore be a prerequisite for effective sharing in group-based PPD interventions.

Mothers participating in non-theoretical PPD support groups (Anderson, 2013; Montgomery et al., 2012) and CBT-based groups (Hall & Grundy, 2014; Stevenson et al., 2010) benefited from sharing knowledge about PPD and practical guidance for coping with symptoms. Anderson (2013) reported that women presented to PPD groups seeking information about the illness; Scope et al.'s (2012) systematic review reported that PPD groups can increase women's knowledge about PPD and its symptoms. Group participants and facilitators shared guidance related to living with PPD, addressing topics such as nutrition, sleep, boundary setting, and self-care (Montgomery et al., 2012; Stevenson et al., 2010). Montgomery et al. (2012) encapsulated the sharing of knowledge and practical guidance into one theme: mothering wisdom. The wisdom that mothers shared while participating in the group fostered a collective sense of capability and empowerment (Montgomery et al., 2012).

Domain 3: outcomes: validated, empowered, and healed

The final theme that emerged from the data was that PPD groups

may promote recovery from depression. Conceptualizing recovery as a process, we identified several components of recovery that may be significant for mothers with PPD: normalization (*validated*), hope (*empowered*), and symptom improvement (*healed*).

Validated: it's okay to feel this way. Five articles highlighted normalization as a valuable outcome among women who participated in group-based PPD interventions (Anderson, 2013; Griffiths & Barker-Collo, 2008; Montgomery et al., 2012; Scope et al., 2012; Stevenson et al., 2010). Women presenting to PPD groups wanted to find that their symptoms were not singular or bad, and they sought this validation from other mothers in the group (Anderson, 2013). Participants in diverse types of groups, including support groups (Anderson, 2013; Montgomery et al., 2012) and CBT groups (Griffiths & Barker-Collo, 2008; Scope et al., 2012), reported that being part of a PPD group helped to normalize their experience with the illness.

Social comparison, a prominent dynamic in PPD groups (Scope et al., 2012; Stevenson et al., 2010), emerged as a strong facilitator of normalization among mothers with PPD. Comparing thoughts, feelings, and symptoms with similar others, including participants at different points in the recovery journey, allowed women to normalize their PPD experience and to feel hopeful about recovery (Scope et al., 2012; Stevenson et al., 2010; Montgomery et al., 2012). Other factors promoting a sense of normalcy included sharing PPD-related emotions and challenges within the group (Montgomery et al., 2012) and meeting other women and partners who were coping with PPD (Griffiths & Barker-Collo, 2008). In these studies, normalization was considered to be a positive outcome that helped women progress in their recovery.

Empowered: hope that we won't always feel this way. Similarly, qualitative research emphasized hope as a positive outcome among women participating in diverse types of PPD groups (Montgomery et al., 2012; Scope et al., 2012). Sharing personal experiences, advice, and wisdom related to living with PPD imbued participants with hope, both for recovery from the illness and for being effective mothers despite having depression (Montgomery et al., 2012). Associating with similar others and witnessing other women's recovery from PPD inspired women with hope for overcoming depression and "regain[ing] control of their lives again" (Scope et al., 2012, p. 1914). Although Kurzweil (2008) did not specifically mention hope as an outcome of his PPD therapy group, results from the group's Exit Questionnaire revealed that 83% of women had an improved "outlook on life" (p. 26) at the time of group termination. Sharing the experience of PPD with other women in group-based PPD interventions may foster a sense of hope or optimism, facilitating a more positive outlook on life and motherhood.

Healed: toward recovery. All 10 of the quantitative reports measured changes in depressive symptoms using validated symptom scales. Within the quantitative subset, there were six primary sources (Griffiths & Barker-Collo, 2008; Hall & Grundy, 2014; Kurzweil, 2008; Mulcahy et al., 2010; Mureşan-Madar & Băban, 2015; Pessagno & Hunker, 2013), three systematic reviews of quantitative studies (Goodman & Santangelo, 2011; Scope et al., 2013; Stevenson et al., 2010), and one meta-analysis (Cuijpers et al., 2008). In five of the primary reports, women who participated in group-based PPD interventions demonstrated statistically significant reductions in EPDS and BDI scores or statistically significant improvements in GAF scores from baseline to post-intervention. Two articles (Griffiths & Barker-Collo, 2008; Mulcahy et al., 2010) specifically reported that the majority of participants no longer met EPDS or BDI criteria for depression after engaging in PPD group treatment. One primary report (Hall & Grundy, 2014) found that participants' mean PHQ-9 score decreased from 15.4 at pre-intervention to 10.8 at post-intervention, which indicates a reduction from moderately severe depression to moderate depression (Kroenke et al., 2001); the authors did not assess the statistical significance of this change. All three systematic reviews concluded that PPD groups, including CBT groups (Scope et al., 2013; Stevenson et al., 2010) and other diverse therapy or support groups (Goodman & Santangelo, 2011), were associated with clinically significant improvements in women's depressive symptoms. Importantly, studies that included a comparison arm (i.e., usual care or wait-list control) found PPD groups to be superior (Mulcahy et al., 2010; Mureşan-Madar & Băban, 2015; Pessagno & Hunker, 2013; Scope et al., 2013; Stevenson et al., 2010).

There was heterogeneity within the literature sample concerning the timing of women's recovery from PPD. Some investigators noted a significant reduction in women's depressive symptoms after three weeks of group participation (Mureşan-Madar & Băban, 2015), while others found no significant improvements until termination of their eight-week IPT group (Mulcahy et al., 2010). Moreover, some group participants experienced continued, significant improvements in depressive symptoms at three months (Mulcahy et al., 2010) and six months (Pessagno & Hunker, 2013) post-intervention, while Scope et al.'s (2013) meta-analysis reported that treatment effects remained significant but decreased over time. Our finding of heterogeneity comports with Stevenson et al.'s (2010) quantitative systematic review, which concluded, "[t]he reduction in depression scores was not consistent across time" (p. 35).

Comparisons among different types of PPD groups found no clear advantage to any particular theoretical orientation in terms of efficacy or patient preference (Goodman & Santangelo, 2011; Stevenson et al., 2010). However, quantitative studies that compared group-based PPD interventions to individual therapy modalities reported mixed results. In Cuijpers et al.'s (2008) meta-analysis on psychological treatments for PPD, they included intervention format (i.e., group versus individual) as a subgroup analysis: Psychological interventions were moderately effective in reducing women's depression scores, with no significant differences between the two formats (Cuijpers et al., 2008). Two systematic reviews contained sources that also compared group-based PPD interventions with individual therapy interventions. Contrary to Cuijpers et al. (2008), these reviewers noted that individual therapy might be superior to PPD groups in efficacy (Goodman & Santangelo, 2011; Stevenson et al., 2010) and patient preference (Stevenson et al., 2010).

Minor themes

Two minor themes emerged in our review of the literature sample. These themes were not robust enough to include in our conceptual model. Nevertheless, they offer further insight into women's experience in PPD groups:

Importance of partner involvement was noted in three studies (Griffiths & Barker-Collo, 2008; Scope et al., 2013; Stevenson et al., 2010). These articles reported that women in PPD groups found it valuable to include their partners in the group experience, such as by inviting them to a designated partners' session. Participants felt it was "normalizing" to meet other couples whose lives were impacted by PPD (Griffiths & Barker-Collo, 2008, p. 39). As a means of continued social support, some women and their partners continued to meet with one another on an informal basis following group termination (Griffiths & Barker-Collo, 2008). A designated partners' session was part of the group format employed in Hall and Grundy's (2014) PPD group, but the authors did not report outcomes associated with this component of the group experience.

Potential for negative outcomes emerged in two systematic reviews of qualitative research (Scope et al., 2012; Stevenson et al., 2010), which reported that some participants experienced adverse effects while participating in group-based PPD interventions. Negative outcomes included worsening depression; unhelpful social comparison; and, in CBT groups, difficulty practicing CBT skills in daily life.

Discussion

This integrative review contributes to the extant literature on PPD by proposing a holistic conceptual model (Fig. 1) to describe how

group-based PPD interventions may aid women in their recovery. The three major themes that emerged in our review were group environment, sharing, and outcomes. Qualitative and quantitative reports support the idea that group-based PPD interventions create an environment in which mothers with PPD do not feel alone anymore. This safe, supportive environment facilitates an exchange of information and support among women participating in the group. As women share their experiences with PPD and receive support and knowledge from other mothers, they may experience positive therapeutic outcomes: validation that their PPD symptoms are not singular or bad; empowerment for coping with PPD symptoms; and healing, which is defined in this review as a process by which women attain greater psychological wellness and functional capacity that is frequently reflected by measurable reductions in depressive symptoms.

Similar to Stevenson et al.'s (2010) flow diagram, our findings highlight the roles of the group environment, sharing of practical guidance and knowledge, and other interpersonal factors (e.g., social comparison) as they pertain to women's experience in PPD groups. Our conceptual model is unique from Stevenson et al.'s diagram in that it explicitly highlights the potential, positive outcomes gained through participation in group-based PPD interventions. Within the outcomes domain, *Healed* represents data that show clinically or statistically significant improvement in depressive symptoms among women who have participated in PPD groups. Each of the domains in our conceptual model is thoroughly explicated, and we propose an explanation for how the various factors build upon and interact with one another to produce beneficial outcomes.

Implications for patient care

This integrative review has several implications for mental health clinicians, including PMH-APNs and other therapy providers (e.g., counselors, clinical social workers, clinical psychologists). First, this review affirms the idea that loneliness and isolation may be central to the experience of PPD and that group-based interventions, which offer access to similar others in a structured therapeutic context, may support women with PPD. Next, the conceptual model we developed may assist group facilitators in cultivating an environment that is most supportive to recovery in PPD groups. In addition to ensuring that group-based interventions provide a space of shared acceptance and mutuality among group members, facilitators may find it useful to explicitly identify these factors early in the group experience to promote members' sense of belonging. Further, the findings and conceptual model support the notion of designing group-based interventions specifically for mothers with PPD, and possibly even utilizing facilitators who have experienced PPD, in order to optimize women's sense of belonging and acceptance.

Designing effective interventions for mothers with PPD could have beneficial implications not only for the women participating, but also for their infants. Maternal depression has been associated with negative cognitive and emotional outcomes among infants and young children. For example, some evidence indicates a negative association between maternal PPD and infants' neurocognitive development at 18 months of age, evidenced by lower scores on measures of language development, IQ, and fine motor skills (Grace et al., 2003; Koutra et al., 2013). The identified cognitive effects seemed to be more prominent among male children and may last up to five years of age (Grace et al., 2003). Additionally, infants of depressed mothers have been found to exhibit difficulties with emotion regulation at nine months of age, evidenced by behaviors indicative of social withdrawal (e.g., gaze aversion); lower maternal-child synchrony in gaze and touch, compared to infants of non-depressed mothers; and less successful attempts at self-regulating emotions in anger-eliciting situations, even when the mother was present (Granat, Gadassi, Gilboa-Schechtman, & Feldman, 2017). Nine-month-old infants of mothers with depression may display overall lower levels of social engagement, more negative affect (i.e., crying, fussiness), and greater difficulty self-regulating distressing emotions (Feldman et al., 2009). A meta-analysis on maternal depression and child psychopathology concluded that maternal depression is significantly associated with negative affect, more internalizing and externalizing behaviors, and general psychopathology in children (Goodman et al., 2011).

It is generally assumed that maternal postpartum depressive symptoms can impact maternal-infant bonding (Dubber et al., 2015), and depressed mothers' behavior toward their infants may contribute to the social and emotional effects seen in infancy (Granat et al., 2017). Promptly identifying maternal PPD and helping women access effective forms of treatment, such as group-based interventions, could potentially attenuate PPD's adverse impact on infant mental health. Based upon the results of this review, it seems likely that the exchange of knowledge and support that occurs in PPD groups may help women feel more empowered in their maternal role, possibly contributing to improved mother-infant interactions. However, to our knowledge, the particular impact of group-based PPD interventions on infant and child mental health has yet to be established.

Implications for future research

There is a growing body of evidence suggesting that group-based interventions may be useful for women with PPD. Controlled studies aiming to discern characteristics of women who are most likely to benefit from PPD groups, as opposed to individual therapy or other treatment modalities, would be useful for clinicians making treatment decisions. Studies aiming to determine the relative efficacy of treatment strategies (e.g., group-based, pharmacological, or individual therapy) for PPD are essential. Likewise, continued research is needed to identify the optimal characteristics of efficacious PPD groups, including theoretical orientation, number of participants, length and duration of sessions, extent of partner involvement, and extent of infant involvement in the group experience. Using controlled study designs to determine best or first-line treatment strategies for patient-centered PPD care, including the specific role of group-based interventions, should be an international research priority given the potential deleterious outcomes associated with untreated PPD.

Strengths and limitations

To our knowledge, this review is among the first to integrate and synthesize reports with diverse methodologies about group-based interventions for PPD. We are proposing a user-friendly, thoroughly explicated conceptual model to describe treatment characteristics and outcomes of group-based interventions for PPD.

The evidence reviewed had several limitations. Few randomized controlled trials or other controlled studies were found. Sample sizes in reviewed studies were relatively small. Group-based interventions were rarely tested against or in combination with other treatments, pharmacological or non-pharmacological, for PPD. Differing group-based approaches were rarely tested against one another. Publication bias likely existed and contributed to the overwhelmingly positive results observed in the reports reviewed. Demographics of support group participants were rarely reported, and when they were, patients were predominantly white, college educated, and partnered. We did not find any studies that sought to characterize how race, cultural background, education, partnership status, or other demographic variables affected willingness to participate in group-based interventions, and no studies that examined how these factors influenced a woman's group experience. Strengths of the reviewed evidence include five meta-analyses or systematic reviews and the consistent use across most quantitative studies of the same PPD scale: the EPDS.

Conclusion

PPD is a prevalent illness associated with significant morbidity for women and children. The aim of this integrative review was to synthesize quantitative and qualitative research on group-based interventions for PPD, in order to describe how and to what extent group interventions affect women's recovery. We proposed a conceptual model that depicts PPD groups' impact as three interrelated themes: group environment, sharing, and outcomes. To our knowledge, this is one of the first reviews to integrate empirical and descriptive literature about PPD groups of diverse theoretical orientations, and the conceptual model may assist mental health clinicians in designing and understanding the potential benefits of group-based PPD interventions.

Compliance with ethical standards

The authors have no conflicts of interest to disclose.

This work did not involve Human Participants and/or Animals. Informed consent was not applicable.

Funding sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Acknowledgment

The authors have no acknowledgements.

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